ANNAMACHARYA INSTITUTE OF TECHNOLOGY & SCIENCES:: RAJAMPET

(AN AUTONOMOUS INSTITUTION)

www.aitsrajampet.ac.in



DEPARTMENT OF INFORMATION TECHNOLOGY

ACADEMIC REGULATIONS (R15)

AND

COURSE STRUCTURE & SYLLABI

For the students admitted to B. Tech., Regular Four Year Degree Programme in CBCS from the Academic Year 2015-16

and

B. Tech., Lateral Entry Scheme from the Academic Year 2016-17



B. TECH., INFORMATION TECHNOLOGY

ANNAMACHARYA INSTITUTE OF TECHNOLOGY AND SCIENCES :: RAJAMPET (AUTONOMOUS)

VISION

We impart futuristic technical education and install high patterns of discipline through our dedicated staff who set global standards, making our students technologically superior and ethically strong, who in turn shall improve the quality of life of the human race.

MISSION

Our mission is to educate students from the local and rural areas, and from other states so that they become enlightened individuals, improving the living standards of their families, industry and society. we provide individual attention, world-class quality of Technical education and take care of character building.

DEPARTMENT OF INFORMATION TECHNOLOGY

VISION

To impart carrier oriented and future assured IT education mingle with high levels of discipline and dedication, so that the students maintain global standards and nurture to strengthen the society and get eternal success in their endeavor.

MISSION

Our mission is to bring the students from all the geographic regions around the globe under one umbrella to energize them through IT education so as to enable them to meet all the problems faced by the society & human being and enhance their living standards to work for the creation of a vibrant society.

ANNAMACHARYA INSTITUTE OF TECHNOLOGY AND SCIENCES :: RAJAMPET (AUTONOMOUS)

DEPARTMENT OF INFORMATION TECHNOLOGY

PROGRAM EDUCATIONAL OBJECTIVES

- 1. Graduates of the IT Program will be prepared to gain employment as an IT Professional
- 2. Graduates of the IT Program will function effectively as individuals and team members in the work place, growing into highly technical or project management and leadership rules.
- 3. Graduates of the IT Program will pursue life-long learning and obtain the tools to successfully identify and adopt to ever-changing technologies.

PROGRAM OUTCOMES

- a. An ability to apply knowledge of mathematics, science, and engineering.
- b. An ability to design and conduct experiments, as well as to analyze and interpret data.
- c. An ability to design a system, component, or process to meet desired needs within realistic constraints such as economic, environmental, social, political, ethical, health and safety, manufacturability, and sustainability.
- d. An ability to function on multidisciplinary teams.
- e. An ability to identify, formulates, and solves engineering problems.
- f. An understanding of professional and ethical responsibility.
- g. An ability to communicate effectively.
- h. The broad education necessary to understand the impact of engineering solutions in a global, economic, environmental, and societal context.
- i. A recognition of the need for, and an ability to engage in life-long learning.
- j. A knowledge of contemporary issues.
- k. An ability to use the techniques, skills, and modern engineering tools necessary for engineering practice.
- 1. An ability to use and apply current technical concepts and practices in the core of Information Technologies.
- m. An ability to effectively integrate IT-based solutions into the user environment.

ACADEMIC REGULATIONS

B. Tech., Four Year Degree Programme with CBCS (For the batches admitted from the academic year 2015-16)

and

B. Tech., Lateral Entry Scheme

(For the batches admitted from the academic year 2016-17)

The following rules and regulations will be applicable for the batches of Four year B. Tech. degree admitted from the academic year 2015-16 onwards.

1. ADMISSION:

1.1 Admission into First year of Four year B. Tech. Degree programme of study in Engineering:

As per the existing stipulations of Andhra Pradesh State Council of Higher Education (APSCHE), Government of Andhra Pradesh, admissions are made into the first year of four year B. Tech. Degree programme as per the following pattern.

- a) Category-A seats will be filled by the Convener, AP-EAMCET.
- b) Category-B seats will be filled by the Management as per the norms stipulated by Govt. of Andhra Pradesh.

1.2 Admission into the Second Year of Four year B. Tech. Degree programme (lateral entry).

As per the existing stipulations of Andhra Pradesh State Council of Higher Education (APSCHE), Government of Andhra Pradesh. Seats will be filled by the Convener, AP-ECET.

2. PROGRAMMES OF STUDY OFFERED BY AITS LEADING TO THE AWARD OF B. TECH DEGREE:

Following are the four year Under Graduate Degree Programmes of study offered in various disciplines at Annamacharya Institute of Technology and Sciences, Rajampet leading to the award of B. Tech. (Bachelor of Technology) Degree:

- 1. B. Tech. (Computer Science and Engineering)
- 2. B. Tech. (Electrical and Electronics Engineering)
- **3.** B. Tech. (Electronics and Communication Engineering)
- 4. B. Tech. (Information Technology)
- 5. B. Tech. (Mechanical Engineering)
- 6. B. Tech. (Civil Engineering)

and any other programme as approved by the concerned authorities from time to time.

3. ACADEMIC YEAR:

The entire course of study is of four academic years and each year will have **TWO** Semesters (Total **EIGHT** Semesters). The minimum instruction days for each semester shall be 90.

4. COURSE STRUCTURE:

Each programme of study shall consist of:

4.1 General Courses comprising of the following: (5 to 10%)

- a) Language / Communication Skills
- b) Humanities and Social Sciences: Environmental Science
- c) Economics and Accounting
- d) Principles of Management

4.2 Basic Science Courses comprising of the following: (15 to 20%)

- a) Computer Literacy with Numerical Analysis
- b) Mathematics
- c) Physics
- d) Chemistry

4.3 Basic Engineering Courses comprising of the following (depending on the branch): (15 to 20%)

- a) Engineering Drawing
- b) Engineering and IT Workshop
- c) Engineering Mechanics
- d) Basic Mechanical Engineering
- e) Electrical and Electronics Engineering
- f) Basic Civil Engineering
- g) Computer Programming

4.4 Compulsory Discipline Courses: (30 to 40%)

The lists of professional subjects are chosen as per the suggestions of the experts, to impart broad based knowledge needed in the concerned branch of study.

4.5 Professional Subjects - Electives: (10 to 15%)

Electives will be offered to the students to diversify the spectrum of knowledge, based on the interest of the student to broaden his individual skill and knowledge.

4.6 Open Electives: (5 to 10%)

Open subjects will be offered from other technical and / or emerging subject areas

4.7 Project Work, Seminar and / or Internship: (10-15%)

Project Work, Seminar and / or Internship in Industry or elsewhere.

4.8 Mandatory Courses:

Environmental Studies, Technical English and Technical Communication & Soft Skills are included as subjects under mandatory courses but with credit weightage.

- **4.9** There shall be a subject like comprehensive Information Technology with 2 hours per week introduced in final year first semester.
- **4.10** Every programme of study shall be designed to have 42 44 theory courses and 19 22 laboratory / seminar / comprehensive courses.
- **4.11** Every programme has included foundation courses to the extent of 30%, programme core and programme elective subjects to the extent of 60%, open electives and mandatory courses to the tune of 10% approximately of the total credits.
- 4.12 Audit Courses (to be included in III B. Tech. I Sem. & II Sem.):

Interested students who want to supplement their knowledge can opt for audit courses namely Professional Ethics/Stress Management & Advanced English Communication Laboratory and can Appear / Pass in Continuous Internal Evaluation and Semester End Examination of these courses, will be included in marks memo only when they pass.

4.13 Open Elective:

IV Year I Semester student has to necessarily select a subject from the list of open electives.

4.14 Contact Hours: Depending on the complexity and volume of the course, the number of contact hours per week will be assigned.

5. CREDIT SYSTEM:

Credits are assigned based on the following norms.

| | Semester Pa | attern |
|----------------------|------------------|-----------|
| | Period(s) / Week | Credit(s) |
| Theory | 01 | 01 |
| Practical | 03 | 02 |
| Comprehensive Course | 02 | 02 |
| Seminar | _ | 02 |
| Final Year Project | 12 | 08 |

6. EXAMINATION SYSTEM: All components in any programme of study will be evaluated continuously through internal evaluation and an external evaluation component conducted as semester-end examination.

6.1 Distribution of Marks:

| S. No. | Description | Marks | Examination and Evaluation | Scheme of Evaluation |
|-----------|-------------|-------|--|--|
| | | 70 | Semester - End Examination. | The question paper shall be of subjective type with <u>Five</u> questions with internal choice to be answered in 180 Minutes duration. |
| 1 | Theory | 30 | Mid - Examinations of 120 Minutes duration to be evaluated for 20 marks. The question paper shall be of subjective type in which four questions with an internal choice are to be answered. Remaining 10 marks is for continuous evaluation which includes weekly/ fortnightly class tests, homework assignments, problem solving, group discussions, quiz, seminar, mini-project and other means. The method of allotting these marks will be decided by the teacher dealing that subject in consultation with the Head of the Department. Teacher has to announce the evaluation method in the beginning of the semester. | <u>Two</u> MID - Examinations are to be conducted for 20 marks each in a semester. 80% weightage for better performance and 20% for other shall be considered. MID-I: After first spell of instructions (I & II - Units) MID-II: After second spell of instructions (III, IV & V - Units). The student who has missed both the Mid examinations will be permitted to appear for a substitute examination covering the total syllabus. This substitute examination will be given a weightage of 80%. This is to be conducted before the commencement of end semester exams, can be even outside the working hours, can be even two mid exams a day also. |

| S. No. | Description | Marks | Examination and Evaluation | Scheme of Evaluation |
|-----------|--------------------------|-------|---|--|
| | Laboratory or | 70 | Semester - End Lab Examination | For laboratory courses: 180 minutes duration – two examiners. For Drawing and /or Design: like for the theory examination. |
| 2 | Drawing | | 20 Marks for Day to Day evaluation | Performance in laboratory experiments |
| | | 30 | 10 Marks for Internal evaluation | Performance of one best out of two tests to be considered. |
| 3 | Seminar | 100 | Internal Evaluation 20 Marks for Report 20 Marks for subject content 40 Marks for presentation 20 Marks for Question and Answers | Continuous evaluation during a semester by the Departmental Committee (DC) consisting of two / three faculty members allotted by Head of the Department. |
| 4 | Comprehensi ve Course | 100 | The marks can be performance in viva-ve the department and tw in the department. | allotted based on the oce conducted by Head of o senior faculty members |
| | | | 70 Marks for External evaluation | Semester – End Project Viva-Voce Examination by Committee as detailed under 6.2 |
| 5 | Project Work | 100 | 30 Marks for Internal evaluation | Continuous evaluation by the DC 15 Marks by DC as detailed under 6.2.1 15 Marks by Supervisor |

6.2 **Project Work Evaluation:**

- 6.2.1 The Internal Evaluation shall be made by the Departmental Committee, on the basis of average of two seminars presented by each student on the topic of his project, the best one to be considered. The presentations shall be evaluated by the Departmental Committee (DC) consisting of Head of the Department, Supervisor and a Senior Faculty Member.
- 6.2.2 The Semester End Examination (Viva-Voce) shall be conducted by a Committee consisting of External Examiner nominated by the Chief Controller of Examinations, HOD and Supervisor. The evaluation of project work shall be conducted at the end of the IV year II Semester.

6.3 Eligibility to appear for the Semester-End Examination:

- 6.3.1 A student shall be eligible to appear for end examinations if he acquires a minimum of 75% of attendance in aggregate of all the subjects in the semester.
- 6.3.2 Condonation of shortage of attendance in aggregate up to 10% (65% and above and below 75%) in each semester may be granted by the Institute Academic Committee if the reason for shortage is convincing.
- 6.3.3 Shortage of Attendance below 65% in aggregate shall in no case be condoned.
- 6.3.4 A stipulated fee shall be payable towards condonation of shortage of attendance to the Institute as per following slab system

 1^{st} Slab: Less than 75% attendance but equal to or greater than 70% a normal condonation fee can be collected from the student.

 2^{nd} Slab: Less than 70% but equal to or greater than 65%, double the condonation fee can be collected from the student.

- 6.3.5 Students whose shortage of attendance is not condoned in any semester are not eligible to take their End Examination of that class and their registration for that semester shall stand cancelled.
- 6.3.6 A student will not be promoted to the next semester unless he satisfies the attendance requirements of the current semester, as applicable.
- 6.3.7 A student detained due to shortage of attendance, will have to repeat that semester when offered next.

6.4 Revaluation / Recounting:

Students shall be permitted to request for recounting / revaluation of the End Theory Examination Answer Scripts within a stipulated period after payment of prescribed fee.

After recounting or revaluation, records are updated with changes if any and the student will be issued a revised Memorandum of Marks. If there are no changes, the student shall be intimated the same through a letter or a notice.

6.5 Improvement of Marks:

Students are permitted for improvement examinations once for a maximum of four subjects after completion of the study course but before applying for provisional certificate and consolidated marks memo after payment of prescribed fee.

6.6 Readmission of Students:

A student who has satisfied the minimum attendance requirement in any semester may repeat that semester, after obtaining written permission from the Principal and cancelling the previous record of attendance and academic performance (viz : internal evaluation and external evaluation marks) of the semester or year. This facility may be availed by any student at the maximum twice for a 4 year B.Tech., and only once by Lateral Entry student & PG student during the entire course of study.

6.7 Supplementary Examination:

- a) All Regular examinations are understood as Regular / Supplementary examinations. The supplementary students have to appear for the supplementary examinations along with their regular examinations conducted at the end of each semester. However, separate supplementary examinations will be conducted for the II Semester subjects at the end of I Semester and vice-versa.
- b) In case of Seminars and Comprehensive Viva-Voce examinations, Supplementary Seminar / Comprehensive Viva-Voce will be conducted along with the next batch of students if available. If the next batch of students is not available, a separate supplementary examination will be conducted.

6.8 Internship Programme:

The weightage of two credits given for an internship of three weeks duration and more, when a student undergoes internship / industrial training from the Specified Industries / Research Organizations / Universities. In such a case, the student has to submit a report on that internship which will be evaluated by a team of three faculty members (decided by the HOD) of the department for those two credits. Student is given a chance to drop one seminar in place of a successful Internship / Industrial Training.

6.9 Massive Open Online Course (MOOC):

MOOC is one of the courses introduced in IV year II semester. The list of subjects under MOOC will be intimated before commencement of class work.

7. ACADEMIC REQUIREMENTS FOR PROMOTION / COMPLETION OF B. TECH PROGRAMME OF STUDY:

The following academic requirements have to be satisfied in addition to the attendance requirements for promotion / completion of B. Tech. Programme of study.

7.1 For students admitted into B. Tech. (Four Year) programme:

- 7.1.1 A student shall be deemed to have satisfied the minimum academic requirements for each theory, practical, drawing subject if he secures not less than 35% of marks in the End Examination and a minimum of 40% of marks in the sum total of the Internal Evaluation and End Examination taken together.
- 7.1.2 For promotion from I B. Tech. to II B. Tech. a student must satisfy the attendance requirements in I year (two semesters).
- 7.1.3 A Student shall be promoted from II year to III year, if he fulfills the academic requirements of securing a minimum of **50** credits from I year I and II Semesters, II year I and II Semesters examinations conducted till that time.
- 7.1.4 A student shall be promoted from III year to IV year if he / she fulfills the academic requirements of securing a minimum of **74** credits from I year I and II-Semesters, II year I and II Semesters and the III year I and II Semester examinations conducted till that time.
- 7.1.5 A student shall register for all the subjects and earn all the **195** credits. Marks obtained in all the credits shall be considered for the calculation of the class based on CCPA.
- 7.1.6 A student who fails to earn all the **195** credits as indicated in the course structure within **Eight** academic years from the year of admission shall forfeit his seat in B. Tech. Programme and his admission stands cancelled.

7.2 For Lateral Entry Students (Batches admitted from 2016 - 2017):

- 7.2.1 Academic requirements for pass in a subject are the same as in 7.1.1 and attendance requirements as in 6.3.
- 7.2.2 A student shall be promoted from II year to III year if he fulfills the academic requirements of securing a minimum of **22** credits from II year I and II Semesters examinations conducted till that time.
- 7.2.3 A student shall be promoted from III year to IV year if he fulfills the academic requirements of securing a minimum of **46** credits from II year I and II Semesters and the III year I and II Semester examinations conducted till that time.
- 7.2.4 A student shall register for all the subjects and earn all **139** credits. Marks obtained in all such credits shall be considered for the calculation of the class based on CCPA.
- 7.2.5 A student who fails to earn all the **139** credits as indicated in the course structure within **Six** academic years from the year of his admission shall forfeit his seat in B. Tech. Programme and his admission stands cancelled.

8. TRANSITORY REGULATIONS:

Students who got detained for want of attendance (or) who have not fulfilled academic requirements (or) who have failed after having undergone the course in earlier regulations (or) have discontinued and wish to continue the course are eligible for admission into the unfinished semester from the date of commencement of class work for the next batch or later batches with the same (or) equivalent subjects as and when subjects are offered and they continue to be in the academic regulations of the batch he is joining later.

9. CREDIT POINT AVERAGE (CPA) AND CUMULATIVE CREDIT POINT AVERAGE (CCPA):

9.1 For a Semester:

Credit Point Average [CPA] = $\frac{1}{10} \frac{\sum_{i} C_{i} T_{i}}{\sum_{i} C_{i}}$

Where C_i = Credits earned for Course *i* in any Semester,

 T_i = Total marks obtained for course *i* in any Semester.

9.2 For the Entire Programme:

Cumulative Credit Point Average [CCPA] = $\frac{1}{10} \frac{\sum_{n} \sum_{i} C_{ni} T_{ni}}{\sum_{n} \sum_{i} C_{ni}}$

Where n= the semester in which such courses were credited.

9.3 Overall Performance:

| ССРА | Classification of final result |
|---------------------------|--------------------------------|
| 7.0 & above | First class with distinction |
| 6.0 & above but below 7.0 | First class |
| 5.0 & above but below 6.0 | Second class |
| 4.0 & above but below 5.0 | Pass |

10. TRANSCRIPTS:

After successful completion of the entire programme of study, a transcript containing performance of all academic years will be issued as a final record. Duplicate transcripts will also be issued, if required, after payment of requisite fee. Partial transcript will also be issued up to any point of study to a student on request.

11. ELIGIBILITY:

A student shall be eligible for the award of B. Tech. Degree if he fulfills all the following conditions:

- (i) Registered and successfully completed all the components prescribed in the programme of study to which he is admitted.
- (ii) Successfully acquired all **195** / **139** credits as specified in the curriculum corresponding to the branch of study within the stipulated time.
- (iii) No disciplinary action is pending against him.

12. AWARD OF B.TECH DEGREE:

- 12.1 A student is permitted to select one of the extracurricular / extension activities like NSS / Sports / Games / Cultural activities. A certificate in one of these activities is a must for the student to become eligible for the award of Provisional Certificate or Degree.
- **12.2** The B. Tech. Degree will be conferred and awarded by Jawaharlal Nehru Technological University Anantapur, Ananthapuramu on the recommendations of the Principal of Annamacharya Institute of Technology and Sciences, Rajampet.

13.AMENDMENTS TO REGULATIONS:

The Chairman, Academic Council of Annamacharya Institute of Technology and Sciences, Rajampet reserves the right to revise, amend, or change the Regulations, Scheme of Examinations, and / or Syllabi or any other policy relevant to the needs of the society or industrial requirements etc., without prior notice.

14. Any legal issues are to be resolved in Rajampet Jurisdiction.

15. GENERAL:

Where the words "he", "him", "his", "himself" occur in the regulations, there include "she", "her", "herself".

Department of Information Technology

CURRICULUM STRUCTURE

DEPARTMENT OF INFORMATION TECHNOLOGY

Regulations: R15

Programme Code: G4

| Subject | subject | | ours | s / | |
|---------|--|----|------|-----|----|
| Codo | Subject Name | V | Neel | k | С |
| Code | | | Т | Р | |
| 5GC11 | English through Literature | 2 | 1 | 0 | 2 |
| 5GC12 | Engineering Chemistry | 4 | 1 | 0 | 4 |
| 5GC14 | Engineering Mathematics-I | 3 | 1 | 0 | 3 |
| 5G111 | Problem solving techniques and Introduction to C Programming | 3 | 1 | 0 | 3 |
| 5GC15 | Mathematical Methods –I | 3 | 1 | 0 | 3 |
| 5G513 | Engineering Drawing –I | 1 | | 3 | 3 |
| 5GC16 | English Language Communication Skills Lab-I | | | 3 | 2 |
| 5GC17 | Engineering Chemistry Lab | | | 3 | 2 |
| 5G112 | Programming in C Lab | | | 6 | 4 |
| 5G114 | IT Workshop | | | 3 | 2 |
| | | 17 | 5 | 18 | 28 |

I Year B. Tech. I Semester

I Year B. Tech. II Semester

| Subject | ect | | Hours / | | |
|---------|--|------|---------|----|----|
| Codo | Subject Name | Week | | | С |
| Code | | | Т | Р | |
| 5GC21 | Technical English | 2 | 1 | 0 | 2 |
| 5GC23 | Engineering Physics | 4 | 1 | 0 | 4 |
| 5GC24 | Engineering Mathematics-II | 3 | 1 | 0 | 3 |
| 5G121 | C Programming and Data Structures | 3 | 1 | 0 | 3 |
| 5GC25 | Mathematical Methods –II | 3 | 1 | 0 | 3 |
| 5G523 | Engineering Drawing –II | 1 | | 3 | 3 |
| 5GC26 | English Language Communication Skills Lab-II | | | 3 | 2 |
| 5GC28 | Engineering Physics Lab | | 1 | 3 | 2 |
| 5G122 | Data structures Lab | | - | 6 | 4 |
| 5G524 | Engineering workshop | | | 3 | 2 |
| | Total | 17 | 5 | 18 | 28 |

Note: L - Lecture; T-Tutorial; P - Practical; C - Credits

DEPARTMENT OF INFORMATION TECHNOLOGY

Regulations: R15

Programme Code: G4

| Subject | hiert | | ours | s / | |
|---------|--|------|------|-----|----|
| Codo | Subject Name | Week | | k | C |
| Code | | L | Т | Р | |
| 5GC34 | Environmental Science | 3 | 1 | 0 | 3 |
| 5G131 | Advanced Data Structures through C++ | 3 | 1 | 0 | 3 |
| 5G236 | Electrical Engineering and Electronics Engineering* | 3 | 1 | 0 | 3 |
| 5G431 | Discrete Mathematics | 3 | 1 | 0 | 3 |
| 5G432 | Digital Logic Design and Computer Organization | 3 | 1 | 0 | 3 |
| 5G433 | Operating Systems and Linux Administration | 3 | 1 | 0 | 3 |
| 5G434 | Seminar –I | 0 | 0 | 2 | 2 |
| 5G134 | Advanced Data Structures Lab using C++ | 0 | 0 | 3 | 2 |
| 5G23A | Electrical Engineering and Electronics Engineering lab** | 0 | 0 | 3 | 2 |
| | Sports and Extension Activities | 0 | 0 | 1 | 0 |
| | Total | 18 | 6 | 9 | 24 |

II Year B. Tech. I Semester

NOTE:

^{*}In Electrical Engineering and Electronics Engineering two questions from each part should be chosen to answer five questions in the End semester examination.

^{**}The Students attend the Electrical Engineering lab and Electronics Engineering lab in alternate week that is 3/2 per week.

| Subject | | | Hours / | | | |
|---------|---|----|---------|---|----|--|
| Codo | Subject Name | V | C | | | |
| Coue | | L | Т | Ρ | | |
| 5GA41 | Managerial Economics and Financial analysis | 3 | 1 | 0 | 3 | |
| 5GC42 | Probability and Statistics | 3 | 1 | 0 | 3 | |
| 5G142 | Design and Analysis of Algorithms | 3 | 1 | 0 | 3 | |
| 5G144 | Object Oriented Programming | 3 | 1 | 0 | 3 | |
| 5G441 | Database Management Systems | 3 | 1 | 0 | 3 | |
| 5G442 | Software Engineering | 3 | 1 | 0 | 3 | |
| 5GC44 | Aptitude and Reasoning Skills | 0 | 0 | 2 | 2 | |
| 5G146 | JAVA Lab | 0 | 0 | 3 | 2 | |
| 5G443 | Database Management Systems Lab | 0 | 0 | 3 | 2 | |
| | Total | 18 | 6 | 8 | 24 | |

II Year B. Tech. II Semester

Note: L - Lecture; T-Tutorial; P - Practical; C - Credits

DEPARTMENT OF INFORMATION TECHNOLOGY

Regulations: R15

Programme Code: G4

| Subject | st l | | ours | s / | |
|---------|---|------|------|-----|----|
| Subject | Subject Name | Week | | | С |
| Code | | L | Т | Р | |
| 5G152 | Computer Networks | 3 | 1 | 0 | 3 |
| 5G356 | Microprocessors and Interfacing | 3 | 1 | 0 | 3 |
| 5G451 | Android Application Development | 3 | 1 | 0 | 3 |
| 5G452 | Automata and Compiler Design | 3 | 1 | 0 | 3 |
| 5G454 | Data Warehousing and Data Mining | 3 | 1 | 0 | 3 |
| 5G455 | Software Testing Methodologies | 3 | 1 | 0 | 3 |
| 5GC52 | English for Competitive Examinations | 0 | 0 | 2 | 2 |
| 5G456 | Android Application and Compiler Design Lab | 0 | 0 | 3 | 2 |
| 5G457 | Software Testing and Data Mining Lab | 0 | 0 | 3 | 2 |
| Audit | Drofessional Ethics / Stress Management | | Δ | Ο | 0 |
| Course | rioressionar Eulies / Suess Management | 2 | U | U | U |
| | Total | 20 | 6 | 8 | 24 |

III Year B. Tech. I Semester

III Year B. Tech. II Semester

| Subject | Subject Nome | Hours | s / W | /eek | C | | |
|-----------------------------------|--|-------|-------|------|----|--|--|
| Code | Subject Name | L | Т | Р | C | | |
| 5G161 | Cryptography and Network Security | 3 | 1 | 0 | 3 | | |
| 5G16C | Internet of Things | 3 | 1 | 0 | 3 | | |
| 5G468 | Python Programming | 3 | 1 | 0 | 3 | | |
| 5G46A | Web Technologies | 3 | 1 | 0 | 3 | | |
| | Professional Elective - I | 3 | 1 | 0 | 3 | | |
| 5G461 | Computer Graphics and Multimedia | | | | | | |
| 5G467 | Performance Evaluation of Computer Systems | | | | | | |
| 5G469 | Unix and Shell Programming | | | | | | |
| Professional Elective - II | | | 1 | 0 | 3 | | |
| 5G462 | E-commerce | | | | | | |
| 5G464 | Human Computer Interaction | | | | | | |
| 5G465 | Network Programming and Management | | | | | | |
| 5G46B | Seminar - II | 0 | 0 | 2 | 2 | | |
| 5G46D | Python Programming and IoT Lab | 0 | 0 | 3 | 2 | | |
| 5G46E | Web Technologies and Networks Lab | 0 | 0 | 3 | 2 | | |
| Audit | Advanced English Language and | 2 | 0 | 0 | 0 | | |
| Course | Communication Skills Lab | | U | U | U | | |
| | Total | 26 | 6 | 8 | 24 | | |

Note: L - Lecture; T-Tutorial; P – Practical; C - Credits

DEPARTMENT OF INFORMATION TECHNOLOGY

Regulations: R15

Programme Code: G4

| Subject | | | Hours / | | | | |
|-----------------------------|---|------|---------|---|----|--|--|
| Subject | Subject Name | Week | | K | C | | |
| Code | | L | Т | Р | | | |
| 5G172 | Enterprise Programming | 3 | 1 | 0 | 3 | | |
| 5G471 | Cloud Computing | 3 | 1 | 0 | 3 | | |
| 5G474 | Data Science and Big Data Analytics | 3 | 1 | 0 | 3 | | |
| 5G478 | Object Oriented Analysis and Design | 3 | 1 | 0 | 3 | | |
| Professional Elective - III | | | 1 | 0 | 3 | | |
| 5G475 | Distributed Systems | | | | | | |
| 5G476 | Image Processing | | | | | | |
| 5G477 | 5G477 Middleware Technologies | | | | | | |
| 5G486 | MOOC | I | I | 0 | 3 | | |
| 5G479 | Comprehensive Information Technology | 0 | 0 | 2 | 2 | | |
| 5G47A | Big Data and Cloud Computing Lab | 0 | 0 | 3 | 2 | | |
| 5G47B | Enterprise Programming and CASE TOOLS Lab | 0 | 0 | 3 | 2 | | |
| Total | | | | 8 | 24 | | |

IV Year B. Tech. I Semester

Note: L - Lecture; T-Tutorial; P - Practical; C - Credits

DEPARTMENT OF INFORMATION TECHNOLOGY

Regulations: R15

Programme Code: G4

IV Year B. Tech. II Semester

| Subject | Subject | | Hours / | | | |
|--------------------------------------|---|---|---------|----|----|--|
| Subject | Subject Name | V | Neel | ĸ | C | |
| Code | | L | Т | Р | | |
| | Professional Elective - IV | 3 | 1 | 0 | 3 | |
| 5G182 Advanced Computer Architecture | | | | | | |
| 5G482 | Mobile Communications | | | | | |
| 5G485 | Soft Computing | | | | | |
| Professional Elective - V | | | 1 | 0 | 3 | |
| 5G481 | Design Patterns | | | | | |
| 5G483 | Optimization Techniques | | | | | |
| 5G484 | Software Project and Process Management | | | | | |
| | Open Elective | 3 | 1 | 0 | 3 | |
| 5G487 | Seminar-III | 0 | 0 | 2 | 2 | |
| 5G488 | Project Work | 0 | 0 | 8 | 8 | |
| | Total | | | 10 | 17 | |

| LIST | OF OPEN ELECTIVES SUBJECTS | Offered By Department of |
|-------|----------------------------------|-----------------------------|
| 5G679 | Disaster Management | CE |
| 5G27C | System Modelling and Simulation | EEE |
| 5G57D | Total Quality Management | ME |
| 5G57E | Integrated Product Development | ME |
| 5G377 | Nano Technology and Applications | ECE |
| 5G378 | Medical Instrumentation | ECE |
| 5G178 | .NET Technologies | CSE |
| 5G473 | Cyber Laws | IT |
| 5GA71 | Intellectual Property Rights | BA |
| 5GA72 | Human Resource Management | BA |

Note: L - Lecture; T-Tutorial; P - Practical; C - Credits

| ANNAMACHARYA | INSTITUTE OF TECHNOLOGY & SCIEN | ICES | S::RA | JAM | РЕТ | | | | | | |
|----------------------------------|--|--|--|--|--|--|--|--|--|--|--|
| | (AN AUTONOMOUS INSTITUTION) | | | | | | | | | | |
| I Year B. Tech. I Semester | | | | | | | | | | | |
| Course Code: | Course Name: | Но | Hours/Week | | | | | | | | |
| 5GC11 | ENGLISH THROUGH LITERATURE | | | | | | | | | | |
| | (Common to All Branches) | L | Т | Р | C | | | | | | |
| | | 3 | 3 1 0 3 | | | | | | | | |
| Course Prerequisites | NIL | | | | | | | | | | |
| | Students are able to: | | | | | | | | | | |
| Course Objectives | To improve the language proficiency of through literature. To enhance the vocabulary of the students of diverse authentic materials. To enable the students, absorb the humpliterature. | of the dents man | stude in E value | ents in nglish s expr | English through ressed in | | | | | | |
| | After completion of the course, student wil | l be a | able t | 0: | | | | | | | |
| Expected Outcomes | Students will be able to read, interniterary works. Students will be able to identify philosophical sensitivity. Students will learn about great engine. Students will relish the experience literature: appreciate literature's a cultivate the imagination and teach 1 Students will be able to read or recognize key passages; raise complexity and ambiguity; compfigurative uses of language. | pret, y lite neers e of p ability Engli comp que orehe | and or and services and services and services and services and services and services the services and services the services and service | evalua cultu scientis ng cha elicit nguage texts s; ap ne lite | te select aral, and sts. actively; ppreciate eral and | | | | | | |
| | UNIT 1 | | | 14 | 4 Hours | | | | | | |
| Detailed Study: Cabu | liwallah by Rabindranath Tagore; The Road no | ot Ta | ken b | y Rob | ert Frost | | | | | | |
| Non-detailed Study: | G. D. Naidu | | | | | | | | | | |
| | UNIT 2 | | | 1 | 3 Hours | | | | | | |
| Detailed Study: A Do | og's Tale by Mark Twain; If by Rudyard Kiplin | g | | | | | | | | | |
| Non-detailed Study: S | Sudha Murthy | | | | | | | | | | |
| UNIT 3 12 Hours | | | | | | | | | | | |
| Detailed Study: The | Gift of Magi by O. Henry; Leisure by W. H. Da | vies | | | | | | | | | |
| Non-detailed Study: | Vijay Bhatkar | | | | | | | | | | |
| | UNIT 4 13 Hours | | | | | | | | | | |
| Detailed Study: An A Ezekiel; | Astrologer's Day by R. K. Narayan: Night of | the . | Scorp | <i>ion</i> by | y Nissim | | | | | | |
| Non-detailed Study: J | Jagadish Chandra Bose | | | | | | | | | | |

| | 14 Hours | | | | | | |
|------------------------|---|--------------|--|--|--|--|--|
| Detailed Study: Th | ne Proposal by Anton Chekhov | | | | | | |
| Non-detailed Stud | y: HomiJehangir Baba | | | | | | |
| Text Books | 1.For Detailed study: Texts from Open Sources (Available on Web) | | | | | | |
| | 2.For Non-detailed study: <i>Trailblazers</i> published by C Swan | Drient Black | | | | | |
| Reference Books | | | | | | | |
| Evaluation | Continuous Assessment (20%) and Assignments (10%) | | | | | | |
| | Semester End Examination (70%) | | | | | | |

| Course Outcomes | PO ₁ | PO ₂ | PO ₃ | PO ₄ | PO ₅ | PO ₆ | PO ₇ | PO ₈ | PO ₉ | PO ₁₀ | PO ₁₁ | PO12 | PSO ₁ | PSO ₂ |
|--------------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|------------------|------------------|------|------------------|------------------|
| CO1 | - | - | - | - | - | - | - | - | - | 3 | - | 2 | | |
| CO2 | - | - | - | - | - | - | - | 2 | - | 2 | - | 3 | | |
| CO3 | - | - | - | - | - | 3 | - | 2 | - | 2 | - | 2 | | |
| CO4 | - | - | - | - | - | - | - | - | - | 3 | - | 3 | | |
| CO5 | - | - | - | - | - | - | - | - | - | 3 | - | 3 | | |

ANNAMACHARYA INSTITUTE OF TECHNOLOGY & SCIENCES::RAJAMPET (AN AUTONOMOUS INSTITUTION) I Year B. Tech. I Semester Hours/Week **Course Code: Course Name:** 5GC12 ENGINEERING CHEMISTRY Т (Common to CSE, IT, ME and CE) L С Ρ 3 1 0 3 **Course Prerequisites** NIL Students are able to: The course main aim is to impart in-depth knowledge of the subject and highlight the role of chemistry in the field of engineering. The Engineering Chemistry course for undergraduate students is framed to strengthen the fundamentals of chemistry and then build an interface of theoretical concepts with their industrial/engineering applications. The lucid explanation of the topics will help students • understand the fundamental concepts and apply them to design engineering materials and solve problems related to **Course Objectives** them. An attempt has been made to logically correlate the topic with its application. The extension of fundamentals of electrochemistry to energy storage devices such as commercial batteries and fuel cells is one such example. After completion of the course, the student would understand • about the concepts of chemistry in respect of Electrochemical cells, fuel cells, mechanism of corrosion and factors to influence, polymers with their applications, analytical methods, engineering materials and water chemistry. After completion of the course, student will be able to: Students will be able to understand the basic concepts of • water analysis methods which helps them in solving problems related to boiler troubles and also in various water treatment methods Students will be able to understand the basic principles of • batteries & fuel cells, and extends the knowledge to different types of sensors, corrosion and their prevention **Expected Outcomes** methods Students will be able to synthesize and differentiate different • types of polymers Students will be able to derive/ manufacture different types • of fuels and elucidate their properties Students will be able to manufacture cement, understand the • basic concepts of propellants, refractoriness, lubricants and elucidate their properties. UNIT 1 14 Hours WATER TREATMENT: Impurities in water, Hardness of water and its Units,

Disadvantages of hard water, Estimation of hardness by EDTA method, Numerical problems on hardness, Estimation of dissolved oxygen, Alkalinity and chlorides in water, Water treatment for domestic purpose Disinfection - Definition, Kinds of disinfectants (Bleaching powder, Ozone, chloramine, UV light and Chlorine), Break point chlorination.

INDUSTRIAL USE OF WATER: For steam generation, Boiler troubles: Scale & Sludge, Priming and Foaming, Caustic Embrittlement and Boiler Corrosion.

TREATMENT OF BOILER FEED WATER: Internal Treatment: Colloidal, Phosphate, Carbonate, Calgon and sodium aluminate conditioning. External Treatment: Permutit/ Zeolite process, Ion-Exchange process, Desalination of brackish water by Reverse Osmosis.

| UNIT 2 | 13 Hours |
|--------|----------|
| | |

ELECTROCHEMISTRY: Electrochemical cells: Basic concepts, classification of electrochemical cells, numerical calculations, Batteries: classification of batteries: Primary (Leclanche battery, mercury battery) and Secondary /rechargeable batteries (Lead acid, Ni-Cd, Lithium Ion Batteries) Fuels cells: (Hydrogen-Oxygen and Methanol-Oxygen)

ELECTROCHEMICAL SENSORS: Potentiometric Sensors and Voltammetric sensors. Examples: analysis of Glucose and urea.

CORROSION: Definition & Types (dry & wet Corrosions), Electrochemical Theory of corrosion, concentration cell corrosion, galvanic corrosion, factors affecting the corrosion, Prevention: Anodic and Cathodic protection, Electroplating (Nickel, copper and chromium) & Electrolessplatin

| UNIT 3 | 12 Hours | | | | | |
|---|--|--|--|--|--|--|
| POLYMERS: Introduction to polymers, Polymerization process- types (without mechanism), Plastics: Thermosetting and Thermoplastics, Preparation, properties and Engineering applications of PVC, Bakelite, nylons. | | | | | | |
| NATURAL RUBBER: Processing, vulcanization and compounding of rubber. Elastomers: Preparation, properties and engineering applications of Buna-S, Buna-N and polyurethane rubbers. | | | | | | |
| CONDUCTING POLYMERS : Mechanism, synthesis and applications of polyacetylene, polyaniline. Biodegradable polymers Carbohydrates, proteins | | | | | | |
| INORGANIC POLYMERS: Basic Introduction Silicones, polyphosphazines. | | | | | | |
| UNIT 4 | 13 Hours | | | | | |
| FUEL TECHNOLOGY: Classification of Fuels – Characteristics of Fuels- Calo Units, its determination using bomb calorimeter, Numerical Problems. Solid Manufacture of Metallurgical Coke by Otto Hoffmann's by product oven processe LIQUID FUELS : Petroleum: Refining of Petroleum, Gasoline: Knocking, Octa Synthetic Petrol: Bergius Processes, Fischer Tropsch's synthesis. Diesel and Cet | rific Value – Fuels-Coke: es. ane Number, tane number. | | | | | |
| Power Alcohol: Manufacture, Advantages and Disadvantages of Power Alcohol | | | | | | |
| GASEOUS FUELS: Origin, Production and uses of Natural gas, Producer gas Coal gas and Biogas. Flue Gas analysis by Orsat's apparatus, Solving of problems on G | , Water gas, Combustion. | | | | | |
| UNIT 5 | 14 Hours | | | | | |
| CHEMISTRY OF ENGINEERING MATERIALS | | | | | | |
| CEMENT: Composition & manufacture of Portland cement, Setting and Hardening (Hydration and Hydrolysis), Refractories: Classification with suitable examples, properties and applications | | | | | | |
| LUBRICANTS: Definition and properties of lubricants, theory of lubrication, and applications of lubricants. | | | | | | |

ROCKET PROPELLANTS: Classification, Characteristics of a good propellant

| Text Books | Engineering Chemistry by K.N.Jayaveera, G.V.Subba Reddy and C. Ramachandraiah, McGraw Hill Higher Education, New Delhi, Fourth Edition, 2012. A Text Book of Engineering Chemistry, Jain and Jain, Dhanapath Rai Publishing Company, New Delhi, 15th Edition, 2010. |
|------------------------|--|
| | 1. A Text book of Engineering Chemistry by S.S.Dhara, S.S.Umare, S. Chand Publications, New Delhi, 12th Edition, 2010 |
| | Engineering Chemistry by K.B.Chandra Sekhar, UN.Das and Sujatha Mishra, SCITECH, Publications India Pvt Limited, Chennai 2nd Edition 2012 |
| | Concepts of Engineering Chemistry- Ashima Srivastava and N.N. Janhavi, Acme Learning Pyt Ltd. First Edition, 2013. |
| | Text Book of Engineering Chemistry – C. Parameswara Murthy, C.V.Agarwaland Andra Naidu, BS Publications, Hyderabad, 3rd Edition, 2008. |
| | 5. Text Book of Engineering Chemistry, Shashichawla, Dhanapath Rai Publications, New Delhi, 4th Edition, 2011. |
| Reference Books | 6. Engineering Chemistry, K. Sesha Maheswaramma and Mrudula Chugh, Pearson Education, First Edition, 2013. |
| Evaluation | Continuous Assessment (20%) and Assignments (10%) |
| | Semester End Examination (70%) |

| Course Outcomes | PO ₁ | PO ₂ | PO ₃ | PO ₄ | PO ₅ | PO ₆ | PO ₇ | PO ₈ | PO ₉ | PO ₁₀ | PO ₁₁ | PO12 | PSO ₁ | PSO ₂ |
|--------------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|------------------|------------------|------|------------------|------------------|
| CO1 | 2 | 2 | - | - | - | - | - | - | - | - | - | - | | |
| CO2 | 3 | 2 | - | - | - | - | - | - | - | - | - | - | | |
| CO3 | 3 | - | - | 3 | - | - | - | - | - | - | - | - | | |
| CO4 | 3 | - | - | 3 | - | - | - | - | - | - | - | - | | |
| CO5 | 2 | - | - | 3 | - | - | - | - | - | - | - | - | | |

| ANNAMACHARYA INSTITUTE OF TECHNOLOGY & SCIENCES::RAJAMPET | | | | | | | | | | | |
|---|--|-------------------------|-----------------------------|-----------------------------|------------------------|--|--|--|--|--|--|
| | I Year B. Tech. I Semester | | | | | | | | | | |
| | | | | | | | | | | | |
| Course Code: | Course Name: | Hours/Week | | | | | | | | | |
| 5GC14 | ENGINEERING MATHEMATICS - I | | | | | | | | | | |
| | (Common to All Branches) | L T P C | | | | | | | | | |
| | | 3 | 1 | 0 | 3 | | | | | | |
| Course Prerequisites | | | | | | | | | | | |
| | Students are able: | | | | | | | | | | |
| Course Objectives | To understand the Differential equation higher orders with their applications. To understand the concept of partial applications. To understand the concept of curve transmission of the concept of the curve transmission. | ions al dif acing | of first ferent in va | st, sec tiation rious | and its | | | | | | |
| | After completion of the course, student wil | l be a | able t | 0: | | | | | | | |
| | • Solve first order differential applications | equ | ations | s an | d their | | | | | | |
| Expected Outcomes | Learn the usage of higher order differential equations that are applied to real world problems Apply his knowledge to solve the problems on Mean value theorems, series and sequences in day to day life. Identify, formulates, and solves the problems on functions of several variables. | | | | | | | | | | |
| | • Trace the curve for a given equation | n of a | curve | e & its | nature | | | | | | |
| | UNIT 1 | | | 10 | 6 Hours | | | | | | |
| Linear and Bernoulli growth and decay, Rat orthogonal trajectories. | equations, Applications to Newton's law of e of decay of radio-active materials, Chemica | cool 11 rea | ing, l ction | aw of and s | f natural olutions, | | | | | | |
| | UNIT 2 | | | 1 | 3 Hours | | | | | | |
| Non-homogeneous line | ear differential equations of second and hig | her o | order | with | constant | | | | | | |
| coefficients with RHS $xV(x)$, method of variation | term of the type e^{ax} , sinax and cosax, polytion of parameters. Applications to oscillatory | nomi electi | als ir ical c | n x, ircuits | e^{ax} V(x), s. | | | | | | |
| | UNIT 3 | | | 1 | 2 Hours | | | | | | |
| Series solutions of different solution when x=0 is an | ferential equations: Validity of series solution ordinary point of the equation, Frobenius met | n of hod. | the eq | quatio | n, series | | | | | | |
| Rolle's Theorem – La Taylor's and Maclaurin | Rolle's Theorem – Lagrange's Mean Value Theorem (without proof). Simple examples of Taylor's and Maclaurin's Series | | | | | | | | | | |
| UNIT 4 13 Hours | | | | | | | | | | | |
| Functions of several v Minima of functions of only. | Functions of several variables – Partial differentiation- Chain rule-Jacobian – Maxima and Minima of functions of two variables, Lagrangian method of Multipliers with three variables only. | | | | | | | | | | |
| | UNIT 5 | | | 1 | 4 Hours | | | | | | |

| Curve tracing – Tracing of Cartesian, polar and parametric curves. | | | | | | | | |
|--|---|--|--|--|--|--|--|--|
| Text Books | ligher Engineering Mathematics, B.S.Grewal, Khanna publishers-43rd dition (2014) | | | | | | | |
| Reference Books | Higher Engineering Mathematics, by Kreyszing A Text Book of Engineering Mathematics, B.V. Ramana, Tata McGraw Hill. A Text Book of Engineering Mathematics, Vol – 1, T.K.V. Iyengar, B. Krishna Gandhi and others, S.Chand & Company. | | | | | | | |
| Evaluation | Continuous Assessment (20 %) and Assignments (10%) Semester End Examination (70%) | | | | | | | |

| Course Outcomes | PO ₁ | PO ₂ | PO ₃ | PO ₄ | PO ₅ | PO ₆ | PO ₇ | PO ₈ | PO ₉ | PO ₁₀ | PO ₁₁ | PO12 | PSO ₁ | PSO ₂ |
|--------------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|------------------|------------------|------|------------------|------------------|
| CO1 | 3 | - | 2 | - | - | - | - | - | - | - | - | 3 | | |
| CO2 | 3 | - | 2 | - | - | - | - | - | - | - | - | 2 | | |
| CO3 | 3 | 3 | - | - | - | - | - | - | - | - | - | 2 | | |
| CO4 | 3 | 2 | - | - | - | - | - | - | - | - | - | 3 | | |
| CO5 | 3 | 3 | - | - | - | - | - | - | - | - | - | 2 | | |

| ANNAMACHARYA INSTITUTE OF TECHNOLOGY & SCIENCES::RAJAMPET | | | | | | | | | | |
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| (AN AUTONOMOUS INSTITUTION) | | | | | | | | | | |
| I Year B. Tech. I Semester | | | | | | | | | | |
| Course Code: | Course Name: | eek | | | | | | | | |
| 5G111 | PROBLEM SOLVING TECHNIQUES | | | | | | | | | |
| | AND INTRODUCTION TO C PROGRAMMING | L | Т | Ρ | С | | | | | |
| | (Common to All Branches) | 3 | 1 | 0 | 3 | | | | | |
| Course Prerequisites | Computer Basics | | | | | | | | | |
| | Students are able to: | | | | | | | | | |
| Course Objectives | Introduction to computer peripherals, Describe when and how to use the C Compile and Debug basic C programs Write and debug programs using an I designing Structured programs when and how statements available in the C language | Softw state s usin DE a | vare of ement g an 1 nd th use th | levelo and t IDE e prin ne apj | pment. to Write, ciples of propriate | | | | | |
| | Write basic C programs using, Selection statements, Repetitive statements, Functions, Pointers, Arrays and Strings Implementation of C applications for data structures, Sorting and Searching. | | | | | | | | | |
| | After completion of the course, student will be able to: | | | | | | | | | |
| | Understand the importance of the software development process and System development tools. Understand general principles of C programming language and able to write simple program in C. Able to develop programs based on arrays and functions. | | | | | | | | | |
| Expected Outcomes | | | | | 4 77 | | | | | |
| | UNIT 1 | | | 14 | 4 Hours | | | | | |
| INTRODUCTION TO Systems, Computer En Aspect, Top- down Des | D COMPUTER PROBLEM SOLVING: In nvironments, Computer Languages, Introduct sign, Implementation of Algorithms, Flow Char | ntrodi ion t rts, S | uctior o Pro DLC. | to C blem | Computer Solving | | | | | |
| | UNIT 2 | | | 1 | 3 Hours | | | | | |
| INTRODUCTION TO C LANGUAGE : Structure of a C Language program, Creating and Running C programs, Keywords, Identifiers, Data Types, Typedef, enumerated Types variables, constants, input/output. Operators and Expressions, precedence and associatively, Type Conversions, Bitwise Operators. Example programs for each topic. | | | | | | | | | | |
| UNIT 3 12 Hours | | | | | | | | | | |
| C Program Statements, Selection and Decision making Statements - two-way selection - ifelse statements, multi way selection-switch statements. Loop Control Statements-concept of a loop, Loops in C-while loop, dowhile loop, for loop, Other Related Statements -break, continue, goto. Example programs for each topic. | | | | | | | | | | |
| | UNIT 4 | | | 13 | Hours | | | | | |

ARRAYS: Declaring and Referencing Arrays, Array Subscripts, Using for Loops for Sequential Access, Multidimensional Arrays.

STRINGS: String Basics, String Library Functions, Array of Strings. Example programs for each topic.

| | UNIT 5 | 14 Hours | | | | | |
|---|---|--|--|--|--|--|--|
| FUNCTIONS: Library Functions in C, User defined Functions, -declaration, definition, calling of function, types of User defined functions, Parameter passing methods-pass by value, pass by reference, Scope, Storage Classes - Auto, Register, Static, Extern, Scope rules, Type Qualifiers, Recursion - Recursive Functions, Preprocessor Commands. Using Array Elements as Function Arguments. Example programs for each topic. | | | | | | | |
| Text Books | C Programming and Data Structures, B.A. F.Gilberg, Cengage learning, Indian edition. Programming in C and Data Structures, J.R.Hanly Kamthane and A. Ananda Rao, Pearson Education. C and Data Structures, E.Balaguruswamy, Tata McGrute, How to Solve it By Computer, R.G.Dromey, PHI. | Forouzan,R. 7, Ashok N. raw Hill. | | | | | |
| Reference Books | C and Data Structures, A snapshot oriented treatis engineering examples, Dr. N.B.Venkateswarlu, Dr. S. Chand. LET US C, Yeswanth Kanitkar, 9th Edition, BPB Pub | se with live E.V.Prasad, lication. | | | | | |
| Evaluation | Image: Second | | | | | | |

| Course Outcomes | PO ₁ | PO ₂ | PO ₃ | PO ₄ | PO ₅ | PO ₆ | PO ₇ | PO ₈ | PO ₉ | PO ₁₀ | PO ₁₁ | PO12 | PSO ₁ | PSO ₂ |
|--------------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|------------------|------------------|------|------------------|------------------|
| CO1 | 2 | | 2 | | | 2 | | 1 | | 1 | 1 | | 2 | 2 |
| CO2 | 1 | | | | 1 | | | | | | 1 | | | |
| CO3 | 1 | | 2 | | | 3 | | 3 | | 2 | | 2 | 2 | 2 |
| CO4 | 2 | | | | | | 2 | | 2 | | 1 | | | 1 |
| CO5 | 3 | | 2 | 2 | | 3 | | 1 | | 1 | | | 3 | 2 |

ANNAMACHARYA INSTITUTE OF TECHNOLOGY & SCIENCES::RAJAMPET (AN AUTONOMOUS INSTITUTION) I Year B. Tech. I Semester Hours/Week **Course Code: Course Name: 5GC15 MATHEMATICAL METHODS-I** (Common to CSE and IT) L Т С Ρ 3 1 0 3 **Course Prerequisites Basic Mathematics** Students are able to: This course aims at providing the student with the concepts of • Matrices, which find the applications in engineering. Emphasis will be more on logical and problem solving • **Course Objectives** development in Numerical methods and their applications. After completion of the course, student will be able to: Students will be able to find the rank of matrices and solve • the system of equations Student will understand the concept of modeling or translating a physical or any other Students become familiar with the applications of complex matrices and quadratic forms **Expected Outcomes** Students understand the concept of solutions of algebraic • and transcendental equations Student will understand various types of numerical methods UNIT 1 14 Hours MATRICES: Real Matrices - Types - definitions - Elementary row transformations - Rank -Echelon form, Normal form - Solution of Linear System of Homogenous and Non Homogeneous equations by Gauss Elimination method. UNIT 2 13 Hours Eigen Values, Eigen vectors - Properties, Cayley - Hamilton Theorem - Diagonalization of matrix- Calculation of powers of matrix. **UNIT 3** 12 Hours Reduction of quadratic form to canonical form and their nature - Linear Transformation -Orthogonal Transformation. Complex matrices: Hermitian, Skew-Hermitian, Unitary matrices- Eigen Values, Eigen vectors - Properties. **UNIT 4** 13 Hours Solution of Algebraic and Transcendental Equations - Bisection Method - Method of False Position – Newton-Raphson Method. UNIT 5 14 Hours Interpolation - Introduction - Forward Differences - Backward Differences - Newton's forward and backward difference interpolation formulae - Lagrange's Interpolation formula. Numerical Differentiation - Numerical Integration: Newton-Cotes quadrature formula-Simpson's 3/8 Rule, Boole's rule, Weddle's rule.

| Text Books | Higher Engineering Mathematics, B. S. Grewal, Khanna publishers, 43 rd Ed, 2014 |
|-----------------|--|
| Reference Books | Numerical Methods for Scientific and Engineering Computation, M.K. Jain, S.R.K. Iyengar & R.K. Jain, New Age international Publishers. Introduction to Numerical Analysis – S.S. Sastry, Prentice Hall of India. Mathematical Methods, T.K.V. Iyengar, B. Krishna Gandhi and Others, S. Chand & company. |
| Evaluation | Continuous Assessment (20%) and Assignments (10%) |
| | Semester End Examination (70%) |

| Course Outcomes | PO ₁ | PO ₂ | PO ₃ | PO ₄ | PO ₅ | PO ₆ | PO ₇ | PO ₈ | PO ₉ | PO ₁₀ | PO ₁₁ | PO12 | PSO ₁ | PSO ₂ |
|--------------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|------------------|------------------|------|------------------|------------------|
| CO1 | 2 | 3 | - | - | - | - | - | - | - | - | - | 3 | | |
| CO2 | 3 | 3 | - | - | - | - | - | - | - | - | - | 3 | | |
| CO3 | 3 | 3 | 3 | - | - | - | - | - | - | - | - | 3 | | |
| CO4 | 3 | 2 | | - | - | - | - | - | - | - | - | 2 | | |
| CO5 | 3 | 3 | - | - | - | - | - | - | - | - | - | 1 | | |

| ANNAMACHARYA INSTITUTE OF TECHNOLOGY & SCIENCES::RAJAMPET | | | | | | | |
|---|---|--|---|--|--|--|--|
| | (AN AUTONOMOUS INSTITUTION) | | | | | | |
| | I Year B. Tech. I Semester | 1 | | | I | | |
| Course Code: | Course Name: | Но | urs/W | Veek | | | |
| 50515 | (Common to EEE, ECE, CSE and IT) | L | Т | Ρ | С | | |
| | | 3 | 1 | 0 | 3 | | |
| Course Prerequisite | es NIL | | 1 | | 1 | | |
| | Students are able to: | | | | | | |
| Course Objectives | To enable the students with Dimensioning, Conventions and stan drawing in order to become professio To introduce fundamental concep engineering, projection of points, line To impart and inculcate proper under projections. To improve the visualization skills. | vario dards nally ts o s. stand | us of relat effic f cu ling o | concepted to ient. rves f the t | ots like working used in heory of | | |
| | After completion of the course, student wil | l be a | able t | 0: | | | |
| Expected Outcome | Know and understand the convention Engineering Drawing. Understand the application of it techniques applied in Engineering Dra Dimension and annotate two-did drawings. | ons a ndust awing mens | nd th ry s g. sional | ne me tandai eng | thods of rds and gineering | | |
| | • Improve their visualization skills. | | | | | | |
| | UNIT 1 | | | 14 | 4 Hours | | |
| INTRODUCTION: General method – In | Lettering –Geometrical constructions - Const scribing a triangle, square. Pentagon, hexagon in | ruction a circ | on of ele. | f poly | gons by | | |
| | UNIT 2 | | | 1 | 3 Hours | | |
| CONICS: Ellipse, P Concentric Circles 1 normal to the conics | arabola and Hyperbola (General method only). S nethod, Oblong method & Arcs of Circles meth | pecia 10d - | l Met Drav | hods: wing t | Ellipse - angent& | | |
| | UNIT 3 | | | 1 | 2 Hours | | |
| CYCLOIDAL CUI tangent & normal to | RVES: Cycloid, Epi cycloid, Hypo cycloid (simp the cycloidal curves. | ple p | robleı | ns) - | Drawing | | |
| | UNIT 4 | | | 13 | Hours | | |
| PROJECTIONS OF POINTS & LINES: Projections of points - Projections of lines inclined to one reference plane. | | | | | | | |
| | UNIT 5 | | | 1 | 4 Hours | | |
| PROJECTIONS O of lines; inclined to b | F LINES INCLINED TO BOTH REFERENC both reference planes. | E PL | ANE | S: Pr | ojections | | |
| Text Books | Engineering drawing by N.D.Bhatt | | | | | | |

| Reference Books | Engineering graphics by K.L. Narayana& P. Kannayya Engineering drawing and graphics by Venugopal / New age Engineering drawing by Johle / TMI |
|-----------------|---|
| Evaluation | Continuous Assessment (20%) and Assignments (10%) Semester End Examination (70%) |

| Course Outcomes | PO ₁ | PO ₂ | PO ₃ | PO ₄ | PO ₅ | PO ₆ | PO ₇ | PO ₈ | PO ₉ | PO ₁₀ | PO ₁₁ | PO12 | PSO ₁ | PSO ₂ |
|--------------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|------------------|------------------|------|------------------|------------------|
| CO1 | 2 | | 2 | | | 2 | | 1 | | 1 | 1 | | | |
| CO2 | 1 | | | | 1 | | | | | | 1 | | | |
| CO3 | 1 | | 2 | | | 3 | | 3 | | 2 | | 2 | | |
| CO4 | 2 | | | | | | 2 | | 2 | | 1 | | | |
| CO5 | 3 | | 2 | 2 | | 3 | | 1 | | 1 | | | | |

| ANNAMACHARYA | A INSTITUTE OF TECHNOLOGY & SCIE | ENCI | ES::R | RAJAI | MPET | | | | |
|-----------------------------|---|------------------------|------------------------|---------------|--------------------|--|--|--|--|
| | (AN AUTONOMOUS INSTITUTION) | | | | | | | | |
| | 1 Year B. Tech. I Semester | | | | | | | | |
| | | Hours/Week | | | | | | | |
| Course Code: | Course Name: | | | | | | | | |
| 5GC16 | ENGLISH LANGUAGE | L | Т | Р | С | | | | |
| | COMMUNICATION SKILLS LAB – I (Common to All Branches) | 0 | 0 | 3 | 2 | | | | |
| Course Prerequisites | Basics of English | | | | | | | | |
| | Students are able: | | | | | | | | |
| Course Objectives | To train students to use language effectively in everyday conversations To expose the students to a varied blend of self-instructional, learner-friendly modes of language learning. To enable the students, learn better pronunciation through emphasis on individual speech sounds | | | | | | | | |
| | After completion of the course, student wil | l be a | able: | | | | | | |
| Expected Outcomes | Students will learn about the significance of accent an intonation and will attempt to neutralize their accent Students will be able to express themselves fluently i social and professional contexts Students will be able to converse over phone confidentl and clearly in English The student will be able to describe people, objects an aituations wing adjusting. | | | | | | | | |
| | SYLLABUS: | | | | | | | | |
| | The following course content is presc Language Laboratory sessions: | ribed | l for | the | English | | | | |
| | 1. Introduction to the Sounds Diphthongs & Consonants | of | Engli | ish- | Vowels, | | | | |
| | 2. Situational Dialogues and Role-play | 7 | | | | | | | |
| | 3. Telephone Skills | | | | | | | | |
| | 4. Describing Objects / Situation / Peo | ple | | | | | | | |
| | Manual cum Record, prepared by the Facu of the college will be used by Students. | ılty N | Aemb | ers of | English | | | | |
| List of Experiments | Minimum Requirement: | | | | | | | | |
| List of Experiments | The English Language Lab shall have tw | o pa | rts: | | | | | | |
| | • The Computer aided Language Lal systems, one master console, LAI language software for self- study by le | b for N fa earne | 60 st cility rs. | udents and | with 60 English | | | | |
| | • The Communication Skills Lab with movable chairs and audio-visual aids with a P.A System, a T. V. an LCD projector, a digital stereo –audio & video system and camcorder etc. | | | | | | | | |
| | Suggested Software: | | | | | | | | |

| | Sky Pronunciation Suite |
|------------|---|
| | Connected Speech from Clarity |
| | Clarity Pronunciation Power – Part I |
| | Mastering English in Vocabulary, Grammar, Spellings, Composition |
| | English in Mind, Herbert Puchta and Jeff Stranks with Meredith Levy, Cambridge |
| | Dorling Kindersley - Series of Grammar, Punctuation, Composition etc. |
| | Language in Use, Foundation Books Pvt Ltd with CD |
| | Learning to Speak English - 4 CDs |
| | Microsoft Encarta with CD |
| | Cambridge Advanced Learners' English Dictionary with CD. |
| | Murphy's English Grammar, Cambridge with CD |
| | |
| Evaluation | Day to Day Performance (20%), Continuous Assessment (10%) Semester End Lab Examination (70%) |

| Course Outcomes | PO ₁ | PO ₂ | PO ₃ | PO ₄ | PO ₅ | PO ₆ | PO ₇ | PO ₈ | PO ₉ | PO ₁₀ | PO ₁₁ | PO12 | PSO_1 | PSO ₂ |
|--------------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|------------------|------------------|------|---------|------------------|
| CO1 | - | - | - | - | - | - | - | - | 2 | 3 | - | 3 | | |
| CO2 | - | - | - | - | - | - | - | - | 3 | 3 | - | 3 | | |
| CO3 | - | - | - | - | - | - | - | - | 3 | 3 | - | 3 | | |
| CO4 | - | - | - | - | - | - | - | - | 1 | 3 | - | 3 | | |
| CO5 | - | - | - | - | - | - | - | - | 2 | 3 | - | 3 | | |

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| | (AN AUTONOMOUS INSTITUTION) | | | | | | | | | |
| | I Year B. Tech. I Semester | | | | | | | | | |
| | | | | | | | | | | |
| | | Ho | | | | | | | | |
| Course Code: | Course Name: | | | | | | | | | |
| 5GC17 | ENGINEERING CHEMISTRY LAB | L | Т | Р | С | | | | | |
| | (Common to CSE, IT, ME and CE) | 0 | 0 | 3 | 2 | | | | | |
| Course Prerequisites | NIL | | | | | | | | | |
| - | Students are able: | | | | | | | | | |
| | • The student will learn practical uno | lersta | ndina | n of th | ne redox | | | | | |
| Course Objectives | reaction. | 101510 | inaine | 5 01 11 | ie redox | | | | | |
| | • The student will learn the prepar | ation | and | prope | erties of | | | | | |
| | synthetic polymers and other mate | rial 1 | that v | would | provide | | | | | |
| | sufficient impetus to engineer | these | to | su1t | diverse | | | | | |
| | • The student will also learn the hy | vgien | e asr | ects o | of water | | | | | |
| | would be in a position to design me | thods | to p | roduce | potable | | | | | |
| | water using modern technology. | | | | | | | | | |
| | After completion of the course, student wil | l be a | able: | | | | | | | |
| | • Students will understand the concept of redox systems | | | | | | | | | |
| | • Students will exhibit skills to handle the analytical | | | | | | | | | |
| Expected Outcomes | Students will be able to acquire the operating principles | | | | | | | | | |
| | and the reaction mechanisms of the instruments | | | | | | | | | |
| | • Students will be able apply his | knov | ledge | e on t | he basic | | | | | |
| | principles of batteries | | 0 | | | | | | | |
| | Any 10 of the following experiments has to | be p | erfor | med | | | | | | |
| | VOLUMETRIC ANALYSIS | | | | | | | | | |
| | Redox Titrations | | | | | | | | | |
| | 1. Estimation of iron (II) using D (Dichrometry – Internal indicator met |) iphe hod) | nylan | nine | indicator | | | | | |
| | 2. Estimation of Chloride ion using potassium Chromit indicator (Mohr's method) | | | | | | | | | |
| | Water analysis | | | | | | | | | |
| | 3. Determination of total hardness of wa | ter b | y ED | ГА те | thod | | | | | |
| | 4. Estimation of Dissolved Oxygen by V | Vinkl | er's n | nethod | l | | | | | |
| List of Experiments | 5. Determination of acidity of Water | | | | | | | | | |
| F | 6. Determination of Alkalinity of Water | • | | | | | | | | |
| | Complexometry | | | | | | | | | |
| | 7. Determination of Copper by EDTA m | netho | b | | | | | | | |
| | Iodometry | | | | | | | | | |
| | 8. Determination of Copper by Iodometr | ſy | | | | | | | | |
| | INSTRUMENTATION | | | | | | | | | |
| | Colorimetry | | | | | | | | | |

| | 9. Estimation of Iron in Cement by Colorimetry. |
|-----------------|--|
| | Conductometry |
| | 10. Conductometric titration of strong acid Vs strong base (Neutralization titration) |
| | Fuel analysis |
| | 11. Determination of Calorific Value of fuel by using Bomb Calorimeter |
| | Lubricants |
| | 12. Determination of Viscosity of oils using Redwood Viscometer I |
| | 13. Determination of Viscosity of oils using Redwood Viscometer II |
| | PREPARATION OF POLYMERS |
| | 14. Preparation of Bakelite |
| | 15. Preparation of Thiokol rubber |
| | Manual cum Record: Prepared by the Faculty Members of Engineering Chemistry of the college will be used by Students. |
| | Equipment Required: |
| | ✓ Analytical weighing balance |
| | ✓ Digital Conductometer |
| | ✓ Photo-colorimeter |
| | ✓ Bomb calorimeter |
| | ✓ Redwood viscometers |
| | ✓ Deionizer plant |
| | ✓ Digital electronic balance |
| | Glassware Required: |
| | Pipettes, burettes, conical flasks, standard flasks, beakers, reagent bottles, spatulas, wash bottles, BOD Bottles, measuring cylinders, glass rods, Bunsen burners, funnels, thermometers etc. |
| | Chemicals Required: |
| | EDTA, Hypo, Mohr Salt Solution, HCl, Sulphuric Acid, Copper Solution, Iron Solution, Potassium Dichromate Solution, Potassium Iodide Solution, Buffer Solution, diphenyl amine, EBT indicator, NaOH solution, Benzoic acid Urea, distilled water etc. |
| Text Books | Vogel's Text book of Quantitative Chemical Analysis, J. Mendham et al, Pearson Education, Sixth Edition, 2012. |
| Reference Books | Chemistry Practical – Lab Manual by K.B.ChandraSekhar, G.V. Subba Reddy and K.N.Jayaveera, SM Publications, Hyderabad, 3rd Edition, 2012. |
| Evaluation | Day to Day Performance (20%), Continuous Assessment (10%) Semester End Lab Examination (70%) |

| Course | PO_1 | PO ₂ | PO ₃ | PO ₄ | PO ₅ | PO_6 | PO ₇ | PO ₈ | PO ₉ | PO ₁₀ | PO ₁₁ | PO12 | PSO_1 | PSO ₂ |
|----------|--------|-----------------|-----------------|-----------------|-----------------|--------|-----------------|-----------------|-----------------|-------------------------|------------------|------|---------|------------------|
| Outcomes | | | | | | | | | | | | | | |
Department of Information Technology

| CO1 | 2 | - | 2 | 2 | - | - | - | - | - | - | - | - | |
|-----|---|---|---|---|---|---|---|---|---|---|---|---|--|
| CO2 | - | 3 | - | 2 | - | - | - | - | - | - | - | - | |
| CO3 | 3 | - | - | 2 | - | - | - | - | - | - | - | - | |
| CO4 | 2 | - | - | 2 | - | - | - | - | - | - | - | - | |
| CO5 | 2 | - | 2 | 2 | - | - | - | - | - | - | - | - | |

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|---|---|----------------|---------------|---------------|--------------------|--|--|--|--|--|--|
| | (AN AUTONOMOUS INSTITUTION) | | | | | | | | | | |
| | I Year B. Tech. I Semester | 1 | | | | | | | | | |
| | | Ho | ours/V | | | | | | | | |
| Course Code: | Course Name: | | | | | | | | | | |
| 5G112 | PROGRAMMING IN C LAB | L | Т | Р | С | | | | | | |
| | (Common to CSE and IT) | 0 | 0 | 3 | 2 | | | | | | |
| Course Prerequisites | Basics of Computers, Programming Languages | | | l | | | | | | | |
| | Students are able: | | | | | | | | | | |
| | • To make the student learn a programmer | ning | langu | lage. | | | | | | | |
| Course Objectives | • To teach the student to write prog | rams | in C | to s | olve the | | | | | | |
| | problems. | | 1 | | | | | | | | |
| | • To introduce the student to simple linear data structures such as lists, stacks, queues. | | | | | | | | | | |
| | After completion of the course, student wil | l be a | able: | | | | | | | | |
| Expected Outcomes | | | | | | | | | | | |
| | Recommended Systems/Software Requirer | nent | 5: | | | | | | | | |
| | Intel based desktop PC with ANSI C/ TURBO C Compiler and | | | | | | | | | | |
| | Supporting Editors | | | | | | | | | | |
| | Exercise I : Minimum of 4 programs on Data types, Variables, Constants and Input and Output. | | | | | | | | | | |
| | Exercise 2: Minimum of 4 programs on each Operator, Expressions | | | | | | | | | | |
| | and Type Conversions. | | | | | | | | | | |
| | Exercise 3: Minimum of 4 programs on Conditional Statements [two ways and multipath]. | | | | | | | | | | |
| | Exercise 4: Minimum of 4 programs on each Loop Control Statements [for, while and do-While] | | | | | | | | | | |
| List of Experiments | Exercise 5: Minimum of 4 programs or Statements- break, continue, Goto. | n Un | cond | itioned | a JUMP | | | | | | |
| | Exercise 6: Minimum of 4 programs on Declaring Arrays, Referencing Arrays, Array Subscripts. Using for loop for sequential Access. | | | | | | | | | | |
| | Exercise 7: Minimum of 4 programs on Mult | idim | ensio | nal Ar | rays. | | | | | | |
| | Exercise 8: Minimum of 4 programs on Strin Functions and Array of Strings. | ng Ba | asics, | String | g Library | | | | | | |
| | Exercise 9: Minimum of 4 programs of functions, Parameter passing methods- pareference. | on si ass l | mple by va | user alue, | defined pass by | | | | | | |
| | Exercise 10: Minimum of 4 programs on Register, Static and Extern | Sto | rage | classe | s- Auto, | | | | | | |
| | Exercise 11: Minimum of 4 programs o Preprocessor commands. | n R | ecursi | ive Fu | unctions, | | | | | | |
| | Exercise 12: Minimum of 4 programs on u Function Arguments. | ising | Arra | y Elei | ments as | | | | | | |

| Text Books | Programming in C and Data Structures, J.R.Hanly, Ashok N. Kamthane and A. Ananda Rao, Pearson Education. C and Data Structures, E.Balaguruswamy, Tata McGraw Hill. |
|-----------------|---|
| Reference Books | C and Data Structures, A snapshot oriented treatise with live engineering examples, Dr. N.B.Venkateswarlu, Dr. E.V.Prasad, S. Chand. LET US C, Yeswanth Kanitkar, 9th Edition, BPB Publication. |
| Evaluation | Day to Day Performance (20%), Continuous Assessment (10%) Semester End Lab Examination (70%) |

| Course Outcomes | PO ₁ | PO ₂ | PO ₃ | PO ₄ | PO ₅ | PO ₆ | PO ₇ | PO ₈ | PO ₉ | PO ₁₀ | PO ₁₁ | PO12 | PSO ₁ | PSO ₂ |
|--------------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|------------------|------------------|------|------------------|------------------|
| CO1 | 2 | | 2 | | | 2 | | 1 | | 1 | 1 | | | |
| CO2 | 1 | | | | 1 | | | | | | 1 | | | |
| CO3 | 1 | | 2 | | | 3 | | 3 | | 2 | | 2 | | |
| CO4 | 2 | | | | | | 2 | | 2 | | 1 | | | |
| CO5 | 3 | | 2 | 2 | | 3 | | 1 | | 1 | | | | |

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|---|---|---|--------------------------------------|-------------------------------------|---|--|--|--|--|--|--|--|
| | (AN AUTONOMOUS INSTITUTION) | | | | | | | | | | | |
| | I Year B. Tech. I Semester | 1 | | | ſ | | | | | | | |
| | | Но | urs/W | /eek | | | | | | | | |
| Course Code: | Course Name: | | | | | | | | | | | |
| 5G114 | I.T. WORKSHOP | L | Т | Р | С | | | | | | | |
| | (Common to CSE, EEE, ECE and IT) 0 0 3 | | | | | | | | | | | |
| Course Prerequisites | Basics of Computers | • | | | | | | | | | | |
| | Students are able: | | | | | | | | | | | |
| Course Objectives | To provide Technical training to the tools like Word processors, Spreadshe To make the students know about computer, assembling a computer from computer by installing the operating set. To learn about Networking of compactive for Browsing and Searching. | To provide Technical training to the students on Productivity tools like Word processors, Spreadsheets, Presentations To make the students know about the internal parts of a computer, assembling a computer from the parts, preparing a computer by installing the operating system To learn about Networking of computers and use Internet | | | | | | | | | | |
| | After completion of the course, student wil | l be a | able: | | | | | | | | | |
| | Disassemble and Assemble a Personal Computer and prepare the computer ready to use. Prepare the Documents using Word processors Prepare Slide presentations using the presentation tool Interconnect two or more computers for information sharing Access the Internet and Browse it to obtain the required information install single or dual operating systems on computer | | | | | | | | | | | |
| | Preparing your Computer | | | | | | | | | | | |
| List of Experiments | Task 1: Learn about Computer: Identify the internal parts of a computer, and its peripherals. Represent the same in the form of diagrams including Block diagram of a computer. Write specifications for each part of a computer including peripherals and specification of Desktop computer. Submit it in the form of a report. Task 2: Assembling a Computer: Disassemble and assemble the PC back to working condition. Students should be able to trouble shoot the computer and identify working and non-working parts. Student should identify the problem correctly by various methods available (eg: beeps). Students should record the process of assembling and troubleshooting a computer. | | | | | | | | | | | |
| | the computer. Student may install and (including proprietary software) and make multi boot. Students should record the entire Task 4: Operating system features: Stu | snot other the s instal | oper oper ystem lation | stall I rating dual proce | boot or ess. | | | | | | | |
| | various features that are supported by t installed. They have to submit a report on it. to access CD/DVD drives, write CD/DVDs, files, etc. Students should install new applica | he c Stuc acce | operat lents s ess pe softw | ing s should n driv are an | ystem(s) l be able res, print d record | | | | | | | |

the installation process.

Networking and Internet

Task 5: Networking: Students should connect two computers directly using a cable or wireless connectivity and share information. Students should connect two or more computers using switch/hub and share information. Crimpling activity, logical configuration etc should be done by the student. The entire process has to be documented.

Task 6: Browsing Internet: Student should access the Internet for Browsing. Students should search the Internet for required information. Students should be able to create e-mail account and send email. They should get acquaintance with applications like Facebook, skype etc. If Intranet mailing facility is available in the organization, then students should share the information using it. If the operating system supports sending messages to multiple users (LINUX supports it) in the same network, then it should be done by the student. Students are expected to submit the information about different browsers available, their features, search process using different natural languages, and creating e-mail account.

Task 7: Antivirus: Students should download freely available Antivirus software, install it and use it to check for threats to the computer being used. Students should submit information about the features of the antivirus used, installation process, about virus definitions, virus engine etc.

Productivity tools

Task 8: Word Processor: Students should be able to create documents using the word processor tool. Some of the tasks that are to be performed are inserting and deleting the characters, words and lines, Alignment of the lines, inserting header and Footer, changing the font, changing the colour, including images and tables in the word file, making page setup, copy and paste block of text, images, tables, linking the images which are present in other directory, formatting paragraphs, spell checking, etc. Students should be able to prepare project cover pages, content sheet and chapter pages at the end of the task using the features studied. Students should submit a user manual of the word processor considered.

Task 9: Spreadsheet: Students should be able to create, open, save the application documents and format them as per the requirement. Some of the tasks that may be practiced are Managing the worksheet environment, creating cell data, inserting and deleting cell data, format cells, adjust the cell size, applying formulas and functions, preparing charts, sorting cells. Students should submit a user manual of the Spreadsheet application considered.

Task 10: Presentations: creating, opening, saving and running the presentations, selecting the style for slides, formatting the slides with different fonts, colours, creating charts and tables, inserting and deleting text, graphics and animations, bulleting and numbering, hyperlinking, running the slide show, setting the timing for slide show. Students should submit a user manual of the Presentation tool considered.

| | Optional Tasks: |
|-----------------|---|
| | Task 11: Laboratory Equipment : Students may submit a report on specifications of various equipment that may be used by them for the laboratories in their curriculum starting from I B. Tech to IV. B. Tech. It can vary from department to department. Students can refer to their syllabus books, consult staff members of the concerned department or refer websites. The following is a sample list. Instructors may make modifications to the list to suit the department concerned. |
| | Desktop computer |
| | Server computer |
| | • Switch (computer science related) |
| | Microprocessor kit |
| | Micro controller kit |
| | Lathe machine |
| | Generators |
| | Construction material |
| | Air conditioner |
| | • UPS and Inverter |
| | RO system |
| | Electrical Rectifier |
| | • CRO |
| | Function Generator |
| | Microwave benches |
| | Task 12: Software: Students may submit a report on specifications of various software that may be used by them for the laboratories in their curriculum starting from I B. Tech. to IV. B. Tech. The software may be proprietary software or Free and Open source software. It can vary from department to department. Students can refer to their syllabus books, consult staff members of the concerned department or refer websites. The following is a sample list. Instructors may make modifications to the list to suit the department concerned. |
| | Desktop operating system |
| | Server operating system |
| | Antivirus software |
| | MATLAB |
| | CAD/CAM software |
| | AUTOCAD |
| | 1. Introduction to Computers, Peter Norton, Mc Graw Hill |
| Text Books | 2. MOS study guide for word, Excel, Power Point & Outlook Exams", Joan Lambert, Joyce Cox, PHI. |
| Reference Books | 1. Introduction to Information Technology, ITL Education Solutions limited, Pearson Education. |
| | 2. Networking your computers and devices, Rusen, PHI |
| | 3. Trouble shooting, Maintaining & Repairing PCs", Bigelows, |

| | ТМН |
|------------|---|
| Evaluation | Day to Day Performance (20%), Continuous Assessment (10%) Semester End Lab Examination (70%) |

| Course Outcomes | PO ₁ | PO ₂ | PO ₃ | PO ₄ | PO ₅ | PO ₆ | PO ₇ | PO ₈ | PO ₉ | PO ₁₀ | PO ₁₁ | PO12 | PSO ₁ | PSO ₂ |
|--------------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|------------------|------------------|------|------------------|------------------|
| CO1 | 2 | | 2 | | | 2 | | 1 | | 1 | 1 | | | |
| CO2 | 1 | | | | 1 | | | | | | 1 | | | |
| CO3 | 1 | | 2 | | | 3 | | 3 | | 2 | | 2 | | |
| CO4 | 2 | | | | | | 2 | | 2 | | 1 | | | |
| CO5 | 3 | | 2 | 2 | | 3 | | 1 | | 1 | | | | |

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| | (AN AUTONOMOUS INSTITUTION) | | | | | | | | | | | |
| | | | | | | | | | | | | |
| Course Code: | Course Name: | Ho | ours/W | Veek | | | | | | | | |
| 5GC21 | TECHNICAL ENGLISH | | | | | | | | | | | |
| | (Common to All Branches) | L | T | Р | C | | | | | | | |
| | | 3 | 1 | 0 | 3 | | | | | | | |
| Course Prerequisites | Basics of English | | | | | | | | | | | |
| | Students are able to: | | | | | | | | | | | |
| | • To improve the language proficiency of the students in English with an emphasis on LSRW skills | | | | | | | | | | | |
| Course Objectives | • To equip the students with compre academic subjects with greater facility | ehens 7. | ion s | kills 1 | to study | | | | | | | |
| | • To develop English communication skills of the students in formal and informal situations | | | | | | | | | | | |
| | After completion of the course, student wil | l be a | able t | 0: | | | | | | | | |
| Expected Outcomes | Students will increase his vocabular word parts, use of context clues, idi practice with a dictionary Students will exhibit their ability organize, and retain written informatic Students will practice the unique qual style, such as sentence conciseness, cl ambiguity, using direct order or coherence and transitional devices Students exhibit effective writing sk documents in technical communication and emails | Students will increase his vocabulary through the study of word parts, use of context clues, idiomatic expressions, and practice with a dictionary Students will exhibit their ability to read, comprehend, organize, and retain written information Students will practice the unique qualities of technical writing style, such as sentence conciseness, clarity, accuracy, avoiding ambiguity, using direct order organization, readability, coherence and transitional devices Students exhibit effective writing skills and create effective documents in technical communication such as letters, reports and emails | | | | | | | | | | |
| | • Students will understand the factors grammar and vocabulary in speech an | that i d wri | influe iting | nce th | e use of | | | | | | | |
| | UNIT 1 | | ~ | 14 | 4 Hours | | | | | | | |
| Sure Outcomes: Techno Grammar: Kinds of V and Antonyms, Prefixe | ology with a Human Face erbs and their Use; Writing: Official Letters; s and Suffixes, Idioms and Phrases | Voc | abula | ry: Sy | ynonyms | | | | | | | |
| | UNIT 2 | | | 1 | 3 Hours | | | | | | | |
| Sure Outcomes: Climat Grammar: Tenses; Writ | ic Change and Human Strategy ting: Letters of Application; Vocabulary: One | word | Subs | titutes | | | | | | | | |
| UNIT 3 12 Hours | | | | | | | | | | | | |
| Sure Outcomes: Emerg | ing Technologies: Solar Energy in Spain | | | <u> </u> | | | | | | | | |
| Grammar: Types of Se Imperative and Exclam | entences: Simple, Compound and Complex; D atory; Writing: E-mails; Vocabulary: Common | eclar | ative, onfus | Interned Wo | rogative, ords | | | | | | | |
| | UNIT 4 | | | 13 | Hours | | | | | | | |

| Sure Outcomes: Wa | ter: The Elixir of Life | |
|---|--|---|
| Grammar: Subject Vocabulary: English | -Verb Agreement; Writing: Official Reports, Technical a Spelling, Commonly misspelt words | Reports; |
| | UNIT 5 14 | 4 Hours |
| Sure Outcomes: The | e Secret of Work | |
| Grammar: Active an | nd Passive Voice; Writing: Note-making; Vocabulary: Connotation | ns |
| | Sure Outcomes published by Orient Black Swan (with CD) | |
| | The book prescribed serves as students' handbook. The comprises essays which are particularly relevant to eng students. The teacher should focus on developing LSRW skills of while using the prescribed text and exercises. The classe be interactive. The students should be encouraged to particularly should be encouraged | e reader gineering students es should articipate |
| Text Books | in the classroom proceedings and also to write short pa and essays. The main aim is to encourage communication in place of one-sided lecture. | ragraphs two-way |
| Reference Books | Essential Grammar in Use, (with CD), Raymond Murphy Cambridge University Press, 2009 Basic Communication Skills for Technology, Andrea J Ruthurford, Pearson Education, Asia. English for Technical Communication, Aysha Viswamoh Mc-Graw Hill English Grammar and Composition, David Grene, Mc M India Ltd. Murphy's English Grammar, Raymond Murphy, CAMBF Everyday Dialogues in English by Robert J. Dixson, Pren Hall of India Ltd., 2006. Communication Skills for Technical Students, Farhathull T.M., Orient Blackswan, 2008 Developing Communication Skills, 2/e. by Krishna Moha Meera Banerji , Macmillan, 2009 English for Technical Communication, Vol. 1 & 2, by K. Lakshmi Narayanan, Sci tech. Publications. Longman Dictionary of Contemporary English with DVE Pearson Longman | n, 3/e, nan, Tata illan RIDGE ntice- ah, an & R. D, |
| Evaluation | Continuous Assessment (20%) and Assignments (10%) | |
| | Semester End Examination (70%) | |

| Course Outcomes | PO ₁ | PO ₂ | PO ₃ | PO ₄ | PO ₅ | PO ₆ | PO ₇ | PO ₈ | PO ₉ | PO ₁₀ | PO ₁₁ | PO12 | PSO ₁ | PSO ₂ |
|--------------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|------------------|------------------|------|------------------|------------------|
| CO1 | - | - | - | - | - | - | - | - | 2 | 3 | - | 3 | | |
| CO2 | - | - | - | - | - | - | - | - | 1 | 3 | - | 3 | | |
| CO3 | - | - | - | - | - | - | - | - | 2 | 3 | - | 3 | | |
| CO4 | - | - | - | - | - | - | - | - | 1 | 3 | - | 3 | | |
| CO5 | - | - | - | - | - | - | - | - | 1 | 3 | - | 2 | | |

ANNAMACHARYA INSTITUTE OF TECHNOLOGY & SCIENCES::RAJAMPET (AN AUTONOMOUS INSTITUTION) I Year B. Tech. II Semester Hours/Week **Course Code: Course Name: 5GC23 ENGINEERING PHYSICS** L Т С (Common to CSE, IT, ME and CE) Ρ 3 1 0 3 **Course Prerequisites Basics of Chemistry** Students are able to: The mission of the Engineering Physics course is to prepare • students for careers in engineering where physics principles can be applied to the advancement of technology. **Course Objectives** The Engineering Physics course educates the principles of optical science and engineering necessary to understand optical systems. The Crystallography, X-ray diffraction of crystals and crystal defects explains how basic structure modulates properties of materials. The principles of quantum mechanics and electron theory of metals gives an idea on basic development of energy in metals. The main objective of this course is to provide basic understanding engineering of different materials (semiconductors, magnetic, superconducting and nano materials). After completion of the course, student will be able to: Students gain knowledge about basic concepts of optics, fiber • optics, and lasers Students will be able to identify different types of crystal **Expected Outcomes** structures that occur in materials and understand production and application of acoustics Students exhibits knowledge of the roots and founding • principles of Quantum Mechanics and band theory of solids. Students develop an understanding of the basic principles underlying the magnetic and semiconductor Students becomes familiar with the general physics of superconducting materials and nanomaterials **14 Hours** UNIT 1 PHYSICAL OPTICS, LASERS AND FIBRE OPTICS: Physical Optics: Introduction - Interference in thin films by reflection - Newton's Rings -Fraunhofer diffraction due to single slit, double slit and diffraction grating.

Lasers: Introduction - Characteristics of laser – Spontaneous and stimulated emission of radiation - Einstein's coefficients - Population inversion – Ruby laser - He-Ne laser - Semiconductor laser - Applications of lasers. Holography: Construction and Re-Construction of hologram - Applications

Fiber optics: Introduction- Construction and working principle of optical fiber - Numerical

| - Applications of optical fibers in communications, sensors and medicine. | | | | | | | | | | |
|--|---|--|--|--|--|--|--|--|--|--|
| | UNIT 2 | 13 Hours | | | | | | | | |
| CRYSTALLOGRA | APHY AND ULTRASONICS: | | | | | | | | | |
| Crystallography: I lattice –Crystal syste crystals – Miller ind law – Powder methe Ultrasonics: Introdu | ntroduction – Space lattice –Unit cell – Lattice parameter ems – Packing fractions of SC, BCC and FCC - Directions a lices – Inter planar spacing in cubic crystals – X-ray diffraction od – Defects in solids: point defects and types. uction – Properties – Production of ultrasonics by piezoelec | rs – Bravias nd planes in on - Bragg's | | | | | | | | |
| and detection – App | lications in non-destructive testing. | | | | | | | | | |
| | UNIT 3 | 12 Hours | | | | | | | | |
| QUANTUM MECI | HANICS AND FREE ELECTRON THEORY: | | | | | | | | | |
| Quantum Mechanics: Introduction to matter waves – de-Broglie's hypothesis - Heisenberg's uncertainty principle - Schrodinger's time independent wave equation – Significance of wave function - Particle in a one dimensional infinite potential well. Free electron theory: Classical free electron theory – Sources of electrical resistance – Equation for electrical conductivity - Quantum free electron theory – Fermi-Dirac distribution – Kronig - Penny model (qualitative) – Origin of bands in solids – Classification of solids into conductors semiconductors and insulators | | | | | | | | | | |
| | UNIT 4 | 13 Hours | | | | | | | | |
| SEMICONDUCTO | DRS AND MAGNETIC MATERIALS: | | | | | | | | | |
| Semiconductors: In currents and Einstein Working principle o Magnetic materials magneton – Classif magnetic materials – | ntroduction – Intrinsic and extrinsic semiconductors – Drift n's equation – Hall Effect - Direct and indirect band gap semice f p-n junction diode, LED and photodiode. Introduction and basic definitions – Origin of magnetic mon Tication of magnetic materials into dia, para, ferro, antiferre- Hysteresis - Soft and hard magnetic materials and application | & diffusion conductors – ments – Bohr ro and ferri ns. | | | | | | | | |
| | UNIT 5 | 14 Hours | | | | | | | | |
| SUPERCONDUCT | TVITY AND NANOMATERIALS: | | | | | | | | | |
| Superconductivity: and type II superco (qualitative) –ac and | Introduction –Properties of superconductors - Meissner effe nductors – Flux quantization – London penetration depth – dc Josephson effects- Applications of superconductors. | ect – Type I BCS theory | | | | | | | | |
| Nanomaterials: Intr (Surface area and qu and magnetic proper sol-gel, plasma arcin nanomaterials. | roduction - Significance of nanoscale –Basic principles of na uantum confinement) – Physical properties: optical, thermal, erties –Synthesis of nanomaterials: ball mill, chemical vapor ng methods – Carbon nanotubes (CNT) and properties – App | no materials mechanical deposition, plications of | | | | | | | | |
| | Engineering physics –K.Thyagarajan, McGraw Hill 2013. Engineering Physics – S. Mari Naida Barran H | Publishers, | | | | | | | | |
| Text Books | 4. Engineering Physics – S. Mani Naidu, Pearson I Edition, 2012. | Education, 1 | | | | | | | | |
| | 5. Engineering physics –P.K.Palanisamy, Scitech publis | her, 2013. | | | | | | | | |
| | Engineering Physics – RV.S.S.N. Ravi Kumar and N.V. Siva Krishna, Maruthi Publications, 2013 Engineering Physics – DK Battacharya and A Bhaskaran | | | | | | | | | |
| | Oxford Higher Education, 1 st EDd., 2010. | | | | | | | | | |

| Defenses De eler | 2. Engineering Discipation D. K. Dandara C. Chataranadi Canada |
|------------------|---|
| Reference Books | 5. Engineering Physics – D K Pandey, S. Chaturvedi, Cengage |
| | Learning, I Edition, 2012. |
| | 4. Engineering Physics – D.K.Bhattacharya and A.Bhaskaran, |
| | Oxford University press. |
| | 5. Engineering Physics – M. Arumugam, Anuradha Publications, II |
| | Edition, 1997. |
| | 6. Engineering physics – M.N. Avadhanulu and P.G. KrshiSagar, |
| | Chand and Co, Revised Edi 2013. |
| | 7. Solid State Physics – A.J. Dekkar, McMillan Publishers, Latest |
| | edition, 2012. |
| | 8. Engineering Physics – Gaur and Gupta Dhanapati, Rai |
| | Publishers, 7 th Edition, 1992. |
| | 9. Text book of Nanoscience and Nanotechnology: B S Murthy, |
| | P.Shankar, Baldev Raj B BRath, James Murday, University |
| | Press, I Edition, 2012. |
| Evaluation | Continuous Assessment (20%) and Assignments (10%) |
| | |
| | Semester End Examination (70%) |

| Course Outcomes | PO ₁ | PO ₂ | PO ₃ | PO ₄ | PO ₅ | PO ₆ | PO ₇ | PO ₈ | PO ₉ | PO ₁₀ | PO ₁₁ | PO12 | PSO ₁ | PSO ₂ |
|--------------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|------------------|------------------|------|------------------|------------------|
| CO1 | 3 | 2 | 2 | - | - | - | - | - | - | - | - | - | | |
| CO2 | 3 | 2 | 2 | - | - | - | - | - | - | - | - | - | | |
| CO3 | 2 | - | - | - | - | - | - | - | - | - | - | - | | |
| CO4 | 2 | 2 | 1 | - | - | - | - | - | - | - | - | - | | |
| CO5 | 3 | 2 | 3 | - | - | - | - | - | - | - | - | 2 | | |

| ANNAMACHARYA | A INSTITUTE OF TECHNOLOGY & SCIE | ENCI | ES::R | AJAN | MPET | | | | | |
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| | (AN AUTONOMOUS INSTITUTION) | | | | | | | | | |
| | i i cai D. i cen. ii Semestei | | | | | | | | | |
| Course Code: | Course Name: | Но | urs/W | Veek | | | | | | |
| 5GC24 | ENGINEERING MATHEMATICS – II | | | | | | | | | |
| | (Common to All Branches) | L | Т | Р | С | | | | | |
| | | 3 | 1 | 0 | 3 | | | | | |
| Course Prerequisites | | | | | | | | | | |
| | Students are able to: | | | | | | | | | |
| | The course aims to provide the student with | the a | ability | / | | | | | | |
| Course Objectives | • To apply this knowledge to evaluate real life situations. | the r | nultip | ole inte | egrals in | | | | | |
| | • To apply the knowledge of Laplace calculus for engineering problems | e trai | nsforr | ns an | d vector | | | | | |
| | After completion of the course, student wil | vill be able to: | | | | | | | | |
| Expected Outcomes Multiple integral: -Do | Students will understand the application Students will exhibit the knowledge of Students will be able to apply Ordinate with given initial and boundary consubjects Students will be able to analyze the and Integration in various domains Student understands the application theorems. | plicat Lapl ry Di ondition Vect ns c les - | ions ace tr fferer ons i or of Vo Chan | of ransfor ntial e n eng differe ector 14 nge of | Multiple ms quations ineering entiation Integral Hours order of | | | | | |
| integration- Area and v | olumes using double integral. Triple integral - | Evalı | atior | n. | order or | | | | | |
| | UNIT 2 | | | 13 | 3 Hours | | | | | |
| Laplace transform of Transforms of derivati Periodic functions – In | standard functions – Inverse transform – ives and integrals – Second shifting theorem verse Laplace transform – Convolution theorem | First 1— La n. | shift place | ting T trans | Theorem, aform of | | | | | |
| | UNIT 3 | | | 12 | 2 Hours | | | | | |
| Application of Laplace | transforms to ordinary differential equations of | f first | and | second | l order. | | | | | |
| UNIT 4 13 Ho | | | | | | | | | | |
| Vector Calculus: So interpretation, Diverger of curl, Del applied t integrals. | calar and vector point functions, Gradien nce –physical interpretation of divergence, Cur wice to point functions, Line integral - Are | it ar 1 -ph ea, S | d its ysical urfac | s geo l interj e and | ometrical pretation volume | | | | | |
| | UNIT 5 | | | 14 | 4 Hours | | | | | |
| Vector Integral Theo Theorem (without proo | rems : Green's theorem – Stoke's theorem a fs) and their applications. | and C | Gauss | 's Div | vergence | | | | | |

| Text Books | Higher Engineering Mathematics, B.S.Grewal, Khanna publishers- 43 rd Edition (2014) | | | | | | |
|-----------------|--|--|--|--|--|--|--|
| Reference Books | Higher Engineering Mathematics, by Kreyszing A Text Book of Engineering Mathematics, B.V. Ramana, Tata McGraw Hill. A Text Book of Engineering Mathematics, Vol – 1, T.K.V. Iyengar, B. Krishna Gandhi and others, S. Chand & Company. | | | | | | |
| Evaluation | Continuous Assessment (20%) and Assignments (10%) Semester End Examination (70%) | | | | | | |

| Course Outcomes | PO ₁ | PO ₂ | PO ₃ | PO ₄ | PO ₅ | PO ₆ | PO ₇ | PO ₈ | PO ₉ | PO ₁₀ | PO ₁₁ | PO12 | PSO ₁ | PSO ₂ |
|--------------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|------------------|------------------|------|------------------|------------------|
| CO1 | 3 | 2 | - | - | - | - | - | - | - | - | - | 3 | | |
| CO2 | 3 | 3 | - | - | - | - | - | - | - | - | - | 3 | | |
| CO3 | 3 | 2 | - | 1 | - | - | - | - | - | - | - | 3 | | |
| CO4 | 3 | 3 | - | - | - | - | - | - | - | - | - | 3 | | |
| CO5 | 3 | 3 | - | 2 | - | - | - | - | - | - | - | 3 | | |

ANNAMACHARYA INSTITUTE OF TECHNOLOGY & SCIENCES::RAJAMPET (AN AUTONOMOUS INSTITUTION) I Year B. Tech. II Semester Hours/Week **Course Code: Course Name:** 5G121 **C PROGRAMMING AND DATA STRUCTURES** L Т С Ρ (Common to All Branches) 3 1 0 3 **Course Prerequisites Basics of Computers, Programming Languages** Students are able to: Structured programs when and how to use the appropriate statements available in the C language Write basic C programs using, Selection statements, **Course Objectives** Repetitive statements, Functions, Pointers, Arrays and Strings • Implementation of C applications for data structures, sorting and searching. After completion of the course, student will be able to: Understand the purpose of pointers for parameter passing, referencing and dereferencing and understands the concepts of structures, unions and File management. **Expected Outcomes** Understand what and how to design data structure programs • using C programming language. Understand how to solve applications like searching and sorting using C Programming language. UNIT 1 14 Hours POINTERS - Introduction, Features of Pointers, Pointer Declaration and Definition, Void Pointers, pointers for inter function communication, Pointers to Pointers, Pointer Applications: arrays and pointers, pointer arithmetic, Dynamic Memory Allocation, Pointers to Functions, pointer to void and command line arguments. UNIT 2 **13 Hours** STRUCTURES - Definition, initialization, accessing structures, nested structures, array of structures, structures and functions. Pointers and Structures. Unions. Sample programs FILES: Introduction to Streams and Files, Standard library input / output functions, formatted input / output functions, character input/output functions; Text verses binary Streams, Standard library functions for files. File examples. SEARCHING AND SORTING - Exchange (Bubble) Sort, Selection Sort, Quick Sort, Insertion Sort, Merge Sort, Searching- Linear and Binary Search Methods. UNIT 3 12 Hours DATA STRUCTURES: Overview of Data Structure. STACK: Representation of a Stack, Operation on a Stack, Implementation of a Stack using Arrays and Pointers, Representation of Arithmetic Expressions, Infix, Prefix, and Postfix Notations, Evaluation of Postfix Expression, Recursion. QUEUES: Representation of Queue, Insertion, Deletion, Searching Operations, Circular Queues.

UNIT 4

13 Hours

| LINKED LIST : Singly Linked List, Linked List with and without header, Insertion, Deletion and Searching Operations. | | | | | | | | |
|--|--|--------------|--|--|--|--|--|--|
| DOUBLY LINKED LIST: Insertion, Deletion and Searching Operations. | | | | | | | | |
| CIRCULAR LINKED LIST: Insertion, Deletion and Searching Operations. | | | | | | | | |
| UNIT 5 14 Hours | | | | | | | | |
| TREES: Introduction to Trees, Binary Trees, creation of binary tree, Operations on Binary Tree. Introduction to Binary Search Tree, Operations on Binary Search Trees. GRAPHS : Defining graph, basic terminology, graph representation. | | | | | | | | |
| | 1. C Programming and Data Structures, B.AForouzan, | R.F.Gilberg, | | | | | | |

| | 1. C Programming and Data Structures, B.AForouzan, R.F.Gilberg, Cengage learning, Indian edition. |
|------------------|--|
| Text Books | 2. Programming in C and Data Structures, J.R.Hanly, Ashok N.Kamthane and A. Ananda Rao, Pearson Education. |
| | 3. Data Structures and Algorithms: Concepts, Techniques and Applications G.A.V. Pai [UNIT-V] |
| | 1. C and Data Structures, A snapshot oriented treatise with live |
| Reference Books | S. Chand. |
| Merer ence Dooks | 2. LET US C, Yeswanth Kanitkar, 9 th Edition, BPB Publication. |
| Evaluation | Continuous Assessment (20%) and Assignments (10%) |
| | Semester End Examination (70%) |

| Course Outcomes | PO ₁ | PO ₂ | PO ₃ | PO ₄ | PO ₅ | PO ₆ | PO ₇ | PO ₈ | PO ₉ | PO ₁₀ | PO ₁₁ | PO12 | PSO ₁ | PSO ₂ |
|--------------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|------------------|------------------|------|------------------|------------------|
| CO1 | 2 | | 2 | | | 2 | | 1 | | 1 | 1 | | 2 | 2 |
| CO2 | 1 | | | | 1 | | | | | | 1 | | | |
| CO3 | 1 | | 2 | | | 3 | | 3 | | 2 | | 2 | 2 | 2 |
| CO4 | 2 | | | | | | 2 | | 2 | | 1 | | | 1 |
| CO5 | 3 | | 2 | 2 | | 3 | | 1 | | 1 | | | 3 | 2 |

| ANNAMACHARYA INSTITUTE OF TECHNOLOGY & SCIENCES::RAJAMPET | | | | | | | | | |
|---|--|---|--|--|--|--|--|--|--|
| | (AN AUTONOMOUS INSTITUTION) | | | | | | | | |
| | I Year B. Tech. II Semester | 1 | | | | | | | |
| Course Code: 5GC25 | Course Name: MATHEMATICAL METHODS - II | Ho | urs/W | /eek | | | | | |
| | (Common to CSE and IT) | L | Т | Ρ | С | | | | |
| | | 3 | 1 | 0 | 3 | | | | |
| Course Prerequisites | Basics of Mathematics | | | | | | | | |
| | Students are able to: | | | | | | | | |
| Course Objectives | This course aims at providing the student with the concepts of Matrices, Fourier series and partial differential equations which find the applications in engineering. Emphasis will be more on logical and problem solving development in Numerical methods and their applications | | | | | | | | |
| | After completion of the course, student wil | l be a | able t | 0: | | | | | |
| Expected Outcomes | Students will be familiar with the equal curves using the data given. Students will be able to calculate the normal and half range series in any give engineering problems related to Fourier set. Students will be able to apply the transforms in their engineering subjects to Students will be able to analyze and numerical methods to solve the differentia Student knows how to form partial dir solve those equations in their engineering | ations Four en in eries. knov o solv app al equ fferen areas | s of ier co terval wledg re the aly the ation ntial s. | the reperficience of the reperficience of the second secon | espective ents for olve the Fourier ems. propriate ons and 4 Hours | | | | |
| by method of least squa | ares. | ential | curve | e-Pow | er curve | | | | |
| | UNIT 2 | | | 1 | 3 Hours | | | | |
| Numerical solution of Picard's Method –Rung | Ordinary Differential equations - Taylor's se ge-Kutta Fourth Order Method – Milne's Predie | ries ctor-(| - Eule Corre | er's N ctor N | Iethod – Iethod. | | | | |
| | UNIT 3 | | | 1 | 2 Hours | | | | |
| Fourier series: Determination of Fourier coefficients – Fourier series of Even and odd functions – Fourier series in an arbitrary interval – Half-range Fourier sine and cosine expansions. | | | | | | | | | |
| | UNIT 4 | | | 13 | Hours | | | | |
| Fourier transforms – transforms. | Fourier sine and cosine transforms- Finite I | Fouri | er sir | ne and | d cosine | | | | |
| | UNIT 5 | | | 1 | 4 Hours | | | | |
| Partial differential equa | ations: Formation of a PDE by elimination of | f arbi | itrarv | const | ants and | | | | |

functions- Solution of first order linear equation and nonlinear equations of standard types. Method of separation of variables.

| Text Books | Higher Engineering Mathematics, B. S. Grewal, Khanna publishers, 43 rd Ed, 2014. |
|-----------------|---|
| Reference Books | Numerical Methods for Scientific and Engineering Computation, M.K. Jain, S.R.K. Iyengar& R.K. Jain, New Age international Publishers. |
| | 2. Introduction to Numerical Analysis – S.S. Sastry, Prentice Hall of India. |
| | Mathematical Methods, T.K.V. Iyengar, B. Krishna Gandhi and Others, S. Chand & company. |
| Evaluation | Continuous Assessment (20%) and Assignments (10%) |
| | Semester End Examination (70%) |

| Course Outcomes | PO ₁ | PO ₂ | PO ₃ | PO ₄ | PO ₅ | PO ₆ | PO ₇ | PO ₈ | PO ₉ | PO ₁₀ | PO ₁₁ | PO12 | PSO ₁ | PSO ₂ |
|--------------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|------------------|------------------|------|------------------|------------------|
| CO1 | 3 | - | 2 | 3 | - | - | - | - | - | - | - | 2 | | |
| CO2 | 3 | 3 | - | - | - | - | - | - | - | - | - | 2 | | |
| CO3 | 3 | 2 | - | - | - | - | - | - | - | - | - | - | | |
| CO4 | 3 | - | - | 2 | - | - | - | - | - | - | - | 3 | | |
| CO5 | 3 | - | - | - | - | - | - | - | - | - | - | 2 | | |

| ANNAMACHAR | YA INSTITUTE OF TECHNOLOGY & SCI (AN AUTONOMOUS INSTITUTION) | ENCI | ES::R | RAJA | MPET | | | | | |
|---|--|--|-----------------|----------------|-----------|--|--|--|--|--|
| | I Year B. Tech. II Semester | | | | | | | | | |
| Course Code: 5G523 | Course Name: ENGINEERING DRAWING - II (Common to EEE, ECE, CSE and IT) | Ho L | urs/W T | Veek P | С | | | | | |
| | | 3 | 1 | 0 | 3 | | | | | |
| Course Prerequisit | es NIL | | | | | | | | | |
| Course Objectives | Students are able to: To impart and inculcate proper under projections of planes, solids and simp To improve the visualization skills of To prepare the student for future engine | To impart and inculcate proper understanding of the theory of projections of planes, solids and simple machine components. To improve the visualization skills of the student. To prepare the student for future engineering positions | | | | | | | | |
| | After completion of the course, student will | l be a | ble t | 0: | | | | | | |
| Expected Outcome | Comprehend general projection theory, with an emphasis of the use of orthographic projection to represent three dimensional objects in two-dimensional views. Can employ 3D pictorial sketching to aid in the visualization process and to efficiently communicate ideas graphically. Analyze a drawing and bring out any inconsistencies to process the process of the projection of the process of the proces | | | | | | | | | |
| | torth inferences graphically UNIT 1 | | | 14 | 4 Hours | | | | | |
| PROJECTIONS O inclined to both the | F PLANES: Projection of planes inclined to o reference planes. | ne re | ferend | ce pla | ne - and | | | | | |
| | UNIT 2 | | | 1 | 3 Hours | | | | | |
| PROJECTIONS O reference plane | F SOLIDS: Cylinder, Cone, Prism and Pyrami | d - A | xis I | ncline | d to one | | | | | |
| | UNIT 3 | | | 1 | 2 Hours | | | | | |
| PROJECTIONS O the reference planes. | F SOLIDS: Cylinder, Cone, Prism and Pyramic | 1 - A | xis in | clined | l to both | | | | | |
| | UNIT 4 | | | 13 | Hours | | | | | |
| ISOMETRIC PRC Pyramid, Cylinder a | JECTIONS: Projections of Lines, Planes and nd Cone in simple positions only. | Sim | ple S | olids | – Prism, | | | | | |
| | UNIT 5 | | | 1 | 4 Hours | | | | | |
| CONVERSION OI Conversion of Isome | VIEWS: Conversions of Orthographic views etric views to Orthographic views. | into I | some | tric vi | ews and | | | | | |
| Text Books | Engineering drawing by N.D. Bhatt | | | | | | | | | |
| Reference Books | Engineering graphics by K.L. Narayanaa Engineering drawing and graphics by Ve Engineering drawing by Johle / TMI | & P. H enugo | Kanna pal/ N | iyya New aş | ge | | | | | |

| Evaluation | Continuous Assessment (20%) and Assignments (10%) |
|------------|---|
| | Semester End Examination (70%) |

| 8 | | | | | | | | | | | | | | |
|--------------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|------------------|------------------|------|--------------------|------------------|
| Course Outcomes | PO ₁ | PO ₂ | PO ₃ | PO ₄ | PO ₅ | PO ₆ | PO ₇ | PO ₈ | PO ₉ | PO ₁₀ | PO ₁₁ | PO12 | \overline{PSO}_1 | PSO ₂ |
| CO1 | 2 | | 2 | | | 2 | | 1 | | 1 | 1 | | 2 | 2 |
| CO2 | 1 | | | | 1 | | | | | | 1 | | | |
| CO3 | 1 | | 2 | | | 3 | | 3 | | 2 | | 2 | 2 | 2 |
| CO4 | 2 | | | | | | 2 | | 2 | | 1 | | | 1 |
| CO5 | 3 | | 2 | 2 | | 3 | | 1 | | 1 | | | 3 | 2 |

| ANNAMACHARYA | A INSTITUTE OF TECHNOLOGY & SCIE | ENCI | ES::F | RAJA | MPET | | | | | | | |
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| | (AN AUTONOMOUS INSTITUTION) | | | | | | | | | | | |
| | I Year B. Tech. II Semester | | | | | | | | | | | |
| | | | | | | | | | | | | |
| | Hours/Week | | | | | | | | | | | |
| Course Code: | ourse Name: | | | | | | | | | | | |
| 5GC26 | ENGLISH LANGUAGE | ENGLISH LANGUAGE L T P C | | | | | | | | | | |
| | COMMUNICATION SKILLS LAB - II | 0 | 0 | 3 | 2 | | | | | | | |
| | (Common to All Branches) | | | | | | | | | | | |
| Course Prerequisites | Basics of English | | | | | | | | | | | |
| | Students are able: | | | | | | | | | | | |
| | • To enable a learner sharpen his public | spea | king | skills | | | | | | | | |
| Course Objectives | • To expose the students to a varied bl | end o | of sel | f-instr | uctional, | | | | | | | |
| | • To enable the student learn better | nnin nro | g nunci | ation | through | | | | | | | |
| | emphasis on word accent, intonation, | • 10 enable the student learn better pronunciation through emphasis on word accent, intonation, and rhythm | | | | | | | | | | |
| | After completion of the course, student will be able: | | | | | | | | | | | |
| Expected Outcomes | • Students will be able to understand the importance of | | | | | | | | | | | |
| | intonation, word and sentence | intonation, word and sentence stress for improving | | | | | | | | | | |
| | communication competence to iden | communication competence to identify and to overcome | | | | | | | | | | |
| | mispronunciation • Students will be able to make groateneous a groach | | | | | | | | | | | |
| | confidently | spor | | us a | specen | | | | | | | |
| | • Students will enhance their public sp | peaki | ng sk | cills a | nd make | | | | | | | |
| | technical presentations | | | | | | | | | | | |
| | • Students will analyze, interpret an | nd c | ompa | re da | ta from | | | | | | | |
| | graphs/pie charts | .1 | . | • • • | | | | | | | | |
| | The following course content is prescribed to Laboratory sessions: | or the | Eng | lish La | anguage | | | | | | | |
| | 1 Introduction to Stress and Intonation | | | | | | | | | | | |
| | 2. 'Just A Minute' (JAM) | | | | | | | | | | | |
| | 3. Oral Presentations | | | | | | | | | | | |
| | 4. Information Transfer | | | | | | | | | | | |
| | Manual cum Record, prepared by the Facu | ılty N | /Iemb | ers of | English | | | | | | | |
| | of the college will be used by Students. | | | | C | | | | | | | |
| | Minimum Requirements: | | | | | | | | | | | |
| | The English Language Lab shall have tw | o pa | rts: | | | | | | | | | |
| List of Experiments | • The Computer aided Language Lab for 60 students with 60 systems, one master console, LAN facility and English language software for self- study by learners | | | | | | | | | | | |
| | • The Communication Skills Lab with movable chairs and audio-visual aids with a P.A System, a T. V. an LCD projector, a digital stereo –audio & video system and camcorder etc. | | | | | | | | | | | |
| | Suggested Software: | | | | | | | | | | | |
| | Sky Pronunciation Suite | | | | | | | | | | | |

| Software | Connected Speech from Clarity |
|------------|---|
| | Clarity Pronunciation Power – Part I |
| | Language in Use, Foundation Books Pvt Ltd with CD |
| | Learning to Speak English - 4 CDs |
| | Cambridge Advanced Learners' English Dictionary with CD. |
| | Murphy's English Grammar, Cambridge with CD |
| Evaluation | Day to Day Performance (20%), Continuous Assessment (10%) Semester End Lab Examination (70%) |

| Course Outcomes | PO ₁ | PO ₂ | PO ₃ | PO ₄ | PO ₅ | PO ₆ | PO ₇ | PO ₈ | PO ₉ | PO ₁₀ | PO ₁₁ | PO12 | PSO ₁ | PSO ₂ |
|--------------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|------------------|------------------|------|------------------|------------------|
| CO1 | - | - | - | - | - | - | - | - | - | 3 | - | 2 | | |
| CO2 | - | - | - | - | - | - | - | - | - | 3 | - | 3 | | |
| CO3 | - | - | - | - | - | - | - | - | - | 3 | - | 3 | | |
| CO4 | - | - | - | - | - | - | - | - | - | 3 | - | 2 | | |
| CO5 | | | | | | | | | | | | | | |

| ANNAMACHARY | A INSTITUTE OF TECHNOLOGY & SCII | ENCI | ES::F | RAJAI | MPET | | | | | | | |
|-----------------------------|---|---|--------|----------|-----------|--|--|--|--|--|--|--|
| | (AN AUTONOMOUS INSTITUTION) | | | | | | | | | | | |
| | I Year B. Tech. II Semester | | | | | | | | | | | |
| | | | (*** | | | | | | | | | |
| ~ ~ . | | Ho | ours/V | Veek | | | | | | | | |
| Course Code: | Course Name: | | | | _ | | | | | | | |
| 5GC28 | ENGINEERING PHYSICS LAB | ENGINEERING PHYSICS LAB L T P C | | | | | | | | | | |
| | (Common to CSE, IT, ME and CE) | 0 | 0 | 3 | 2 | | | | | | | |
| Course Prerequisites | Basics of Phiscs | | | | | | | | | | | |
| | Students are able: | | | | | | | | | | | |
| | • The student will be able to handle | and ı | under | stand | different | | | | | | | |
| Course Objectives | apparatus to perform experiments. | | | | | | | | | | | |
| - | • The student will learn practical m | easu | emer | nt of | different | | | | | | | |
| | physical quantities. | | | | | | | | | | | |
| | • The student will be able to characterize | ze the | e mate | erials a | and their | | | | | | | |
| | • The student will be allowed to learn | n nra | ctical | exper | ience of | | | | | | | |
| | theory conceptual values. | n pru | etieui | enper | | | | | | | | |
| | After completion of the course, student wil | ll be a | able: | | | | | | | | | |
| Expected Outcomes | • Students will understand the charact | teristi | ics ar | nd beh | avior of | | | | | | | |
| | various materials | | | | | | | | | | | |
| | • Students will be able to understand t | he ap | oplica | tions (| of optics | | | | | | | |
| | using basic fundamentals of physics | | | | | | | | | | | |
| | • Students will exhibit an ability to u | ise te | chnig | ues a | nd skills | | | | | | | |
| | fiber optics | tools | Such | 1 as 1a | sers and | | | | | | | |
| | • Students will be able to mea | sure | pro | perties | s of a | | | | | | | |
| | semiconductor and magnetic material | S | F | F~ | | | | | | | | |
| | Any 10 of the following experiments has to | be p | erfor | med | | | | | | | | |
| | 1. Determination of wavelengths of va | rious | colo | ors of | mercury | | | | | | | |
| | spectrum using diffraction grating in | norm | al inc | idence | emethod | | | | | | | |
| | 2. Determination of dispersive power of | the p | orism | | | | | | | | | |
| | 3. Determination of thickness of thin ob | ject b | y wee | dge m | ethod | | | | | | | |
| | 4. Determination of radius of curvatur Rings | re of | lens | by N | lewton's | | | | | | | |
| | 5. Laser: Diffraction due to single slit | | | | | | | | | | | |
| | 6. Laser: Diffraction due to double slit | | | | | | | | | | | |
| | 7. Laser: Determination of wavelength u | ising | diffra | ction | grating | | | | | | | |
| List of Experiments | 8. Determination of Numerical aperture | of an | optic | al fibe | er | | | | | | | |
| List of Experiments | 9. Meldi's experiment: Determination o fork | f the | frequ | ency of | of tuning | | | | | | | |
| | 10. Determination of particle size by usin | g lase | er. | | | | | | | | | |
| | 11. Energy gap of a material using p-n jun | nction | n dioc | le | | | | | | | | |
| | 12. Hall effect: Determination of mobil | ity o | f cha | rge ca | rriers in | | | | | | | |
| | Semiconductor | - | | - | | | | | | | | |

| | 13. B-H curve |
|------------------------|---|
| | 14. Magnetic field along the axis of a current carrying coil – Stewart and Gee's method. |
| | 15. Determination of rigidity modulus – Torsional pendulum |
| | Manual cum Record: |
| | Prepared by Engineering Physics Faculty Members of Annamacharya Institute of Technology and Sciences. |
| Equipment Required | Spectrometers Microscopes Meldi's apparatus Stewart-Gee's apparatus Torsional pendulum Light sources Optical fiber cables |
| Text Books | Engineering Physics Practicals – Dr. B. Srinivasa Rao V.K.V. Krishna K.S Rudramamba |
| Reference Books | Engineering Practical Physics – S.L Kakani & Shubra Kakani |
| Evaluation | Day to Day Performance (20%), Continuous Assessment (10%) Semester End Lab Examination (70%) |

| Course Outcomes | PO ₁ | PO ₂ | PO ₃ | PO ₄ | PO ₅ | PO ₆ | PO ₇ | PO ₈ | PO ₉ | PO ₁₀ | PO ₁₁ | PO12 | PSO ₁ | PSO ₂ |
|--------------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|------------------|------------------|------|------------------|------------------|
| CO1 | 2 | - | - | - | - | - | - | - | - | - | - | - | | |
| CO2 | 3 | - | - | - | 3 | - | - | - | - | - | - | - | | |
| CO3 | 2 | - | 2 | - | 3 | - | - | - | - | - | - | - | | |
| CO4 | 2 | 3 | - | - | - | - | - | - | - | - | - | - | | |
| CO5 | | | | | | | | | | | | | | |

| I Year B. Tech. II SemesterI Year B. Tech. II SemesterI Year B. Tech. II SemesterInternational Structure Structure Name: DATA STRUCTURES LAB (Common to CSE and IT)International Structure Structure Structure Structure TheoryCourse PrerequisitesC Programming, Data Structure TheoryStudents are able: | ANNAMACHARY | A INSTITUTE OF TECHNOLOGY & SCIE | ENCI | ES::F | RAJAN | MPET | | | | | | |
|--|-----------------------------|--|--------|---------|--------------|---------|--|--|--|--|--|--|
| I Year B, Tech, II SemesterI Year B, Tech, II SemesterImage: Implementation of Single Linked List and its operations using i Arrays i ProvincesCourse Code: DATA STRUCTURES LAB (Common to CSE and IT)Implementation of Single Linked List and its operations using i ProvincesCourse PrerequisiteCrogramming, Data Structure TheoryStudents are able: • To make the student loarn a programming language. • To teach the student to write programs in C to solve the problems. • To introduce the student to simple linear data structures such as lists, stacks, queues.After completion of the course, student will be able:Expected OutcomesExercise 1 : Minimum of 4 Programs on pointer basics. Exercise 2 : Minimum of 4 programs on structures and unions Exercise 3 : Minimum of 4 programs on searching and sorting techniques. Exercise 5 : Minimum of 4 programs on searching and sorting techniques. Exercise 6 : Implementation of Stack and perform all Stack operations using i Arrays i PointersList and its operations using i Arrays i Pointers | | (AN AUTONOMOUS INSTITUTION) | | | | | | | | | | |
| Course Code: 5G122Course Name: DATA STRUCTURES LAB (Common to CSE and IT)Hours/INEIIIIIPCCourse PrerequisitesC Programming, Data Structure TheoryCourse Origination of Course ObjectivesStudents are able: | | I Year B. Tech. II Semester | 1 | | | | | | | | | |
| Course Code: 5G122 Course Name: DATA STRUCTURES LAB (Common to CSE and IT) L T P C Course Prerequisites C Programming, Data Structure Theory 0 0 3 2 Course Objectives Students are able: • To make the student learn a programming language. • To teach the student to write programs in C to solve the problems. • To introduce the student to simple linear data structures such as lists, stacks, queues. After completion of the course, student will be able: Expected Outcomes Exercise 1 : Minimum of 4 Programs on pointer sapilications. Exercise 2 Exercise 3 : Minimum of 4 programs on structures and unions Exercise 3 : Minimum of 4 programs on searching and sorting techniques. List of Experiments Exercise 6 : Implementation of Stack and perform all Stack operations using i) Arrays i) Pointers List of Experiments Exercise 7 : Implementation of Queue and perform all Queue operations using i) Arrays i) Pointers Exercise 8 : Implementation of Single Linked List and its operations using i) Arrays i) Pointers Exercise 9 : Implementation of Double Linked List and its operations using i) Arrays i) Pointers | | | Но | urs/V | Veek | | | | | | | |
| 5G122 DATA STRUCTURES LAB (Common to CSE and IT) L T p C Course Prerequisite CProgramming, Data Structure Theory 0 0 3 2 Course Objectives Students are able: • To make the student learn a programming language. • To teach the student to write programs in C to solve the problems. • To introduce the student to simple linear data structures such as lists, stacks, queues. It is objectives Structure Theory Expected Outcomes After completion of the course, student will be able: Exercise 1 : Minimum of 4 Programs on pointer basics. Exercise 2 : Minimum of 4 Programs on Pointers applications. Exercise 3 : Minimum of 4 programs on basic File operations. Exercise 4 : Minimum of 4 programs on basic File operations. Exercise 5 : Minimum of 4 programs on basic File operations. Exercise 6 : Implementation of Stack and perform all Stack operations using | Course Code: | Course Name: | | | | | | | | | | |
| (Common to CSE and IT)00032Course PrerequisitesC Programming, Data Structure TheoryStudents are able:• To make the student learn a programming language.• To teach the student to write programs in C to solve the problems.• To introduce the student to simple linear startures such as lists, stacks, queues.• To course Objectives• After completion of the course, student will be able:• Expected Outcomes• Exercise 1 : Minimum of 4 Programs on pointer basics.• Exercise 2 : Minimum of 4 Programs on Pointers applications.• Exercise 3 : Minimum of 4 programs on basic File operations.• Exercise 4 : Minimum of 4 programs on basic File operations.• Exercise 6 : Implementation of Stack and perform all stack operations using• i) Arrays ii) Pointers• i) Arrays ii) Pointers• Exercise 7 : Implementation of Queue and perform all Queue operations using• i) Arrays ii) Pointers• Exercise 8 : Implementation of Stack and perform all Queue operations using• i) Arrays ii) Pointers• Exercise 9 : Implementation of Single Linked List and its operations using• i) Arrays ii) Pointers• Exercise 9 : Implementation of Double Linked List and its operations using• i) Arrays ii) Pointers• Exercise 11 : Implementation of Circular Linked List and its operations using• i) Arrays ii) Pointers• Exercise 11 : Implementation of Circular Linked List and its operations using• i) Arrays ii) Pointers• i) Arrays ii) Pointers• i) Arrays ii) Pointers• i) Arrays ii) Pointers• i) Arr | 5G122 | DATA STRUCTURES LAB | L | Т | Р | С | | | | | | |
| Course Prerequisites C Programming, Data Structure Theory Students are able: • To make the student learn a programming language. Course Objectives • To teach the student to write programs in C to solve the problems. • To introduce the student to simple linear data structures such as lists, stacks, queues. • After completion of the course, student will be able: Expected Outcomes Exercise 1 : Minimum of 4 Programs on pointer basics. Exercise 3 : Minimum of 4 Programs on pointer basics. Exercise 3 : Minimum of 4 programs on structures and unions Exercise 4 : Minimum of 4 programs on structures and unions Exercise 5 : Minimum of 4 programs on searching and sorting techniques. Exercise 5 : Minimum of 4 programs on searching and sorting techniques. Exercise 6 : Implementation of Stack and perform all Stack operations using | | (Common to CSE and IT) | 0 | 0 | 3 | 2 | | | | | | |
| Course ObjectivesStudents are able: To make the student learn a programming language.To teach the student to write programs in C to solve the problems.To introduce the student to simple linear data structures such as lists, stacks, queues. Expected OutcomesAfter completion of the course, student will be able:Expected OutcomesExercise 1 : Minimum of 4 Programs on pointer basics. Exercise 2 : Minimum of 4 Programs on Pointers applications. Exercise 3 : Minimum of 4 programs on structures and unions Exercise 3 : Minimum of 4 programs on basic File operations. Exercise 5 : Minimum of 4 programs on searching and sorting techniques.List of Experimentsi) Arrays ii) PointersExercise 7 : Implementation of Stack and perform all Queue operations using i) Arrays ii) PointersExercise 8 : Implement Circular Queue (its operations) using i) Arrays ii) PointersExercise 9 : Implementation of Single Linked List and its operations using i) Arrays ii) PointersExercise 10 : Implementation of Double Linked List and its operations using i) Arrays ii) PointersExercise 11 : Implementation of Circular Linked List and its operations usingii) Arrays ii) PointersExercise 10 : Implementation of Circular Linked List and its operations using i) Arrays ii) PointersExercise 11 : Implementation of Circular Linked List and its operations using | Course Prerequisites | C Programming, Data Structure Theory | • | | | | | | | | | |
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| problems.• To introduce the student to simple linear data structures such as lists, stacks, queues.After completion of the course, student will be able:Expected OutcomesExpected OutcomesExercise 1 : Minimum of 4 Programs on pointer basics.Exercise 2 : Minimum of 4 Programs on Pointers applications.Exercise 3 : Minimum of 4 programs on structures and unionsExercise 4 : Minimum of 4 programs on structures and unionsExercise 5 : Minimum of 4 programs on searching and sorting techniques.Exercise 6 : Implementation of Stack and perform all Stack operations usingi) Arraysii) PointersExercise 8 : Implement Circular Queue (its operations) using i) Arraysii) Arraysii) PointersExercise 9 : Implementation of Single Linked List and its operations using i) Arraysii) Arraysii) PointersExercise 10 : Implementation of Double Linked List and its operations usingii) Arraysii) PointersExercise 11 : Implementation of Circular Linked List and its operations usingii) Arraysii) PointersExercise 11 : Implementation of Circular Linked List and its operations usingii) Arraysii) Arraysii) PointersExercise 11 : Implementation of Circular Linked List and its operations using | Course Objectives | • To teach the student to write programs in C to solv | | | | | | | | | | |
| • 10 introduce the student to simple innear data structures such as lists, stacks, queues. After completion of the course, student will be able: Expected Outcomes Exercise 1 : Minimum of 4 Programs on pointer basics. Exercise 2 : Minimum of 4 Programs on Pointers applications. Exercise 3 : Minimum of 4 programs on structures and unions Exercise 4 : Minimum of 4 programs on basic File operations. Exercise 5 : Minimum of 4 programs on searching and sorting techniques. Exercise 6 : Implementation of Stack and perform all Stack operations using i) Arrays ii) Pointers Exercise 7 : Implementation of Queue and perform all Queue operations using i) Arrays ii) Pointers Exercise 8 : Implement Circular Queue (its operations) using | | problems. | | 1.4 | | | | | | | | |
| Expected Outcomes After completion of the course, student will be able: Expected Outcomes Exercise 1 : Minimum of 4 Programs on pointer basics. Exercise 2 : Minimum of 4 Programs on Pointers applications. Exercise 3 : Minimum of 4 programs on structures and unions Exercise 3 : Minimum of 4 programs on basic File operations. Exercise 4 : Minimum of 4 programs on basic File operations. Exercise 5 : Minimum of 4 programs on searching and sorting techniques. Exercise 5 : Minimum of 4 programs on searching and sorting techniques. List of Experiments Exercise 7 : Implementation of Stack and perform all Stack operations using | | • To introduce the student to simple in as lists stacks queues | near | data s | structu | res suc | | | | | | |
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| Exercise 3: Minimum of 4 programs on structures and unionsExercise 4: Minimum of 4 programs on basic File operations.Exercise 5: Minimum of 4 programs on searching and sorting techniques.Exercise 6: Implementation of Stack and perform all Stack operations usingList of Experimentsi) Arraysii) PointersExercise 7Exercise 7: Implementation of Queue and perform all Queue operations usingi) Arraysii) PointersExercise 8: Implement Circular Queue (its operations) using i) Arraysii) PointersExercise 9Exercise 9: Implementation of Single Linked List and its operations usingi) Arraysii) PointersExercise 10: Implementation of Double Linked List and its operations usingi) Arraysii) PointersExercise 11: Implementation of Circular Linked List and its operations using | | Exercise 2 : Minimum of 4 Programs on Pointer applications. | | | | | | | | | | |
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| i) Arrays ii) Pointers Exercise 8 : Implement Circular Queue (its operations) using i) Arrays ii) Pointers Exercise 9 : Implementation of Single Linked List and its operations using i) Arrays ii) Pointers Exercise 10 : Implementation of Double Linked List and its operations using i) Arrays ii) Pointers Exercise 10 : Implementation of Double Linked List and its operations using i) Arrays ii) Pointers Exercise 11 : Implementation of Circular Linked List and its operations using i) Arrays ii) Pointers | List of Experiments | Exercise 7 : Implementation of Queue and perform all Queue operations using | | | | | | | | | | |
| Exercise 8 : Implement Circular Queue (its operations) using i) Arrays ii) Pointers Exercise 9 : Implementation of Single Linked List and its operations using i) Arrays ii) Pointers Exercise 10 : Implementation of Double Linked List and its operations using i) Arrays ii) Pointers Exercise 10 : Implementation of Double Linked List and its operations using ii) Arrays ii) Pointers Exercise 11 : Implementation of Circular Linked List and its operations using ii) Pointers | List of Experiments | i) Arrays ii) Pointers | | | | | | | | | | |
| i) Arrays ii) Pointers Exercise 9 : Implementation of Single Linked List and its operations using i) Arrays ii) Pointers Exercise 10 : Implementation of Double Linked List and its operations using i) Arrays ii) Pointers Exercise 11 : Implementation of Circular Linked List and its operations using | | Exercise 8 : Implement Circular Queue (its | oper | ation | s) usin | ıg | | | | | | |
| Exercise 9 : Implementation of Single Linked List and its operations using i) Arrays ii) Pointers Exercise 10 : Implementation of Double Linked List and its operations using i) Arrays ii) Pointers Exercise 11 : Implementation of Circular Linked List and its operations using ii) Arrays ii) Pointers | | i) Arrays ii) Pointers | | | | | | | | | | |
| i) Arrays ii) Pointers Exercise 10 : Implementation of Double Linked List and its operations using i) Arrays ii) Pointers Exercise 11 : Implementation of Circular Linked List and its operations using | | Exercise 9 : Implementation of Single Linked List and its operations using | | | | | | | | | | |
| Exercise 10 : Implementation of Double Linked List and its operations using i) Arrays ii) Pointers Exercise 11 : Implementation of Circular Linked List and its operations using | | i) Arrays ii) Pointers | | | | | | | | | | |
| i) Arrays ii) Pointers Exercise 11 : Implementation of Circular Linked List and its operations using | | Exercise 10 : Implementation of Double Linked List and its operations using | | | | | | | | | | |
| Exercise 11 : Implementation of Circular Linked List and its operations using | | i) Arrays ii) Pointers | т· | 1 1 | T • . | 1 • | | | | | | |
| | | Exercise 11 : Implementation of Circular operations using | r Li | nked | L1st | and it | | | | | | |
| 1) Arrays 11) Pointers | | i) Arrays ii) Pointers | | | | | | | | | | |
| Exercise 12 : C program that uses Stack operations to perform the following: | | Exercise 12 : C program that uses Stack op following: | perat | ions t | to perf | form th | | | | | | |
| i) Write Converting infix expression into postfix expression | | i) Write Converting infix expression | expi | ressio | n into | postfi | | | | | | |

| | ii) Evaluating the postfix expression |
|---|---|
| | Exercise 13 : Implement Binary Tree using Double Linked List and its operations. |
| Recommended Systems/Software Requirements | Intel based desktop PC with ANSI C/ TURBO C Compiler and Supporting Editors |
| Text Books | |
| Reference Books | |
| Evaluation | Day to Day Performance (20%), Continuous Assessment (10%) Semester End Lab Examination (70%) |

| Course Outcomes | PO ₁ | PO ₂ | PO ₃ | PO ₄ | PO ₅ | PO ₆ | PO ₇ | PO ₈ | PO ₉ | PO ₁₀ | PO ₁₁ | PO12 | PSO ₁ | PSO ₂ |
|--------------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|------------------|------------------|------|------------------|------------------|
| CO1 | 2 | | 2 | | | 2 | | 1 | | 1 | 1 | | 2 | 2 |
| CO2 | 1 | | | | 1 | | | | | | 1 | | | |
| CO3 | 1 | | 2 | | | 3 | | 3 | | 2 | | 2 | 2 | 2 |
| CO4 | 2 | | | | | | 2 | | 2 | | 1 | | | 1 |
| CO5 | 3 | | 2 | 2 | | 3 | | 1 | | 1 | | | 3 | 2 |

| ANNAMACHARYA | A INSTIT | UTE OF TECHNOLOGY & SCIE | ENCI | ES::F | RAJAI | MPET | | | | | | |
|----------------------|---|---|--|--|--|---|--|--|--|--|--|--|
| | (AN A I Y | Vear B. Tech. II Semester | | | | | | | | | | |
| | | | Цо | urc/W | Vook | | | | | | | |
| Course Code | Course | James | по | urs/ v | VEEK | | | | | | | |
| SC 524 | Course I EN | Name: CINEEDING WORKSHOP | т | т | р | C | | | | | | |
| 30324 | (Comm | on to CSE FFE FCE and IT) | | 1 | P | C | | | | | | |
| | (Comm | | 0 | 0 | 3 | 2 | | | | | | |
| Course Prerequisites | | | | | | | | | | | | |
| Course Objectives | Students The scient to eq engin manu invol | are able: budding Engineer may turn out tist, entrepreneur, practitioner, consu uip the engineer with the knowledge eering materials as well as shop facture or work with materials. Esse ved, machinery or equipment nece pate and also should be able to e | to to tant e of pra ential essar | be a etc. T comn ctices ly, kr y, tin | tech There and to f to f now the ne requestions | nologist, is a need ad newer abricate, ne labour juired to | | | | | | |
| | product or job work. Hence engineering work shop practice is included to introduce some common shop practices and on hand experience to appreciate the use of skill, tools, equipment and general practices to all the engineering students. | | | | | | | | | | | |
| Expected Outcomes | After completion of the course, student will be able: | | | | | | | | | | | |
| | TRADE | S FOR EXERCISES: | | | | | | | | | | |
| | A. CARPENTRY SHOP – Two joints (exercises) involving tenon and mortising, groove and tongue: Making middle lap T joint, cross lap joint, mortise and tenon T joint, Bridle T joint from out of 300 x 50 x 50 mm soft wood stock | | | | | | | | | | | |
| | В. | B. FITTING SHOP- Two joints (exercises) from: square joint, V joint, half round joint or dove tail joint out of 100 x 50 x 5 mm M S. stock | | | | | | | | | | |
| | C. | C. SHEET METAL SHOP – Two jobs (exercises) from: Tray, cylinder, hopper or funnel from out of 22 or 20 gauge G.I. sheet. | | | | | | | | | | |
| List of Experiments | D. | HOUSE-WIRING – Two jobs (excelling rose and two lamps (bulbs) controls with or without looping, w wiring for a water pump with single | ercis with viring e pha | es) fro indep for s se sta | om: w pender tair ca irter. | viring for nt switch use lamp, | | | | | | |
| | E. Foundry–Preparation of two moulds (exercises): for single pattern and a double pattern. | | | | | | | | | | | |
| | F. WELDING – Preparation of two welds (exercises): single V butt joint, lap joint, double V butt joint or T fillet joint | | | | | | | | | | | |
| | 2. TRADES FOR DEMONSTRATION: | | | | | | | | | | | |
| | A. PLUMBING | | | | | | | | | | | |
| | B | . MACHINE SHOP | | | | | | | | | | |
| | C | . METAL CUTTING | | | | | | | | | | |

| | Apart from the above the shop rooms should display charts, layouts, figures, circuits, hand tools, hand machines, models of jobs, materials with names such as different woods, wood faults, Plastics, steels, meters, gauges, equipment, CD or DVD displays, first aid, shop safety etc. (though they may not be used for the exercises but they give valuable information to the student). In the class work or in the examination knowledge of all shop practices may be stressed upon rather than skill acquired in making the job. |
|-----------------|---|
| Text Books | Engineering Work shop practice for JNTU, V. Ramesh Babu, VRB Publishers Pvt. Ltd., 2009. |
| Reference Books | Work shop Manual / P.Kannaiah / K.L.Narayana / SciTech Publishers. Engineering Practices Lab Manual, Jeyapoovan, Saravana Pandian, 4/e Vikas. Dictionary of Mechanical Engineering, GHF Nayler, Jaico Publishing House. |
| Evaluation | Day to Day Performance (20%), Continuous Assessment (10%) Semester End Lab Examination (70%) |

| Course Outcomes | PO ₁ | PO ₂ | PO ₃ | PO ₄ | PO ₅ | PO ₆ | PO ₇ | PO ₈ | PO ₉ | PO ₁₀ | PO ₁₁ | PO12 | PSO ₁ | PSO ₂ |
|--------------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|------------------|------------------|------|------------------|------------------|
| CO1 | 2 | | 2 | | | 2 | | 1 | | 1 | 1 | | 2 | 2 |
| CO2 | 1 | | | | 1 | | | | | | 1 | | | |
| CO3 | 1 | | 2 | | | 3 | | 3 | | 2 | | 2 | 2 | 2 |
| CO4 | 2 | | | | | | 2 | | 2 | | 1 | | | 1 |
| CO5 | 3 | | 2 | 2 | | 3 | | 1 | | 1 | | | 3 | 2 |

| ANNAMACHARY | A INSTITUTE OF TECHNOLOGY & SCIE | NCE | S::R | AJAN | IPET | | | | | | | |
|---|---|---|---|---|---|--|--|--|--|--|--|--|
| | (AN AUTONOMOUS INSTITUTION) | | | | | | | | | | | |
| | II Year B. Tech. I Semester | | | | | | | | | | | |
| | | Но | urs/W | /eek | | | | | | | | |
| Course Code: | Course Name: | | | | | | | | | | | |
| <u>5GC34</u> | ENVIRONMENTAL SCIENCE | L | Т | Р | С | | | | | | | |
| | | 3 | 1 | 0 | 3 | | | | | | | |
| Course Prerequisites | Chemistry, Environment | | | | | | | | | | | |
| | Students are able to: | | | | | | | | | | | |
| Course Objectives | Understand & appreciate the importance of Environmental Science. In order to make the students environmentally educated. To protect the environment by preventing environmental pollution& degradation. | | | | | | | | | | | |
| | After completion of the course, studen | nt wi | ll be | able | to: | | | | | | | |
| Expected Outcomes | The student will understand the importance of environment. The student develops critical thinking to conserve natural resources. The student will understand the concept of ecosystem and biodiversity and its conservation. The student knows about different types of pollutions, their sources, effects and control measures. The student will apply the knowledge to solve the social issues. | | | | | | | | | | | |
| | and human population issues related to | envi | onme | ent. | | | | | | | | |
| | UNIT 1 | | | 15 | 5 Hours | | | | | | | |
| MULTIDISCIPLINAL Importance of environm (over-exploitation of environmental pollution environment. | RY NATURE OF ENVIRONMENTAL nental studies - Need for public awareness - Gl natural resources, decline of ecosystems, n, and population growth) – People in enviro | STUI obal los onme | DIES enviro s to nt – | - S onmen bioc Institu | cope & tal crisis liversity, ations in | | | | | | | |
| | UNIT 2 | | | 1 | 3 Hours | | | | | | | |
| RENEWABLE & NON-RENEWABLE NATURAL RESOURCES . Forest resources: Use – deforestation, case studies - dams & their effects on forest & tribal people. Water resources: Use - floods, drought- conflicts over water. Mineral resources: Use - environmental effects of extracting mineral resources, case studies. Food resources: Impacts of over grazing, traditional agriculture and modern agriculture, Energy resources: Renewable and non – renewable energy resources - use of alternate energy resources. Land resources: Land as a resource, land dogradation agriculture and modern agriculture in the concernation of network resources. | | | | | | | | | | | | |
| | UNIT 3 | | | 1 | 2 Hours | | | | | | | |
| ECOSYSTEMS: Product pyramids - Energy flow oxygen, carbon, nitroge ecosystems: (a)Forest e ecosystems (lakes, river BIODIVERSITY AN | ucers, consumers & decomposers - Food chains in the ecosystem- Cycling of nutrients (Bio ge on & energy cycles) – Types and characteristic cosystems (b) Grass land ecosystems (c) Deser s, oceans, estuaries). D ITS CONSERVATION: Definition - | s, foo co cho featu t eco Valuo | d wel emica res of syster es of | bs &ec l cycle f the fe ms (d) | cological es-water, ollowing Aquatic liversity: | | | | | | | |

| consumptive value, jHot spots of biodConservation of biod | productive value, social value, ethical value, aesthetic value& o iversity - Threats to biodiversity: habitat loss, poaching of liversity: In –situ & Ex-situ conservation. | option values wild life - |
|--|--|--|
| | UNIT 4 | 13 Hours |
| ENVIRONMENTA pollution, Water pol Nuclear hazards - S wastes. | AL POLLUTION: Definition, causes, effects & control measure lution, Soil pollution, Noise pollution, Thermal pollution, Mari Solid waste management: Causes, effects and control measure | sures of: Air ne pollution, res of urban |
| | UNIT 5 | 14 Hours |
| Wasteland reclamati ActWater (Preve Conservation Act. HUMAN POPULA Program -Environm Education (environm | on - Environment Protection ActAir (Prevention & Control ention & Control of Pollution) ActWildlife Protection ATION & ENVIRONMENT: Population explosion – Fan ent & human health - Human Rights (in relation to environm nental values) - HIV/AIDS. | nily Welfare nent) - Value |
| Text Books | Text book of Environmental Studies for Undergraduat Erach Bharucha for University Grants Commission press. Environmental Studies by R. Rajagopalan Oxford Univ Berspectives in Environmental Studies by Anubha C.P.kaushik, New Age International Publishers. | e Courses by n, University versity Press. Kaushik and |
| Reference Books | Comprehensive Environmental Studies by J.P.Sha Publications. Environmental Studies by Anindita Basak – Pearson et B. Environmental Studies by Benny Joseph, Publications. | rma, Laxmi ducation. McgrawHill |
| Evaluation | Continuous Assessment (20 %) and Assignments (10%), S Examination (70%) | emester End |

| Course Outcomes | PO ₁ | PO ₂ | PO ₃ | PO ₄ | PO ₅ | PO ₆ | PO ₇ | PO ₈ | PO ₉ | PO ₁₀ | PO ₁₁ | PO12 | PSO_1 | PSO ₂ |
|--------------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|------------------|------------------|------|---------|------------------|
| CO1 | 1 | 1 | - | - | - | 1 | 3 | - | - | - | - | 3 | | |
| CO2 | 1 | 1 | - | - | - | 3 | 3 | - | - | - | - | 3 | | |
| CO3 | 1 | 1 | - | - | - | - | 3 | - | - | - | - | 3 | | |
| CO4 | 2 | 2 | - | - | - | 3 | 3 | - | - | - | - | 3 | | |
| CO5 | 3 | 3 | - | - | - | 3 | 3 | - | - | - | - | 3 | | |

| ANNAMACHARYA INSTITUTE OF TECHNOLOGY & SCIENCES::RAJAMPET | | | | | | | | | | | | |
|--|--|---------------------|--------------|----------------|------------|--|--|--|--|--|--|--|
| | (AN AUTONOMOUS INSTITUTION) <u>II Year B. Tech. I Semester</u> | | | | | | | | | | | |
| | | Но | urs/W | eek | | | | | | | | |
| Course Code: | Course Name: | Ŧ | Ŧ | | 6 | | | | | | | |
| 5G131 | ADVANCED DATA STRUCTURES THROUGH C++ | L 3 | 1 1 | P 0 | 2 | | | | | | | |
| Course Prerequisites | C Programming, Data Structures | 5 | 1 | 0 | 5 | | | | | | | |
| | Students are able to: | | | | | | | | | | | |
| | • To learn New & Advanced Data Struct | ures | | | | | | | | | | |
| Course Objectives | • To acquire knowledge on Algorithmic | Desig | n anc | Anal | ysis | | | | | | | |
| | • To solve problems using Different Da | ta St | ructur | es and | d Design | | | | | | | |
| | Techniques, and Compare their Perform | nance and Tradeoffs | | | | | | | | | | |
| | To implement Algorithms and Data Structures in C++ | | | | | | | | | | | |
| | After completion of the course, studen | nt wi | ll be | able | to: | | | | | | | |
| | • Use C++ functions and the concepts | | | | | | | | | | | |
| | Understand numerous examples of relationships between data; Understand the purpose and mathematical background of | | | | | | | | | | | |
| | algorithm analysis and be able to apply this to determine the run | | | | | | | | | | | |
| Expected Outcomes | time and memory usage of algorithms; Implement the abstract data types of stacks and queues: | | | | | | | | | | | |
| • | Implement the abstract data types of stacks and queues; Understand the characteristics and implementation of | | | | | | | | | | | |
| | dictionaries using various techniques. | | • | | | | | | | | | |
| | • Design various searching tree & patt | ern r | natchi | ng al | gorithms | | | | | | | |
| | efficiencies. | ed to | o de | termi | he their | | | | | | | |
| | UNIT 1 | | | 1 | 5 Hours | | | | | | | |
| INTRODUCTION TO | C++: Introduction, Class Overview: Class, C | Objec | ts, C | ass N | Iembers, | | | | | | | |
| I/O Streams, Access C | ontrol, Class Scope, Static Class Members: S | tatic | Mem | ber V | ariables, | | | | | | | |
| Static Member Function Functions | ons, Static Object, Functions: Parameter P Function This Pointer Dynamic Memory Allo | assin catio | g M n and | ethods Deal | s, Inline | | | | | | | |
| New Operator, Delete C | perator, Exception Handling. | catio | | Dear | iocation. | | | | | | | |
| | UNIT 2 | | | 1 | 3 Hours | | | | | | | |
| OBJECT ORIENTED | CONCEPTS: Constructors, Constructor C | verlo | ading | , Des | structors, | | | | | | | |
| Function Overloading, Operator Overloading: Plus, Minus, Unary, Inheritance: Base Class | | | | | | | | | | | | |
| Access Control, Types of Inneritance, Reasons for the usage of Inheritance, Polymorphism: Virtual Functions, Pure Virtual Functions, Abstract Classes, Generic Programming with | | | | | | | | | | | | |
| Templates: Function Templates, Class Templates. | | | | | | | | | | | | |
| ALGORITHMS: Perfo Selection Sort. | ormance Analysis, Space Complexity, Time C | omp | exity | Bub | ble Sort, | | | | | | | |
| | UNIT 3 | | | 1 | 2 Hours | | | | | | | |

STACKS AND QUEUES: Stack ADT, Queue ADT, Operations of Stack & Queue ADT. **DICTIONARIES:** Dictionaries, Linear List Representation, Skip List Representation: Operations, Searching, Insertion, Deletion, Hash Table: Hash Functions, Collisions: Separate Chaining, Open Addressing - Linear Probing, Quadratic Probing, Double Hashing or Rehashing, Extendible Hashing, Comparison of Chaining and Open Addressing.

| E, | 1 0 1 0 | |
|------------------------|--|---------------|
| | UNIT 4 | 13 Hours |
| BINARY TREES: | Binary Trees, Representation of Binary Trees, Binary Trees | Operations, |
| Binary Trees Travers | sals. | |
| PRIORITY QUEU | ES: Priority Queue ADT, Priority Queue Implementation U | sing Heaps, |
| External Sorting. | | 0 1 |
| SEARCH TREES | (PART I): Binary Search Trees ADT, Representation of Bi | inary Search |
| Tree, Operations on | n Binary Search Trees: Insertion, Deletion and Searching, | AVL Trees, |
| Operations of AVL 7 | Frees: Insertion, Deletion and Searching. | |
| | UNIT 5 | 14 Hours |
| SEARCH TREES | (PART II): Introduction to Red-Black and Splay Tree | es, B-Trees, |
| Operations on B-Tre | es: Insertion, Deletion and Searching, Height of B Tree. | |
| PATTERN MATC | HING AND TRIES: Pattern Matching Algorithms, Fixed Patte | ern Matching |
| Algorithms: Brute Fo | orce, Boyer – Moore, Knuth-Morris-Pratt Algorithms, Tries: Sta | andard Tries, |
| Compressed Tries, S | uffix Tries. | |
| | 1. Akepogu Ananda Rao, Palagiri Radhika Raju, Data St | tructures and |
| | Algorithms Using C++, Pearson Education. | |
| | 2. Sartaj Sahni Data Structures, Algorithms and Applicat | ions in C++, |
| T D l | Universities Press (India) Pvt. Ltd, 2 nd Edition. | |
| Text Books | 3. Mark Allen Weiss, Data Structures and Algorithm | Analysis in |
| | C++, Pearson Education, 2 th Edition. | TCoodrich |
| Reference Books | 1. Data Structures And Algorithms in C++, Michael D Tamaggia and Mount Wiley Student Edition John | I.Goodrich, |
| | Sons | i wiley Allu |
| | 2 Data Structures and Algorithms in C_{++} 3^{rd} Ed | ition Adam |
| | Drozdek Thomson | nion, 7 tuan |
| | 3. Data Structures Using C and C++. Langsam. Aug | genstein and |
| | Tanenbaum, PHI. | , |
| | 4. Problem Solving With C++, The OOP, 4 th Edition | , W.Savitch, |
| | Pearson Education. | |
| Evaluation | Continuous Assessment (20 %) and Assignments (10%), S | emester End |
| | Examination (70%) | |
| | | |

| Course Outcomes | PO ₁ | PO ₂ | PO ₃ | PO ₄ | PO ₅ | PO ₆ | PO ₇ | PO ₈ | PO ₉ | PO ₁₀ | PO ₁₁ | PO12 | PSO ₁ | PSO ₂ |
|--------------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|------------------|------------------|------|------------------|------------------|
| CO1 | 3 | 3 | 3 | | | | | | | | | 3 | 3 | |
| CO2 | 3 | 3 | 3 | | | | | | | | | | 3 | |
| CO3 | 3 | 3 | 3 | | 2 | | | | 3 | | | 3 | | 3 |
| CO4 | 3 | 3 | | | | | | | 3 | | 1 | 3 | | 3 |
| CO5 | 3 | 3 | 3 | | 2 | | | | | | | | | |

| ANNAMACHARYA INSTITUTE OF TECHNOLOGY & SCIENCES::RAJAMPET | | | | | | | | | | |
|--|---|-----------------|--------------|-------------------|------------------------|--|--|--|--|--|
| | (AN AUTONOMOUS INSTITUTION) | | | | | | | | | |
| | II Year B. Tech. I Semester | | | | | | | | | |
| Course Code: | Course Name: | Но | urs/W | /eek | | | | | | |
| 5G236 | ELECTRICAL ENGINEERING AND ELECTRONICS ENGINEERING | L | Т | Р | с | | | | | |
| | (Common for CSE & IT) | 3 | 1 | 0 | 3 | | | | | |
| Course Prerequisites | | | | | | | | | | |
| | Students are able to: | | | | | | | | | |
| | • To impart the basic knowledge about t | the F | lectri | e circi | iite | | | | | |
| | To understand the working of various | Elect | trical | Mach | ines | | | | | |
| Course Objectives | To know about various electronic devi | ices | liicai | Widen | mes. | | | | | |
| | To understand the various parts of CR | 0. | | | | | | | | |
| | After completion of the course student will | l he s | hle t | 0. | | | | | | |
| | Anter completion of the course, student will be able to: Apply fundamental concepts to find response of electrical | | | | | | | | | |
| Expected Outcomes | Identify the types of DC-Machines and their applications | | | | | | | | | |
| | Calculate the efficiency of DC-Machines. | | | | | | | | | |
| | • Explain the principle operation of Motor and their application. | Iran | Istorn | ner, I | nauction | | | | | |
| | Draw the slip-Torque characteristics of | of Ind | uctio | n mote | or. | | | | | |
| | • Identify the semi-conductor devices an | nd the | eir ap | plicati | ions. | | | | | |
| | • Explain the types of heating. | | | | | | | | | |
| | • Explain the working principle of CRO |). | | | | | | | | |
| | UNIT 1 | | | 14 | 4 Hours | | | | | |
| ELECTRICAL CIRC inductive, capacitive n Kirchhoff's laws. | CUITS: Basic definitions, types of elements etworks, Series- parallel circuits, star and de | s, oh lta tı | m's ansfo | law, 1 ormatio | resistive, ons, and | | | | | |
| | UNIT 2 | | | 1 | 3 Hours | | | | | |
| DC MACHINES: D operation, emf equation | C Generator: Constructional Details of DC , types of generators, applications. | mae | chine | , Prin | ciple of | | | | | |
| DC Motor: principle efficiency, applications | of operation, torque equation, types, three p | oint | start | er, los | sses and | | | | | |
| Testing: brake test, Swi | nburne's test, and Speed control methods. | | | | | | | | | |
| UNIT 3 12 Hours | | | | | | | | | | |
| AC MACHINES: efficiency and regulation | 1-φTransformers: Principle of operation, on. OC and SC tests. | emf | equ | ation, | losses, | | | | | |
| Alternator: Principle of operation of alternators - Regulation by synchronous impedance method | | | | | | | | | | |
| 3-o Induction motor: Principle of operation of induction motor-slip-torque characteristics. | | | | | | | | | | |
| Test: Brake Test on 3- | φ induction motor. | 1 | | | | | | | | |
| | UNIT 4 | | | 13 | Hours | | | | | |

DIODE AND TRANSISTORS: Diode: PN junction diode, symbol, V-I characteristics, applications, Half wave, full wave and bridge rectifiers (simple problems).

Transistors: PNP and NPN junction transistors, Characteristics of CE configuration, Transistor as an amplifier, single stage CE amplifier, Frequency response of CE amplifier

| | UNIT 5 | 14 Hours | | | | | | | |
|--|---|-------------------------|--|--|--|--|--|--|--|
| ELECTRIC HEATING AND CRO: Induction Heating: Theory of induction heating, applications in industries. | | | | | | | | | |
| Dielectric heating: | Theory of dielectric heating and its industrial application | | | | | | | | |
| CRO: Block diagram of CRO, Principle of CRT (cathode ray tube), applications of CRO, voltage, current and frequency measurements. | | | | | | | | | |
| | V.K.Mehta, <i>Principles of Electrical and Electronics I</i> S. Chand & Co. | Engineering, | | | | | | | |
| Text Books | T.Thyagarajan, Fundamentals of Electrical and Engineering. SciTech publications, 2007, 5th Ed. | Electronics | | | | | | | |
| | 1. M.S Naidu and S.Kamakshaiah, <i>Introduction to Engineering</i> . TMH Publications. | e Electrical | | | | | | | |
| Reference Books | 2. Kothari and Nagrath, Basic Electrical Engineering, T | MH, 2 nd Ed. | | | | | | | |
| | 3. Mill man and Halkias, <i>Electronics devices and circuit</i> | ts. | | | | | | | |
| Evaluation | Continuous Assessment (20%) and Assignments (10%) | | | | | | | | |
| | Semester End Examination (70%) | | | | | | | | |

| Course Outcomes | PO ₁ | PO ₂ | PO ₃ | PO ₄ | PO ₅ | PO ₆ | PO ₇ | PO ₈ | PO ₉ | PO ₁₀ | PO ₁₁ | PO12 | PSO ₁ | PSO ₂ |
|--------------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|------------------|------------------|------|------------------|------------------|
| CO1 | 2 | | 2 | | | 2 | | 1 | | 1 | 1 | | 2 | 2 |
| CO2 | 1 | | | | 1 | | | | | | 1 | | | |
| CO3 | 1 | | 2 | | | 3 | | 3 | | 2 | | 2 | 2 | 2 |
| CO4 | 2 | | | | | | 2 | | 2 | | 1 | | | 1 |
| CO5 | 3 | | 2 | 2 | | 3 | | 1 | | 1 | | | 3 | 2 |

ANNAMACHARYA INSTITUTE OF TECHNOLOGY & SCIENCES::RAJAMPET (AN AUTONOMOUS INSTITUTION) **II Year B. Tech. I Semester** Hours/Week **Course Code: Course Name:** 5G431 **DISCRETE MATHEMATICS** Т (Common for CSE & IT) L С Ρ 3 1 0 3 **Course Prerequisites Basics of Mathematics, Recurrence Relations** Students are able to: This course aims at designing ability to apply mathematical foundations, algorithmic principles, and computer science theory in the modeling and design of computer-based systems in a way that **Course Objectives** demonstrates comprehension of the tradeoffs involved in design choices. After completion of the course, student will be able to: Design comprehend mathematical principles and logic • • Understand the concepts associated with predicates, free and bound variables and Automatic theorem proving. **Expected Outcomes** Understand the basic concepts associated with relations, • functions and draw the Lattice and Hasse diagrams. Identify skills and insights in a wide range of algebraic topics • with important applications. Understand the basic concepts of permutations, combinations, • probability, Pigeon hole principle and its applications. Understand the various types of recurrence relations and the methods to find out their solutions also to calculate Coefficient of generating function. Manipulate and analyze data numerically and/or graphically. • 14 Hours UNIT 1 MATHEMATICAL LOGIC: Statements and Notation, Connectives, Statement Formulas and Truth Tables, Conditional and Biconditional, Well-Formed Formulas, Tautologies, Equivalence of Formulas, Duality Law, Tautological Implications, Normal Forms, Validity using Truth Tables, Rules of Inference, Consistency of Premises and Indirect Method of Proof, Automatic Theorem Proving, Predicates, The Statement Function, Variables and Quantifiers, Predicate Formulas, Free and Bound Variables, The Universe of Discourse. UNIT 2 13 Hours **RELATIONS AND ALGEBRAIC STRUCTURES:** Properties of binary Relations in a Set, Relation Matrix and the Graph of a Relation, Partition and Covering of a Set, Equivalence Relations, Compatibility Relations, Partial Ordering, Hasse Diagram, Functions, Composition of Functions, Inverse Functions, Recursive Functions, Lattice and its Properties, Algebraic Systems, Simple Algebraic Systems and General Properties, Semi Groups and Monoids, Groups, Subgroups, Homomorphism, Isomorphism. **UNIT 3** 12 Hours **COMBINATORICS:** Basics ELEMENTARY of Counting, Combinations and Permutations, Enumeration of Combinations and Permutations, Enumerating Combinations

and Permutations with repetitions, Enumerating Permutations with Constrained Repetitions, Binomial Coefficients, The Binomial and Multinomial Theorems, The Principle of Inclusion-Exclusion, Pigeonhole Principle and its Applications.

| | UNIT 4 | 13 Hours | | | | | | | | | |
|--|---|----------------------------|--|--|--|--|--|--|--|--|--|
| RECURRENCE RELATIONS: Generating Functions of Sequences, Calculating Coefficients of Generating Functions, Recurrence Relations, Solving Recurrence Relations by Substitution and Generating Functions, The Method of Characteristic Roots, Solutions of Inhomogeneous Recurrence Relations. | | | | | | | | | | | |
| | UNIT 5 | 14 Hours | | | | | | | | | |
| GRAPH THEORY: Basic Concepts, Representation of Graphs, Isomorphism and Subgraphs, Depth First Search, Breadth First Search, Trees and Their Properties, Spanning Trees, Binary Trees, Planar Graphs, Euler's Formula, Multigraphs and Euler circuits, Hamiltonian Graphs, Chromatic Numbers, The Four-Color Problem. | | | | | | | | | | | |
| Text Books | 1. J.P.Tremblay, R.Manohar, Discrete Mathematical Str Applications to Computer Science. TMH (UNITS 1 & | ructures with & 2). | | | | | | | | | |
| | J.L.Mott, A.Kandel, T.P.Baker, Discrete Mathe Computer Scientists & Mathematicians. Prentice H 3,4 & 5) | ematics for Iall (UNITS | | | | | | | | | |
| | 1. Thomas Koshy, Discrete Mathematics with Applicati Elsevier. | ons, | | | | | | | | | |
| Reference Books | N. Chandrasekaran, M. Umaparvathi, Discrete Mathe Learning Pvt. Ltd. | ematics, PHI | | | | | | | | | |
| | 3. Bernand Kolman, Roberty C. Busby, Sharn Cutter Ro Mathematical Structures, Pearson Education/PHI. | oss, Discrete | | | | | | | | | |
| | 4. Malik &Sen, Discrete Mathematical Structures application. | Theory and | | | | | | | | | |
| | 5. Garry Haggard and others, Discrete Mathematics for science, Thomson. | or Computer | | | | | | | | | |
| Evaluation | Continuous Assessment (20 %) and Assignments (10%) Semester End Examination (70%) | | | | | | | | | | |

| Course Outcomes | PO ₁ | PO ₂ | PO ₃ | PO ₄ | PO ₅ | PO ₆ | PO ₇ | PO ₈ | PO ₉ | PO ₁₀ | PO ₁₁ | PO12 | PSO ₁ | PSO ₂ |
|--------------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|------------------|------------------|------|------------------|------------------|
| CO1 | 3 | 3 | | 2 | 2 | | 3 | | | | 3 | 3 | 3 | |
| CO2 | | 3 | 2 | | | | 3 | 1 | | 2 | | 3 | 3 | 3 |
| CO3 | 3 | 3 | | | 2 | | | | | | 3 | | | 3 |
| CO4 | | | | 2 | | 1 | 3 | | | 2 | 3 | 3 | 3 | |
| CO5 | 3 | 3 | 2 | | | | | | | | 3 | 3 | | 3 |
| ANNAMACHA | ARYA INSTITUTE OF TECHNOLOGY & (AN AUTONOMOUS INSTITUTIC II Year B. Tech. I Semester | SCIE DN) | ENCE | ES::R | AJAMPET | | | | | |
|---|--|---------------------------|---------------------------|------------------------------|--|--|--|--|--|--|
| Course Code: | Course Name: | /eek | | | | | | | | |
| 5G432 | DIGITAL LOGIC DESIGN AND COMPUTER ORGANIZATION | L | Т | Ρ | с | | | | | |
| | | 0 | 3 | | | | | | | |
| Course Prerequisites | Students should have knowledge on: | | | | | | | | | |
| | Computer System Hardware, Software an Binary system and Boolean algebra. Functions of the various computer hardware | d peri are co | phera mpon | ls. ents. | | | | | | |
| | Students are able: | | | | | | | | | |
| | • To understand the basic theoretical concerns system and Boolean algebra. | epts o | f digi | tal sys | tems like the binary | | | | | |
| Course Objectives | • To express real life problem in logic desig | gn ter | minol | ogy. | | | | | | |
| Course Objectives | • To use Boolean algebraic formulations to | desig | n digi | ital sys | tems. | | | | | |
| | • To design combinational/sequential circuits | | | | | | | | | |
| | • To understand the Instruction execution stages. | | | | | | | | | |
| | • To explain the functions of the various computer hardware components. | | | | | | | | | |
| | After completion of the course, student will be able to: | | | | | | | | | |
| Expected Outcomes | • Design understands the number systems, combinational sequential circuits. And they should be in a position to continue with computer organization. | | | | | | | | | |
| | Understand in a better way the I/O and m should be in a position to implement asse applications. | emory mbly | y orga langu | nizatio age pro | on in depth. They ograms for various | | | | | |
| | UNIT 1 | | | | 5 Hours | | | | | |
| BASIC STRUCTURE structures, Software, Perf Fixed Point Representation Numbers, complements, | OF COMPUTERS: Computer Types, Functional us formance, multiprocessors and multi computers, D on. Floating – Point Representation. Number base Signed binary numbers, Binary codes. | units, Data R conv | Basic eprese ersior | operat entatio is, Oct | tional concepts, Bus n: Binary Numbers, al and Hexadecimal | | | | | |
| | UNIT 2 | | | | 12 Hours | | | | | |
| DIGITAL LOGIC CIR Logic expressions, Flip-f DIGITAL LOGIC CI Programmable Logic Dev | CUITS - I: Basic Logic Functions, Logic gates, ulops, Combinational Circuits. RCUITS - II: Registers, Shift Registers, Binar | iniver y cou | sal log | gic gat | es, Minimization of oders, Multiplexers, | | | | | |
| | UNIT 3 | | | | Hours | | | | | |
| COMPUTER ARITH multiplication and division INSTRUCTION SET | METIC: Algorithms for fixed point and floon operations, Hardware Implementation of arithme & ADDRESSING: Memory Locations and A | oating tic an Addre | poin d logi sses, | nt add c opera Mach | dition, subtraction, ations. ine addresses and | | | | | |
| sequencing, various Add | Instruction Formats, Basic Machine | = mstr | uction | 15. | Hours | | | | | |
| PROCESSOR ORCAN | UIVILE 4 | ·c Fv | Acutic | n of I | estructions Multiple | | | | | |
| Bus Organization, Hardw | vired Control, Micro programmed Control | 15, EX | cutio | | isu ucuolis, multiple | | | | | |

MEMORY ORGANIZATION: Concept of Memory, RAM, ROM memories, memory hierarchy, cache memories, virtual memory, secondary storage, memory management hardware.

| | UNIT 5 | Hours |
|------------------------|---|-------------------------------------|
| INPUT / OUTPUT | ORGANIZATION: Introduction to I/O, Interrupts- Hardware, | Enabling and disabling |
| Interrupts, Device Con | ntrol, Direct memory access, buses, Interface Circuits, Standard I/O | Interfaces. |
| | Computer Organization – Carl Hamacher, ZvonkoVra Edition, McGraw Hill. | anesic, SafwatZaky, 5 th |
| Text Books | Computer Architecture and Organization- An Integr Murdocca, Vincent Heuring, Second Edition, Wiley India. | rated Approach, Miles |
| | 3. Computer Systems Architecture – M.Moris Mano, 3 rd Editi | ion, Pearson. |
| Reference Books | 1. Computer Organization and Architecture – William S Pearson | Stallings Sixth Edition, |
| | 2. Computer- organization and Design- David A. Paterson Elsevier. | and John L.Hennessy- |
| | 3. Fundamentals or Computer Organization and Design, Springer Int. Edition. | - SivaramaDandamudi |
| | 4. Digital Design – Third Edition, M.Morris Mano, Pearson I | Education/PHI. |
| | 5. Fundamentals of Logic Design, Roth, 5th Edition, Thomso | on. |
| Evaluation | Continuous Assessment (20%) and Assignments (10%) | |
| | Semester End Examination (70%) | |

| Course Outcomes | PO ₁ | PO ₂ | PO ₃ | PO ₄ | PO ₅ | PO ₆ | PO ₇ | PO ₈ | PO ₉ | PO ₁₀ | PO ₁₁ | PO12 | PSO ₁ | PSO ₂ |
|--------------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|------------------|------------------|------|------------------|------------------|
| CO1 | 3 | 2 | 2 | | 2 | | | 2 | | | 3 | 3 | 3 | |
| CO2 | | 2 | 2 | 3 | 2 | | | | | | 3 | 3 | 3 | 3 |
| CO3 | 3 | | | | | | | 2 | | | | | 3 | 3 |
| CO4 | | | | 3 | | | | | | | 3 | | 3 | |
| CO5 | 3 | | | 3 | | | | | | | 3 | 3 | | 3 |

| ANNAMACHARYA | A INSTITUTE OF TECHNOLOGY & SCIE | ENCE | ES::R | AJAI | МРЕТ | | | | | | |
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| | (AN AUTONOMOUS INSTITUTION) | | | | | | | | | | |
| II Year B. Tech. I Semester | | | | | | | | | | | |
| Course Code: 5G433 | Course Name: Operating Systems and Linux Administration | ⁷ eek P | C 3 | | | | | | | | |
| Course Prerequisites | Digital Logic Design, Computer Organiz Programming | ation | , Un | ix an | d Shell | | | | | | |
| Course Objectives | Students are able: To have an overview of different types of operating systems To have a knowledge of process management To have a knowledge of storage management and memory To know the how operating system concepts are implemented in Linux. | | | | | | | | | | |
| Expected Outcomes | After completion of the course, student will be able to: Design various Scheduling algorithms. Apply the principles of concurrency. Design deadlock, prevention and avoidance algorithms. Compare and contrast various memory management schemes. Design and Implement a prototype file system. Perform administrative tasks on Linux Servers | | | | | | | | | | |
| | UNIT 1 | | | 10 |) Hours | | | | | | |
| INTRODUCTION: Operations- System Ca | Computer System Organization-Operating Ils, System Programs, OS Generation and System | Syste em Be | em S oot. | Structi | are and | | | | | | |
| | UNIT 2 | | | 1 | 8 Hours | | | | | | |
| PROCESS MANAGE on Processes, Inter Pro Multithreading Models Monitors; CPU Schedu | CMENT: Processes-Process Concept, Process ocess Communication; Threads- Overview, N s; Process Synchronization-Critical Section ling and Deadlocks. | Sche Multie Prol | edulir core olem, | ng, Op Progra Sem | verations amming, aphores, | | | | | | |
| | UNIT 3 | | | 14 | 4 Hours | | | | | | |
| MEMORY MANA Segmentation, Paging, Allocation, thrashing; A | GEMENT: Main Memory-Contiguous Virtual Memory- Demand Paging, Page R Allocating Kernel Memory, OS Examples. | Me: eplac | mory emer | Al t Alg | location, orithms, | | | | | | |
| | UNIT 4 | | | 1 | 4 Hours | | | | | | |
| STORAGE MANAG Management; File Syst Protection; File Syst Allocation Methods, Fr | EMENT: Mass Storage Structure- Overview tem Storage-File Concepts, Directory and Dist em Implementation- File System Structure ee Space Management; I/O Systems | v, Di k Stru e, D | sk So ucture irecto | chedu e, Sha ory S | ling and ring and tructure, | | | | | | |
| | UNIT 5 | | | 14 | 4 Hours | | | | | | |
| LINUX SYSTEM A Administration-Require | ADMINISTRATION: Linux System- Ba ements for Linux System Administrator, | sic setti | Conc ng u | epts; p a | System LINUX | | | | | | |

Multifunction Server, Domain Name System, Setting Up Local Network Services; Virtualization- Basic Concepts, Setting Up Xen, VMware on Linux Host and Adding Guest OS.

| | Abraham Silberschatz, Peter Baer Galvin and Greg Gagne, Operating System Concepts, John Wiley & Sons, Inc.,8thEdition,2012, ISBN 978-1-118-06333-0 |
|-----------------|---|
| Text Books | Tom Adelstein and Bill Lubanovic, Linux System Administration, O'Reilly Media, Inc., 1st Edition, 2007, ISBN-10: 0596009526 ISBN-13: 978- 0596009526 |
| | 1. William Stallings, Operating System: Internals and Design Principles, Prentice Hall, 7 th Edition,2012, ISBN-10: 013230998X, ISBN-13: 9780132309981 |
| Reference Books | Harvey M. Deitel, Operating Systems, Prentice Hall, 3rd Edition,2003, ISBN- 10: 0131828274 ISBN-13: 978- 0131828278 |
| | 3. Andrew S. Tanenbaum, Modern Operating System, Prentice Hall, 3 rd Edition, 2007, ISBN-10: 0136006639 ISBN-13: 978- 0136006633 |
| Evaluation | Continuous Assessment (20%) and Assignments (10%) |
| 2, | Consistent End Examination (700/) |
| | Semester End Examination (70%) |

| Course Outcomes | PO ₁ | PO ₂ | PO ₃ | PO ₄ | PO ₅ | PO ₆ | PO ₇ | PO ₈ | PO ₉ | PO ₁₀ | PO ₁₁ | PO12 | PSO ₁ | PSO ₂ |
|--------------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|------------------|------------------|------|------------------|------------------|
| CO1 | 3 | | | 3 | | | | | | | | 3 | 3 | |
| CO2 | 3 | 3 | | | | | | | | | | 3 | | |
| CO3 | 3 | 3 | 3 | 3 | | | | | | | | 3 | 3 | |
| CO4 | 3 | 3 | | 3 | | | | | | | | 3 | 3 | |
| CO5 | 3 | | 3 | | | | 2 | | | | | 3 | | 2 |
| CO6 | 3 | | | | | 1 | 2 | | | 1 | | 3 | | 2 |

| ANNAMACHARYA | A INSTITUTE OF TECHNOLOGY & SCIE | ENCI | ES::R | AJA | MPET | | | | | |
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| | (AN AUTONOMOUS INSTITUTION) | | | | | | | | | |
| | II Year B. Tech. I Semester | | | | Г | | | | | |
| | | Но | urs/W | | | | | | | |
| Course Code: | Course Name: | | | | | | | | | |
| 5G134 | ADVANCED DATA STRUCTURES | L | Т | Ρ | С | | | | | |
| | (Common to CSE & IT) | 0 | 0 | 3 | 2 | | | | | |
| Course Prerequisites | C++ Language, Data Structure Theory | | | | | | | | | |
| • | Students are able: | | | | | | | | | |
| Course Objectives | • To make the student learn an object- problems. | orier | nted v | vay of | f solving | | | | | |
| | To make the student write ADTS for all data structures. To make the student learn different algorithm design techniques. | | | | | | | | | |
| | After completion of the course, student wil | l be a | able: | | | | | | | |
| Expected Outcomes | Know about Object oriented programmed and the second | ning. | | | | | | | | |
| | • Use Abstract Data Types in the programs. | | | | | | | | | |
| | Design application of Non-recursive I Understand the OOP principles | uncti il | ons. ke] | Encap | sulation. | | | | | |
| | Onderstand the OOI principles like Encapsulation, Inheritance, Polymorphism were frequently used. Design Trees –B and AVL Trees and their operations. | | | | | | | | | |
| | | | | | | | | | | |
| | Understand different sorting techniques. Understand different Hashing Techniques are implemented. | | | | | | | | | |
| | Note: Use Class Templates for the above Data Structu | | | | | | | | | |
| | Programs | | | | | | | | | |
| | Week1: a). Write a C++ program to implem b). Write a C++ program to impl | ent tl emer | he acc | cess co static | ontrol. member | | | | | |
| | function. | | | | | | | | | |
| | c). Write a C++ program to implement the parameter passing. | | | | | | | | | |
| | Week2: a). Write a C++ program to function. | imp | oleme | nt th | e friend | | | | | |
| List of Experiments | b). Write a C++ program to imple | ement | the i | nline | method. | | | | | |
| | c). Write a C++ program to memory allocation and dealloc | catior | ment 1. | the | dynamic | | | | | |
| | Week 3: a). Write a C++ program to in handling. | mplei | nent | the e | xception | | | | | |
| | b). Write a C++ program to im overloading. | plem | ent t | he co | nstructor | | | | | |
| | c). Write a C++ program to overloading. | imple | ement | the | function | | | | | |
| | Week4: a). Write a C++ program to | imple | ment | the (| Operator | | | | | |

| | overloading. | | | | | | | |
|------------------------|---|--|--|--|--|--|--|--|
| | b). Write a C++ program to implement the simple inheritance. | | | | | | | |
| | c). Write a C++ program to implement the multiple inheritance. | | | | | | | |
| | Week5: a). Write a C++ program to implement the virtual function. | | | | | | | |
| | b). Write a C++ program to implement the abstract class. | | | | | | | |
| | c). Write a C++ program to implement the class template. | | | | | | | |
| | Week6: Write a C++ programs to implement the following using an array. | | | | | | | |
| | a) Stack ADT b) Queue ADT | | | | | | | |
| | Week7: Write a C++ programs to implement the following using a singly linked list. | | | | | | | |
| | a) Stack ADT b) Queue ADT | | | | | | | |
| | Week8: Write a C++ program to implement all the functions of a dictionary ADT using hashing. | | | | | | | |
| | Week9: Write a C++ program to perform the following operations on Binary Trees. | | | | | | | |
| | a) Insertion b) Deletion c) | | | | | | | |
| | Searching | | | | | | | |
| | Week10: Write C++ programs to perform the traversals for the given binary tree. | | | | | | | |
| | a) Preorder b) inorder c) postorder | | | | | | | |
| | Week11: Write C++ programs for priority queue implementation using Heaps. | | | | | | | |
| | a) Min Heap Insertion b) Min Heap Deletion | | | | | | | |
| | c) Max Heap Insertion d) Max Heap Deletion | | | | | | | |
| | Week12: Write a C++ program to perform the following operations on Binary Search Trees. | | | | | | | |
| | a) Insertion b) Deletion c) Searching | | | | | | | |
| | Week13: Write a C++ program to perform the following operations on B-Trees. | | | | | | | |
| | a) Insertion b) Deletion c) Searching | | | | | | | |
| | Week14: Write a C++ program to perform the following operations on AVL Trees. | | | | | | | |
| | a) Insertion b) Deletion c) Searching | | | | | | | |
| | Week15: Write a C++ Program to implement Boyer-Moore pattern matching algorithm. | | | | | | | |
| | Week16: Write a C++ Program to implement Knuth-Morris-Pratt pattern matching algorithm. | | | | | | | |
| | Adam Drozdek Thomson Data Structures and Algorithms in C^{++} | | | | | | | |
| Text Books | 2007-2008, 3^{rd} Ed, Page 36 of 95. | | | | | | | |
| Reference Books | D.S. Malik, <i>Data Structures using C++</i> , Thomson. | | | | | | | |

| Evaluation | Day to Day Performance (20%), Continuous Assessment (10%) | |
|------------|---|--|
| | Semester End Lab Examination (70%) | |

| Course Outcomes | PO ₁ | PO ₂ | PO ₃ | PO ₄ | PO ₅ | PO ₆ | PO ₇ | PO ₈ | PO ₉ | PO ₁₀ | PO ₁₁ | PO12 | PSO ₁ | PSO ₂ |
|--------------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|------------------|------------------|------|------------------|------------------|
| CO1 | 3 | | 3 | | | | | | | | | 3 | | |
| CO2 | 3 | 3 | 3 | 1 | | | | | 3 | | | | | |
| CO3 | 3 | 3 | 3 | | | | | | | | | 3 | | |
| CO4 | 3 | | 3 | | | | | | 3 | | | | | |
| CO5 | 3 | 3 | 3 | 1 | | | | | 3 | | | | | |

| ANNAMACHARYA | INSTITUTE OF TECHNOLOGY & SCI | ENC | ES::R | RAJAI | MPET | | | | | |
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| | (AN AUTONOMOUS INSTITUTION) | | | | | | | | | |
| | II Year B. Tech. I Semester | | | | | | | | | |
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| Correct Corder | Comme Norma | HO | ours/ v | v еек | | | | | | |
| Course Code: | Course Name: | т | т | | c | | | | | |
| 5G23A | ELECTRONICS ENGINEERING AND | | 1 | P | | | | | | |
| | (Common for CSE & IT) | 0 | 0 | 3 | 2 | | | | | |
| Course Prerequisites | | | | | | | | | | |
| | Students are able: | | | | | | | | | |
| | | | | | | | | | | |
| Course Objectives | | | | | | | | | | |
| | After completion of the course, student will | ll be a | able: | | | | | | | |
| Expected Outcomes | | | | | | | | | | |
| | Note: Any ten Experiments to be conducte | d. | | | | | | | | |
| | Electrical Engineering Lab | | | | | | | | | |
| | 1. Swinburne's test on D.C shunt machine (pre determination of | | | | | | | | | |
| | and motor). | | | | | | | | | |
| | 2. OC and SC tests on single phase transformer (pre | | | | | | | | | |
| | determination of efficiency and regulation at a given power factors). | | | | | | | | | |
| | 3. Brake test on three phase induction motor (determination of performance characteristics). | | | | | | | | | |
| | 4. Regulation of alternator by synchronou | us im | pedar | ance method. | | | | | | |
| List of Experiments | 5. Speed control of D.C shunt motor by | | | | | | | | | |
| | (a) Armature control method (b) field | flux c | ontro | l meth | od. | | | | | |
| | 6. Brake test on D.C shunt motor (determination of performance characteristics). | | | | | | | | | |
| | Electronics Engineering Lab | | | | | | | | | |
| | 1. Study of CRO (Measurement of voltage frequency and phase of periodic signals). | | | | | | | | | |
| | 2. V-I Characteristics of PN junction dio | de. | | | | | | | | |
| | 3. Full wave rectifier with and without ca | apaci | tive fi | lter. | | | | | | |
| | 4. Input and output characteristics of Configuration. | Com | mon | Emit | ter (CE) | | | | | |
| | 5. Frequency response of a single stage (| CE an | nplifie | er. | | | | | | |
| | 6 Sinusoidal signal generation using R | C n | 1000 | hift a | adillator | | | | | |
| | circuit. | c pi | | sinit c | oscillator | | | | | |
| | circuit. | | | | oscillator | | | | | |
| Text Books | circuit. | <u> </u> | | | | | | | | |

| Evaluation | Day to Day Performance (20%), Continuous Assessment (10%) | |
|------------|---|--|
| | Semester End Lab Examination (70%) | |

| Course Outcomes | PO ₁ | PO ₂ | PO ₃ | PO ₄ | PO ₅ | PO ₆ | PO ₇ | PO ₈ | PO ₉ | PO ₁₀ | PO ₁₁ | PO12 | PSO_1 | PSO ₂ |
|--------------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|------------------|------------------|------|---------|------------------|
| CO1 | 2 | | 2 | | | 2 | | 1 | | 1 | 1 | | 2 | 2 |
| CO2 | 1 | | | | 1 | | | | | | 1 | | | |
| CO3 | 1 | | 2 | | | 3 | | 3 | | 2 | | 2 | 2 | 2 |
| CO4 | 2 | | | | | | 2 | | 2 | | 1 | | | 1 |
| CO5 | 3 | | 2 | 2 | | 3 | | 1 | | 1 | | | 3 | 2 |

ANNAMACHARYA INSTITUTE OF TECHNOLOGY & SCIENCES::RAJAMPET (AN AUTONOMOUS INSTITUTION) **II Year B. Tech. II Semester** Hours/Week **Course Code: Course Name:** 5GA41 MANAGERIAL ECONOMICS AND FINANCIAL ANALYSIS Т С L Ρ 3 1 0 3 **Course Prerequisites** Students are able to: This course aims to equip the budding engineering student with an understanding of concepts and tools of economic analysis. The focus does not only on understand the concepts but apply them in real life **Course Objectives** by developing problem solving skills there exists a relationship between Managerial Economics and Accounting and same is dealt in the second part of the course. The focus here is on picking up the basics of Accounting such as Accounting Data and Financial Statements, which constitute the language of Business. The student is exposed and made familiar with journalisation, interpretation and use of Accounting Data. After completion of the course, student will be able to: **Expected Outcomes** 14 Hours UNIT 1 **INTRODUCTION TO MANAGERIAL ECONOMICS** MANAGERIAL ECONOMICS: Meaning and Nature, Definition, Scope, relationship with other areas. DEMAND ANALYSIS: Definition and types of Demand, Demand Determinants, Law of Demand and its exceptions, Measurement and Significance of Elasticity of Demand, Demand forecasting methods. **13 Hours** UNIT 2 **PRODUCTION AND COST ANALYSIS PRODUCTION** – Theories of the firm, Production Function, Cobb-Douglas Production function, Isoquants and Isocosts, MRTS, Least Cost Combination of Inputs, Laws of Returns, Internal and External Economies of Scale.

COST ANALYSIS: Cost concepts, Determinants of cost, cost-output relationship in short run and Long run.

BREAK- EVEN ANALYSIS (BEA)- Objectives, Assumptions, Importance, Graphical representation, Limitations, simple numerical problems.

| UNIT 3 | |
|--------|--|
|--------|--|

12 Hours

MARKET STRUCTURE AND FORMS OF BUSINESS ORGANIZATIONS

MARKETS: Perfect, Monopoly, Monopolistic and Oligopoly Markets. Price-output determination in perfect competition and monopoly in long run and short run.

| FORMS OF BUSI | NESS ORGANIZATIONS Definition, Forms of Business Organizations- |
|---------------------------------------|--|
| Private Sector-sole | proprietary ship, Partnership, Joint Hindu family business, co-operative |
| societies, joint stock | companies. |
| PUBLIC SECTO | R - Departmental organizations, public corporations, government |
| companies. Joint Se | ctor. |
| 1 | |
| | UNIT 4 13 Hours |
| CAPITAL : Definit: Capital. | ion of Capital and its significance, Types of Capital, Sources of Raising |
| CAPITAL BUDGI | ETING: Definition, Nature and scope of capital budgeting, features of |
| capital budgeting, | Methods of Capital Budgeting: Payback Method, Accounting Rate of |
| Return (ARR) and N | Vet Present Value Method (simple problems) |
| | UNIT 5 14 Hours |
| INTRODUCTION | TO FINANCIAL ACCOUNTING AND ANALYSIS |
| FINANCIAL ACC | OUNTING: Definition, Book Keeping, Journal, Ledger, Trial Balance- |
| Final Accounts (Tra | ading Account, Profit and Loss Account and Balance Sheet with simple |
| adjustments). | |
| FINANCIAL ANA | LYSIS: Definition of Financial Analysis. Ratios and its significance- |
| types- liquidity Rati | os, turnover Ratios - solvency Ratios and profitability ratios. |
| | 1 Curto Managorial Economica TMIL 2000 |
| | 1. Gupta: Managerial Economics, TMH, 2009. |
| | 2. Varshney & Maheswari: Managerial Economics, Sultan Chand, 2003. |
| Text Books | 3. Mehta P.L., Managerial Economics-Analysis, Problems, Cases, S Chand and Sons, New Delhi, 2001. |
| TCAL DUONS | 4. M.E.Thukaram Rao., Accounting for Managers, New Age International Publishers. |
| | 5. T.S. Reddy and Y.Hari Prasad Reddy, Accounting and Financial Management, Margham Publications. |
| | 1. Ambrish Gupta, Financial Accounting for Management, Pearson Education, New Delhi. |
| Reference Books | 2. H. Craig Peterson & W. Cris Lewis, Managerial Economics, PHI, 4th Ed. |
| | 3. Suma Damodaran, Managerial Economics, Oxford University Press. |
| | 4. Lipsey & Chrystel, Economics, Oxford University Press. |
| | 5. S. A. Siddiqui & A. S. Siddiqui, Managerial Economics & |
| | Financial Analysis, New age International Space Publications. |
| | 6. Domnick Salvatore: Managerial Economics In a Global |
| | Economy, 4th Edition, Thomson. |
| | 7. Narayanaswamy: Financial Accounting—A Managerial |
| | Perspective, PHI |
| | 8. Raghunatha Reddy & Narasimhachary: Managerial Economics& |
| | Financial Analysis, Scitech. |
| | 9. S.N.Maheswari & S.K. Maheswari, Financial Accounting, Vikas. |
| | 10. Iruet and Iruet: Managerial Economics: Analysis, Problems and |

| Course Outcomes | PO ₁ | PO ₂ | PO ₃ | PO ₄ | PO ₅ | PO ₆ | PO ₇ | PO ₈ | PO ₉ | PO ₁₀ | PO ₁₁ | PO12 | PSO ₁ | PSO ₂ |
|--------------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|------------------|------------------|------|------------------|------------------|
| CO1 | 2 | | 2 | | | 2 | | 1 | | 1 | 1 | | 2 | 2 |
| CO2 | 1 | | | | 1 | | | | | | 1 | | | |
| CO3 | 1 | | 2 | | | 3 | | 3 | | 2 | | 2 | 2 | 2 |
| CO4 | 2 | | | | | | 2 | | 2 | | 1 | | | 1 |
| CO5 | 3 | | 2 | 2 | | 3 | | 1 | | 1 | | | 3 | 2 |

| ANNAMACHAR | YA INSTITUTE OF TECHNOLOGY & SCII | ENCE | S::R | AJAN | IPET | | | | | | | | |
|--|--|-----------------|---------------|-------------------|----------------------|--|--|--|--|--|--|--|--|
| | (AN AUTONOMOUS INSTITUTION) | | | | | | | | | | | | |
| | II Year B. Tech. II Semester | 1 | | | r | | | | | | | | |
| | | Veek | | | | | | | | | | | |
| Course Code | e: Course Name: | | | | | | | | | | | | |
| 5GC42 | PROBABILITY AND STATISTICS | Р | C | | | | | | | | | | |
| | rerequisites Reside of Probability and Statistics | | | | | | | | | | | | |
| Course Prerequisite | | | | | | | | | | | | | |
| | Students are able to: | | | | | | | | | | | | |
| | 1. To quantify the measure of uncertainty | /. | | | | | | | | | | | |
| Course Objectives | 2. To apply this knowledge to Insurance, | Statis | stics, 1 | Engine | eering. | | | | | | | | |
| Expected Outcomes | Expected Outcomes After completion of the course, student will be abl | | | | | | | | | | | | |
| Understand the basic concepts of probability and random variables. Gain the knowledge on probability distributions. Understand the concepts of sampling distributions and theory o estimation. | | | | | | | | | | | | | |
| | Able to test various hypothetical state samples | ments | s for l | arge a | ind small | | | | | | | | |
| | • Provide the knowledge in testing | the a | oodne | ess of | fit and | | | | | | | | |
| | decision-making process. | the g | ooun | 255 01 | in and | | | | | | | | |
| | UNIT 1 | | | 1 | 5 Hours | | | | | | | | |
| PROBABILITY: Sa Elementary theorems and continuous – Dist | Imple space and events – Probability – The axio - Conditional probability – Baye's theorem. Rai tribution functions - mean and variance. | ms of ndom | prob varia | ability bles – | 7 – Some Discrete | | | | | | | | |
| | UNIT 2 | | | 1 | 3 Hours | | | | | | | | |
| Binomial distribution | – Poison distribution - Uniform distribution - No | rmal c | listrit | oution. | | | | | | | | | |
| | UNIT 3 | | | 1 | 2 Hours | | | | | | | | |
| Sampling distributior unknown). | a: Population and sample - Sampling distribution | s of n | neans | (σ kn | own and | | | | | | | | |
| Estimation: Point est one proportion – two | imation – interval estimation - one mean – two proportions (large sample). | means | s (larg | ge sam | ple) and | | | | | | | | |
| | UNIT 4 | | | 13 | Hours | | | | | | | | |
| Test of Hypothesis proportions (one and | Large samples: hypothesis concerning one two). Small samples: t- test. | and t | wo n | neans, | Test of | | | | | | | | |
| | UNIT 5 | | | 1 | 4 Hours | | | | | | | | |
| F-test, χ2– Tests – go | odness of fit, rxc contingency tables. | | | | | | | | | | | | |
| Text Books | Fundamentals of Mathematical Statist Kapoor, Sultan S. Chand & sons. A Text book of Probability & Statisti McGraw Hill. | ics, S cs, B | C G | upta a Rama | and V K na, Tata | | | | | | | | |
| | | | | | Page 85 | | | | | | | | |

| Reference Books | 1. Advanced Engineering Mathematics, Erwin Kreyszig, 8 th edition, |
|------------------------|--|
| | New Age International (Pvt.) Limited. |
| | 2. Probability & Statistics, T. K. V. Iyengar, B. Krishna Gandhi and |
| | Others, S. Chand & Company. |
| | 3. Probability & Statistics for Engineers, Miller and John E. Freund, |
| | Prentice Hall of India. |
| Evaluation | Continuous Assessment (20 %) and Assignments (10%), Semester End Examination (70%) |

| Course Outcomes | PO ₁ | PO ₂ | PO ₃ | PO ₄ | PO ₅ | PO ₆ | PO ₇ | PO ₈ | PO ₉ | PO ₁₀ | PO ₁₁ | PO12 | PSO ₁ | PSO ₂ |
|--------------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|------------------|------------------|------|------------------|------------------|
| CO1 | 3 | 3 | - | 2 | - | - | - | - | - | - | - | 3 | | |
| CO2 | 3 | 2 | - | 2 | - | - | - | - | - | - | - | 3 | | |
| CO3 | 3 | 3 | - | 2 | - | - | - | - | - | - | - | 3 | | |
| CO4 | 3 | 3 | - | 2 | 2 | - | - | - | - | - | - | 3 | | |
| CO5 | | | | | | | | | | | | | | |

| ANNAMACHARYA | A INSTITUTE OF TECHNOLOGY & SCIE | ENCI | ES::R | AJAI | МРЕТ | | | | | | | | |
|--|--|---|---|----------------------------|------------------------------------|--|--|--|--|--|--|--|--|
| | (AN AUTONOMOUS INSTITUTION) | | | | | | | | | | | | |
| | II Year B. Tech. II Semester | | | | | | | | | | | | |
| Course Code: | Course Name: | Но | urs/W | eek | | | | | | | | | |
| 56142 | ALGORITHMS | Р | с | | | | | | | | | | |
| | (Common to CSE & IT) 3 1 0 | | | | | | | | | | | | |
| Course Prerequisites | | | | | | | | | | | | | |
| Course Objectives | Students are able: To know the importance of the algorithm. To study various algorithmic design te To utilize data structures and/or algorithmic new problems. To know and understand basic compution complexity classes P, NP, and NP-Complexity classes P, | comp echnie ithmi itabili mplee | lexity ques. c des ity co te. | y of ign tee ncepts | a given chniques s and the | | | | | | | | |
| To study some techniques for solving hard problems After completion of the course, student will be able to: | | | | | | | | | | | | | |
| Expected Outcomes | Analyze the complexity of the algorithms Use techniques divide and conquer, greedy, dynamic programming, backtracking, branch and bound to solve the problems. Identify and analyze criteria and specifications appropriate to new problems, and choose the Appropriate algorithmic designed. | | | | | | | | | | | | |
| | • Able to prove that a certain problem is | s NP- | Com | plete. | | | | | | | | | |
| | UNIT 1 | | | 14 | 4 Hours | | | | | | | | |
| INTRODUCTION: A complexity, Time Com Theta notation and Lit Union and Find algorith | Igorithm, Pseudo Code for algorithms, Performplexity, Asymptotic Notation - Big Oh Not tle Oh notation, Amortized complexity, Sets nms. | ormai tation -Disj | nce A , Om oint s | analys lega N set op | is-Space Notation, erations, | | | | | | | | |
| | UNIT 2 | | | 1 | 3 Hours | | | | | | | | |
| DIVIDE AND CONQUER: General Method, applications - Binary Search, Quick sort, Merge Sort, Strassen's Matrix multiplication. GREEDY METHOD: General Method, Applications - Job sequencing with dead-lines, knapsack problem, Minimum-cost Spanning trees. Single source shortest path. | | | | | | | | | | | | | |
| UNIT 3 12 Hours | | | | | | | | | | | | | |
| DYNAMIC PROGR multiplication, Optima Travelling person probl | DYNAMIC PROGRAMMING: General Method, applications - Matrix Chain multiplication, Optimal Binary search trees, 0/1 Knapsack, All pairs shortest path, The Travelling person problem, Reliability design. | | | | | | | | | | | | |
| | UNIT 4 | | | 13 | Hours | | | | | | | | |
| BACKTRACKING: C coloring, Hamiltonian C | General Method, applications - 8-Queen proble | m, su | m of | subse | ts, graph | | | | | | | | |

BRANCH AND BOUND: General Method, applications - Travelling Sales Person (*), and 0/1 knapsack problem - LC Branch and Bound Solution, FIFO Branch and Bound solution.

| | UNIT 5 | 14 Hours | | | | | | | | | | |
|---|--|--------------------------|--|--|--|--|--|--|--|--|--|--|
| NP-HARD AND algorithms, the class | NP-HARD AND NP-COMPLETE PROBLEMS: Basic Concepts, nondeterministic algorithms, the classes - NP-Hard and NP Complete, Cook's Theorem. | | | | | | | | | | | |
| Text Books1. Ellis Horowitz, Sartaj Sahni and Rajasekharam, Fundament Computer Algorithms. Galgotia publications Pvt. Ltd. | | | | | | | | | | | | |
| | Parag Himanshu Dave, Himanshu Bhalchandra Dave, Analysis Algorithms. Pearson. | Design and | | | | | | | | | | |
| | 3. M.T. Goodrich and R.Tomassia, Algorithn Foundations, Analysis and Internet Example, Joh sons. | n Design: nwiley and | | | | | | | | | | |
| Reference Books | R.C.T.Lee, S.S.Tseng, R.C.Chang and T.Tsai, Intr Design and analysis of Algorithms, A strategic McGraw Hill. | oduction to approach, | | | | | | | | | | |
| Reference Doons | Aho, Ullman and Hopcroft, Design and Analysis of Pearson Education. | algorithms, | | | | | | | | | | |
| Evaluation | Continuous Assessment (20%) and Assignments (10%) | | | | | | | | | | | |
| | Semester End Examination (70%) | | | | | | | | | | | |

| Course Outcomes | PO ₁ | PO ₂ | PO ₃ | PO ₄ | PO ₅ | PO ₆ | PO ₇ | PO ₈ | PO ₉ | PO ₁₀ | PO ₁₁ | PO12 | PSO ₁ | PSO ₂ |
|--------------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|------------------|------------------|------|------------------|------------------|
| CO1 | 2 | | 2 | | | 2 | | 1 | | 1 | 1 | | 2 | 2 |
| CO2 | 1 | | | | 1 | | | | | | 1 | | | |
| CO3 | 1 | | 2 | | | 3 | | 3 | | 2 | | 2 | 2 | 2 |
| CO4 | 2 | | | | | | 2 | | 2 | | 1 | | | 1 |
| CO5 | 3 | | 2 | 2 | | 3 | | 1 | | 1 | | | 3 | 2 |

ANNAMACHARYA INSTITUTE OF TECHNOLOGY & SCIENCES::RAJAMPET (AN AUTONOMOUS INSTITUTION) **II Year B. Tech. II Semester** Hours/Week **Course Code: Course Name:** 5G144 **OBJECT ORIENTED** PROGRAMMING L Т С Ρ (Common to CSE & IT) 3 1 0 3 **Course Prerequisites** Students are able to: Student will understand and apply the concepts of OOP's using java and create console based applications. Student will understand and apply the concepts of AWT, **Course Objectives** SWINGS to develop window based applications. Student will understand and apply the networking concepts to • develop client/server environment applications. After completion of the course, student will be able to: Understand fundamentals of object-oriented programming • features like Encapsulation, Inheritance and Polymorphism through Java Programming Language. **Expected Outcomes** Apply reusability concepts like Inheritance and create user defined packages using java. Acquire knowledge on multithreading and exception handling Create windows based applications using AWT and swings in • iava. Acquire in depth knowledge on network programming in Java. UNIT 1 14 Hours OBJECT ORIENTED THINKING: History of Java, Java Buzzwords, Overview of Java, Data Types, Variables, Type Conversion and Casting, Arrays, Operators, Review of Control Statements, Simple Java Program, CLASSESAND OBJECTS: Introduction to Classes, Objects, Methods, Constructors, Access Control, this Keyword, Garbage Collection, Finalize() Method, Overloading of Methods and Constructors, Parameter Passing, Recursion, String Handling. UNIT 2 **13 Hours** INHERITANCE: Inheritance Basics, Using Super, Multilevel Hierarchy, Method Overriding, Dynamic Method Dispatch, Abstract Classes, Using final with Inheritance, Object Class. PACKAGES AND INTERFACES: Defining a Package, Finding Packages and CLASSPATH, Importing Packages. Defining an Interface, Implementing Interface, Applying Interface, Variables in Interfaces, Interfaces can be Extended, Differences Between Classes and Interfaces. UNIT 3 12 Hours **EXCEPTION HANDLING:** Exception Handling Fundamentals, Exception Types, Uncaught Exceptions, Using try and catch, Multiple catch Clauses, Nested try Statements, throw,

throws, finally, Java's Built in Exceptions, Creating Own Exception Sub Classes, Benefits of Exception Handling.

MULTITHREADING: Java Thread Model, The Main Thread, Thread Life Cycle, Creating Multiple Threads, Using isAlive() and join(), Suspending, Resuming and Stopping Threads, Differences Between Multithreading and Multitasking.

| UNIT 4 13 Hours | | | | | | | | | | | |
|--|--|-----|--|--|--|--|--|--|--|--|--|
| COLLECTION FRAMEWORK : Collection Overview, Collection Interfaces: The Collection Interface, the List Interface, The Set Interface, The Sorted Set Interface and Collection Classes: Array List Class, Linked List Class, Accessing a Collection via an Iterator, StringTokenizer. AWT: AWT Classes, Window Fundamentals, AWT Controls, Lavout Managers. | | | | | | | | | | | |
| APPLETS: Applet Basics, Life Cycle of an Applet, Types of Applets, Creating Applets, Passing Parameters to Applets, Differences Between Applets and Applications. | | | | | | | | | | | |
| UNIT 5 14 Hours | | | | | | | | | | | |
| EVENT HANDLING: Delegation Event Model: Events, Event Sources, Event Listeners, Event Classes, Event Listener Interfaces, Handling Mouse Events and Keyboard Events, Adapter Classes, Inner Classes. SWING: Introduction, Limitations of AWT, MVC Architecture, Components, Containers, JApplet, JFrame, JComponent, Icons, Labels, Text Fields, Buttons: JButton Class, Check Boxes Class, Radio Buttons, Combo Boxes. NETWORKING: Networking Basics, Java and the Net, Inet Address, TCP/IP Client Sockets, URL Connection, TCP/IP Server Sockets, Datagrams, Simple Client Server Program | | | | | | | | | | | |
| Text Books | Herbert Schildt, Java The complete reference, TMH, 7 th Editi | on. | | | | | | | | | |
| 1. J.Nino and F.A. Hosch, An Introduction to programming and OO design using Java, John Wiley & sons. 2. Y. Daniel Liang, Introduction to Java programming, Pearson Education, 6 th Edition 3. R.A. Johnson- Thomson, An introduction to Java programming and object oriented application development, 4. Cay.S.Horstmann and Gary, Cornell, Core Java 2, Vol. 1, | | | | | | | | | | | |
| Fundamentals, Pearson Education. 7th Edition,EvaluationContinuous Assessment (20 %) and Assignments (10%)Semester End Examination (70%) | | | | | | | | | | | |

| Course Outcomes | PO ₁ | PO ₂ | PO ₃ | PO ₄ | PO ₅ | PO ₆ | PO ₇ | PO ₈ | PO ₉ | PO ₁₀ | PO ₁₁ | PO12 | PSO ₁ | PSO ₂ |
|--------------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|------------------|------------------|------|------------------|------------------|
| CO1 | 3 | 3 | 3 | | 3 | | | | | 3 | | 3 | 2 | |
| CO2 | 3 | 3 | 3 | 3 | 3 | | | | | 3 | | 3 | 2 | 3 |
| CO3 | 3 | 3 | 3 | 3 | 3 | | | | | 3 | | 3 | 2 | 3 |
| CO4 | 3 | 3 | 3 | 3 | 3 | | | | | 3 | | 3 | | 3 |
| CO5 | 3 | 3 | 3 | 3 | 3 | | | | | 3 | | | 2 | |

ANNAMACHARYA INSTITUTE OF TECHNOLOGY & SCIENCES::RAJAMPET (AN AUTONOMOUS INSTITUTION) **II Year B. Tech. II Semester** Hours/Week **Course Code: Course Name:** 5G441 **DATABASE MANAGEMENT** SYSTEMS Т L С Ρ (Common to CSE & IT) 3 1 0 3 **Course Prerequisites** Students are able to: • To understand the role and uses of DBMS in an organization. fundamental concepts Database understand of • То Management Systems like database design, database **Course Objectives** languages, and database-system implementation. To construct simple and moderately advanced database • queries using Structured Query Language (SQL). Understand and successfully apply logical database design • principles, including E-R diagrams and database normalization techniques. To provide detailed knowledge of transaction, concurrency and recovery strategies of DBMS. After completion of the course, student will be able to: Master the basic concepts and understand the applications of • database systems. Construct an Entity-Relationship (E-R) model from **Expected Outcomes** specifications and to perform the transformation of the conceptual model into corresponding logical data structures. Understand the basic database storage structures and access • techniques. Construct database schemas in structure query languages. • Eliminate redundancies in a database schema using normalization. Understand transaction management concepts in databases and the need of concurrency control. UNIT 1 **14 Hours** INTRODUCTION: Database - System Applications, Purpose of Database Systems, View of Data, Database Languages, Relational Databases, Data Storage and Querying, Transaction Management, Data Base Architecture, Database Users and Administrators, History of Database Systems. UNIT 2 13 Hours DATABASE DESIGN: Database Design and ER Diagrams, Entities, Attributes and Entity Sets, Relationships and Relationship Sets, Additional Features of the ER Model, Conceptual Design with the ER Model, Case study: The Internet Shop.

THE RELATIONAL MODEL: Introduction to the Relational Model, Integrity Constraints over Relations, Enforcing Integrity Constraints, Querying Relational Data, Logical Data Base Design: ER to Relational.

| | UNIT 3 | 12 Hours | | | | | |
|--|--|---|--|--|--|--|--|
| SQL AND PL/SQL: Introduction to SQL, Data Definition Commands, Data Manipulation Commands, Select Queries, Virtual Tables: Creating View, Altering View, Updating View, Destroying View, Relational Set Operators, SQL Join Operators, Sub Queries and Correlated Queries, Aggregate Functions, Procedural SQL: Stored Procedures, Stored Functions, Triggers, Cursors. | | | | | | | |
| | UNIT 4 | 13 Hours | | | | | |
| SCHEMA REFINEMENT AND NORMAL FORMS: Introduction to Schema Refinement: Problems Caused by Redundancy, Decompositions, Problems Related to Decomposition, Functional Dependencies, Reasoning about FDs, Normal Forms: 1 NF, 2 NF, 3 NF, BCNF, Properties of Decomposition: Lossless Join Decomposition, Dependency Preserving Decomposition, Multivalued Dependencies, 4 NF. | | | | | | | |
| | UNIT 5 | 14 Hours | | | | | |
| Isolation, Atomicity Transactions, Transa OVERVIEW OF Organizations and Ir TREE-STRUCTUR Methods(ISAM), B ⁺ | and Durability, Transactions and Schedules, Concurrent Haction Support in SQL. STORAGE AND INDEXING: Data On External S indexing, Index Data Structures. RED INDEXING: Intuition for Tree Indexes, Indexed Seque Trees: A Dynamic Index Structure. | Execution of torage, File ential Access | | | | | |
| Text Books | Silberschatz, Korth, Sudarshan, Database System McGraw Hill, 5th Edition. | n Concepts. | | | | | |
| | 2. Raghu Rama Krishnan, Johannes Gehrke, Database I Systems, McGraw Hill, Third Edition. | Management | | | | | |
| | 3. Peter Rob, A. Ananda Rao, Carlos Coronel Management Systems, CENGAGE Learning. | l, Database | | | | | |
| | 1. Elmasri, Navate, Fundamentals of Database Syste Education. | ms, Pearson | | | | | |
| Reference Books | 2. C.J.Date, Introduction to Database Systems, Pearson | Education. | | | | | |
| Evaluation | Continuous Assessment (20 %) and Assignments (10%) Semester End Examination (70%) | | | | | | |

| Course Outcomes | PO ₁ | PO ₂ | PO ₃ | PO ₄ | PO ₅ | PO ₆ | PO ₇ | PO ₈ | PO ₉ | PO ₁₀ | PO ₁₁ | PO12 | PSO ₁ | PSO ₂ |
|--------------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|------------------|------------------|------|------------------|------------------|
| CO1 | 2 | | 2 | | | 2 | | 1 | | 1 | 1 | | 2 | 2 |
| CO2 | 1 | | | | 1 | | | | | | 1 | | | |
| CO3 | 1 | | 2 | | | 3 | | 3 | | 2 | | 2 | 2 | 2 |
| CO4 | 2 | | | | | | 2 | | 2 | | 1 | | | 1 |
| CO5 | 3 | | 2 | 2 | | 3 | | 1 | | 1 | | | 3 | 2 |

| ANNAMACHARYA INSTITUTE OF TECHNOLOGY & SCIENCES •• PALAMPET | | | | | | | | |
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| CIENCES, RAJAWITEI (AN AUTONOMOUS INSTITUTION) | | | | | | | | |
| (AIV AUTOMOUS INSTITUTION) II Voor B. Tosh. II Somestor | | | | | | | | |
| <u>11 1 ear B. 1 ecn. 11 Semester</u> | | | | | | | | |
| | | eek | | | | | | |
| Course Code: | Course Name: | | | | | | | |
| 5G442 | SOFTWARE ENGINEERING | L | Т | Ρ | С | | | |
| | | 3 | 1 | 0 | 3 | | | |
| Course Prerequisites | Object Oriented Analysis and Design, CASE Tools, Rational Rose Software and Management Information Systems | | | | | | | |
| | Students are able to: | | | | | | | |
| Course Objectives | • To learn and gain practical experience with software engineering principles and techniques. | | | | | | | |
| | • To develop skills that will enable the of high quality. | em to | o cons | struct | software | | | |
| | • This course also aims at fostering the idea of building software that is reliable, and that is reasonably easy to understand modify and maintain | | | | | | | |
| | After completion of the course, student will be able to: | | | | | | | |
| Expected Outcomes | • Demonstrate an understanding of proc | ess n | nodel | S | | | | |
| | • Demonstrate an understanding of the | prope | er con | tents o | of a SRS | | | |
| | • Identify specific components of a soft | ware | desig | n | | | | |
| | • Demonstrate an understanding of arch | itectu | ıral n | nodel | | | | |
| | • Demonstrate an understanding of soft | ware | testin | g | | | | |
| | • Understand the significance of Quality | y Mai | nager | nent | | | | |
| | UNIT 1 | | | 14 | 4 Hours | | | |
| INTRODUCTION T | O SOFTWARE ENGINEERING: The evo | olving | g role | e of s | software, | | | |
| Changing Nature of So | nware, legacy sonware, Sonware myths. | od to | chnol | | process | | | |
| framework, The Capal | pility Maturity Model Integration (CMMI), F | Proces | ss pat | terns, | process | | | |
| assessment, personal ar | nd team process models. | | 1 | | | | | |
| PROCESS MODELS process models, special | S: The waterfall model, Incremental proces lized process models, The Unified process | s mo | odels, | Evol | utionary | | | |
| | UNIT 2 | | | 1 | 2 Hours | | | |
| SOFTWARE REQUIREMENTS: Functional and non-functional requirements, User requirements, System requirements, Interface specification, the software requirements document. | | | | | | | | |
| REQUIREMENTS ENGINEERING PROCESS: Feasibility studies, Requirements elicitation and analysis, Requirements validation, Requirements management. System models: Context Models, Behavioral models, Data models, Object models, structured methods. | | | | | | | | |
| | UNIT 3 | | | 1 | 6 Hours | | | |
| DESIGN ENGINEER | DESIGN ENGINEERING: Design process and Design quality. Design concepts, the design | | | | | | | |

model, pattern based software design.

CREATING ANARCHITECTURAL DESIGN: software architecture, Data design, Architectural styles and patterns, Architectural Design.

MODELING COMPONENT-LEVEL DESIGN: Designing class-based components, conducting component-level design, Object constraint language, designing conventional components.

PERFORMING USER INTERFACE DESIGN: Golden rules, User interface analysis and design, interface analysis, interface design steps, Design evaluation.

TESTING STRATEGIES: A strategic approach to software testing, test strategies for conventional software, Black-Box and White-Box testing, Validation testing, System testing, the art of Debugging.

| UNIT | r 5 | |
|------|-----|--|
| UNL | 5 | |

UNIT 4

14 Hours

14 Hours

METRICS FOR PROCESS AND PRODUCTS: Basics of Product Metrics Software Quality, Frame work for Product metrics, Software Measurement, Metrics for software quality, Risk management: Reactive vs. Proactive Risk strategies, software risks, Risk identification, Risk projection, Risk refinement, RMMM, RMMM Plan.

QUALITY MANAGEMENT: Quality concepts, Software quality assurance, Software Reviews, Formal technical reviews, Statistical Software Quality Assurance, Software reliability, The ISO 9000 quality standards.

| Text Books | 1. Roger S Pressman, <i>Software Engineering: A practitioner's</i> <i>Approach</i> , McGrawHill International Edition, 2005, 6 th Ed. |
|------------------------|---|
| | 2. Ian Sommerville, <i>Software Engineering</i> . Pearson Education, 2004, 7 th Ed |
| Reference Books | 1. Rajib Mall, Fundamentals of Software Engineering, PHI, 2005. |
| | 2. PankajJalote, Software Engineering: A Precise Approach, Wiley |
| | India,2010. |
| | 3. Waman S Jawadekar, Software Engineering: A Primer, Tata |
| | McGraw-Hill,2008. |
| | 4. Deepak Jain, Software Engineering, Principles and Practices, |
| | OxfordUniversity Press. |
| | 5. Diner Bjorner, <i>Software Engineering1: Abstraction and modeling</i> , SpringerInternational edition, 2006. |
| | 6. Diner Bjorner, Software Engineering2: Specification of systems andlanguages. Springer International edition, 2006. |
| | 7. Yingxu Wang, Software Engineering Foundations, Auerbach Publications, 2008. |
| | 8. Hans Van Vliet, Software Engineering Principles and Practice, |
| | John Wiley |
| | & Sons Ltd, 3rd Ed |
| Evaluation | Continuous Assessment (20%) and Assignments (10%) |
| | Semester End Examination (70%) |

| Course Outcomes | PO ₁ | PO ₂ | PO ₃ | PO ₄ | PO ₅ | PO ₆ | PO ₇ | PO ₈ | PO ₉ | PO ₁₀ | PO ₁₁ | PO12 | PSO ₁ | PSO ₂ |
|--------------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|------------------|------------------|------|------------------|------------------|
| CO1 | 3 | 3 | 3 | | | | | | 3 | 2 | 3 | 3 | 3 | |

Department of Information Technology

| CO2 | 3 | 3 | 3 | 2 | | | 3 | | | 3 | 3 | |
|-----|---|---|---|---|---|---|---|---|---|---|---|---|
| CO3 | 3 | 3 | 3 | | | | | | | 3 | | 3 |
| CO4 | 3 | 3 | | | | | | | 3 | 3 | 3 | |
| CO5 | 3 | 3 | | 2 | 2 | | | | 3 | 3 | | 3 |
| CO6 | 3 | 3 | | | 2 | 1 | 3 | 2 | 3 | 3 | | 3 |

ANNAMACHARYA INSTITUTE OF TECHNOLOGY & SCIENCES::RAJAMPET (AN AUTONOMOUS INSTITUTION) **II Year B. Tech. II Semester** Hours/Week **Course Code: Course Name:** С Т L Ρ **APTITUDE AND REASONING SKILLS 5GC44** 0 0 2 2 **Course Prerequisites** Students are able to: **Course Objectives** After completion of the course, student will be able to: **Expected Outcomes QUANTITATIVE APTITUDE:** 1. Number Systems 2. Averages 3. Problems on ages 4. Allegations 5. Percentages 6. Profit and loss 7. Simple interest and Compound interest 8. Ratio and Proposition and variation 9. Time and Work 10. Time and Distance 11. Mensuration 12. Permutation and Combinations 13. Progressions 14. Inequalities 15. Logarithms 16. HCF and LCM 17. Decimal Fractions 18. Simplification 19. Square Roots and Cube Roots 20. Pipes and Cisterns 21. Area, Volume and Surface Areas 22. Calendar, Clocks 23. True Discount, Banker's Discounts 24. Data Interpretation, Tabulation, Bar Graphs, Pie charts, Line Graphs

REASONING:

- 1. Directions
- 2. Blood Relations
- 3. Problems on Cubes
- 4. Series and Sequences
- 5. Odd man out
- 6. Coding and Decoding
- 7. Data sufficiency
- 8. Logical deductions
- 9. Arrangements and Combinations
- 10. Groups and Teams
- 11. Puzzles to Puzzle you. More puzzles, Brain Teasers, Puzzles and Teasers

| | 1. Arun Sharma, How to Prepare for Quantitative Aptitude, TMH |
|------------|---|
| | Publishers, New Delni, 2003. |
| | 2. R.S. Agarwal, Quantitative Aptitude, S. Chand Publishers, New |
| | Delhi, 2005. |
| Text Books | 3. Sharon Weiner-Green, IrnK.Wolf, Barron's GRE, Galgotia |
| | Publications, New Delhi, 2006. |
| | 4. R.S.Agarwal, Verbal and Non-Verbal Reasoning, S.Chand |
| | Publishers, New Delhi, 1998. |
| | 5. Shakuntala Devi, Puzzles to Puzzle you, Orient Paper Backs |
| | Publishers(OPB), New Delhi, 2005. |
| | 6. Shakuntala Devi, More Puzzles, OPB, New Delhi, 2006. |
| | 7. Ravi Narula, Brain Teasers, Jaico Publishing House, New Delhi, |
| | 2005. |
| | 8. George J Summers, Puzzles and Teasers, Jaico Publishing House, |
| | Mumbai, 2005. |
| Library: | 1. Mittal.U, Puzzles to Puzzle you (Book-I & II). |
| 21014131 | 2. Aptitude (Quantitative, Analytical, Logical), By Globarena. |
| | 3. Aptitude – Student work book, Part-I &II, By Globarena. |
| | 4. Material for Soft Skills, By Globarena |
| Evaluation | |

| Course Outcomes | PO ₁ | PO ₂ | PO ₃ | PO ₄ | PO ₅ | PO ₆ | PO ₇ | PO ₈ | PO ₉ | PO ₁₀ | PO ₁₁ | PO12 | PSO ₁ | PSO ₂ |
|--------------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|------------------|------------------|------|------------------|------------------|
| CO1 | 3 | - | - | - | - | - | - | - | - | - | - | 2 | | |
| CO2 | 2 | - | - | - | - | 3 | - | - | - | - | - | 1 | | |
| CO3 | | | | | | | | | | | | | | |
| CO4 | | | | | | | | | | | | | | |
| CO5 | | | | | | | | | | | | | | |

| ANNAMACHARYA INSTITUTE OF TECHNOLOGY & SCIENCES::RAJAMPET | | | | | | | | | | |
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| (AN AUTONOMOUS INSTITUTION) | | | | | | | | | | |
| II Year B. Tech. II Semester | | | | | | | | | | |
| | | Но | urs/W | /eek | | | | | | |
| Course Code: | Course Name: | | | | | | | | | |
| 5G146 | JAVA LAB | L | Т | Ρ | С | | | | | |
| | (Common to CSE & IT) | 0 | 0 | 3 | 2 | | | | | |
| | | | | | | | | | | |
| Course Prerequisites | Programming in C and C++, Object Oriented Con | cepts | 5 | | | | | | | |
| | Students are able: | | | | | | | | | |
| Course Objectives | Understand fundamentals of programming such as variables, conditional and iterative execution, methods, etc. Understand fundamentals of object-oriented programming in Java, including defining classes, invoking methods, using class libraries, etc. Be aware of the important topics and principles of software development. Have the ability to write a computer program to solve specified problems. Be able to use the Java SDK environment to create, debug and | | | | | | | | | |
| | After completion of the course, student wil | l be a | able: | | | | | | | |
| Expected Outcomes | Understand the principles and praca analysis and design in the construction programs which satisfy their requirem Design, write, compile, test and programs using a high level language; Appreciation of the principles programming; Awareness of the need for a professi and the importance of good docum programs. Implement, compile, test and run Jarmore than one class, to address a parti Demonstrate the ability to use sim arrays in a Java program. Make use of members of classes four as the Math class). Demonstrate the ability to employ va constructs in a Java program. Be able Java classes to provide a solutior requirements. | etice n of r ents; exect of onal entat va pr cular ple o nd in ariou to en | of o obust ute s obj appro ion to rogram softv lata s the J s type aploy o a | bject , mair traigh ect bach tr bach t | oriented atainable tforward oriented o design finished mprising roblem. ures like PI (such selection rarchy of set of | | | | | |
| Recommended Systems/Software Requirements | Intel based desktop PC with minimum processor with at least 64 MB RAM space JDK Kit. Recommended | m of [and | 166 1 100 | MHZ MB 1 | or faster Tree disk | | | | | |

| | Week1: |
|---------------------|---|
| | a) Write a Java program to display Fibonacci series between 1 to |
| | n. |
| | b) Write a Java program to perform the arithmetic operations using switch case statement. |
| | c) Write a Java program to calculate sum of 5 subjects and find percentage. |
| | Week 2: |
| | a) Write a Java program to display all strong numbers between 1 to n. |
| | b) Write a Java program to find multiplication of two matrices. |
| | c) Write a Java program to convert temperature from Centigrade to Fahrenheit and Fahrenheit to Centigrade. |
| | Week 3: |
| | a) Write a Java program to implement the access control. |
| List of Experiments | b) Write a Java program to implement the constructor overloading. |
| | c) Write a Java program to implement the method overloading. |
| | Week 4: |
| | a) Write a Java program to find the factorial of a given number using recursion. |
| | b) Write a Java program to find whether the given string is palindrome or not. |
| | c) Write a Java program that reads a file and displays the file on the screen, with a line number before each line. |
| | Week 5: |
| | a) Write a Java program to implement the method overriding. |
| | b) Write a Java program to implement the multilevel inheritance. |
| | c) Write a Java program to implement dynamic method dispatch. |
| | Week 6: |
| | a) Write a java program for abstract class implementation. |
| | Note: - class Shape that contains an empty method named numberOfSides(). Provide three classes named Trapezoid, Triangle and Hexagon such that each one of the classes extends the class Shape. Each one of the classes contains only the method numberOfSides() that shows the number of sides in the given geometrical figures. |
| | b) Write a Java program to implement the package concept. |
| | c) Write a Java program to implement the multiple inheritance using interface. |
| | Week 7: |
| | a) Write a Java program to implement the exception handling mechanism. |
| | b) Write a Java program to implement the nested try statement. |
| | c) Write a Java program to implement the own exception class. |
| | Week 8: |
| | a) Write a Java program for multi-thread implementation. |
| | Note: First thread displays "Good Morning" every one |

| | second, the second thread displays "Hello" every two seconds and the third thread displays "Welcome" every three seconds. |
|------|--|
| t |) Write a Java program to implement producer consumer problem using inter-thread communication mechanism. |
| c |) Write a Java program to use the isAlive() and join() methods. |
| Week | : 9: |
| а |) Write a Java program to display the sum of all the integers of given line of integers using StringTokenizer class. |
| b |) Write a Java program to implement stack ADT. |
| Week | a 10: |
| 2 | Write a Java program to converts infix expression into postfix form |
| ł | b) Write a Java program to evaluate the postfix expression. |
| Week | : 11: |
| a |) Write a Java program to build a simple calculator using grid layout manager. |
| Ν | lote: - Use buttons for digits and for operators (i.e. +, -, *, /, %) add a text field to display the result. |
| b |) Write a Java program that creates a user interface to perform integer division operation. |
| N | lote: -The user enters two numbers in the two text fields (i.e. Num1 and Num2). The division of Num1 and Num2 is displayed in the result text field when the Division button is clicked. If Num1 or Num2 are not an integer, the program would throw a Number Format Exception and if Num2 is zero, then the program would throw an Arithmetic Exception and display the exception in a message dialog box. |
| Week | x 12: |
| a |) Write a Java applet program for displaying a message in the applet window. |
| b |) Write a Java applet program to compute the factorial of given integer. |
| N | lote: - Applet receives an integer in one text field, and computes its factorial value and returns the result in another text field, when the button named "Compute" is clicked. |
| c |) Write a Java applet program to draw lines, rectangles, squares, circles and ovals. |
| Week | 13: |
| a |) Write a Java program for handling keyboard events. |
| b |) Write a Java program for handling mouse events. |
| c |) Write a Java program to implement the inner classes. |
| Week | 14: |
| a |) Write a Java swing program that simulates a traffic light. |
| Ν | ote: - The program lets the user select one of three lights: red, yellow, or green. When a radio button is selected, the light is turned on and only one light can be on at a time, No light is |

| | on when the program starts.b) Write a Java program to implement a simple client/server communication using client and server sockets. |
|-----------------|--|
| | Note: - The client sends data to a server. The server receives the data and uses it to produce a result, and then sends the result back to the client. The client displays the result on the console. Example: The data sent from the client is the radius of a circle, and the result produced by the server is the area of the circle. |
| Text Books | H.M.Dietel and P.J.Dietel, Java How to Program 6 th Edition, Pearson Education/PHI. |
| Reference Books | Y.Daniel Liang, Introduction to Java programming, Pearson Education, 6th Edition. Cay Horstmann, Big Java, 2nd edition, Wiley Student Edition, Wiley India Private Limited. |
| Evaluation | Day to Day Performance (20%), Continuous Assessment (10%) Semester End Lab Examination (70%) |

| Course Outcomes | PO ₁ | PO ₂ | PO ₃ | PO ₄ | PO ₅ | PO ₆ | PO ₇ | PO ₈ | PO ₉ | PO ₁₀ | PO ₁₁ | PO12 | PSO ₁ | PSO ₂ |
|--------------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|------------------|------------------|------|------------------|------------------|
| CO1 | 3 | 3 | 3 | | 3 | - | - | - | - | 3 | - | 3 | 2 | - |
| CO2 | 3 | 3 | 3 | 3 | 3 | - | - | - | - | 3 | - | 3 | 2 | 3 |
| CO3 | 3 | 3 | 3 | 3 | 3 | - | - | - | - | 3 | - | 3 | 2 | 3 |
| CO4 | 3 | 3 | 3 | 3 | 3 | - | - | - | - | 3 | - | 3 | - | 3 |
| CO5 | 3 | 3 | 3 | 3 | 3 | - | - | - | - | 3 | - | - | 2 | - |

| ANNAMACHARYA | A INSTITUTE OF TECHNOLOGY & SCIE | ENCI | ES::R | AJA | MPET | | | | | |
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| | (AN AUTONOMOUS INSTITUTION) | | | | | | | | | |
| | II Year B. Tech. II Semester | | | | 1 | | | | | |
| | | urs/W | /eek | | | | | | | |
| Course Code: | Course Name: | | | | | | | | | |
| 5G443 | DATA BASE MANAGEMENT | L | Т | Ρ | С | | | | | |
| | SYSTEMS LAB | 0 | 0 | 3 | 2 | | | | | |
| | (Common to CSE & IT) | | | | | | | | | |
| Course Prerequisites | | | | | | | | | | |
| | Students are able: | | | | | | | | | |
| | To develop conceptual understanding management system | of da | itabas | e | | | | | | |
| Course Objectives | To understand how a real world probl | em c | an be | mapp | ed to | | | | | |
| | schemas. | 1 | • ,• | | 1 | | | | | |
| | • To develop understanding of different constructs of SOL PL/SOL. | appi | icatio | ns and | 1 | | | | | |
| | After completion of the course, student wil | l be a | able: | | | | | | | |
| Expected Outcomes | • Able to create database with diffe | erent | type | s of | integrity | | | | | |
| | constraints and us the SQL comman | ds su | ich as | 5 DDI | L, DML, | | | | | |
| | • Able to use database security and a | se ot | ojects. rizotio | n in | order to | | | | | |
| | • Able to use database security and authorization in order to access database for the different kinds of the user. | | | | | | | | | |
| | Able to Programming PL/SQL inclustored functions, cursors, packages. | ıding | store | ed pro | ocedures, | | | | | |
| | Week1: | | | | | | | | | |
| | Draw Relational Databases and ER Diag applications. | ram | s for | the f | ollowing | | | | | |
| | a) Student Information System | | | | | | | | | |
| | Student (Student No, Student Name, Address, Mobile No, Email ID, Institute Name, Branch Name, Fee, Mark1, Mark2, Mark3, Mark4, Mark5, Total Marks, Percentage, Grade) | | | | | | | | | |
| | b) Employee Information System | | _ | | | | | | | |
| List of Experiments | Employee (Employee ID, Employee Name, Address, Mobile No, Email ID, Organization Name, Employee Designation, Basic Salary, DA, HRA, Gross Salary, Deductions, Net Salary) | | | | | | | | | |
| • | c) Customer Information System | | | | | | | | | |
| | Customer (Customer ID, Customer No, Email ID, Shop Name, Produc Quantity, Cost per Unit, Total Bill, Di | Nam t Co iscou | e, Ad de, P nt, Ne | ldress roduc et Bill | , Mobile t Name, | | | | | |
| | Week 2: | | | | | | | | | |
| | Write SQL queries to CREATE TABL using DDL commands (i.e. CREATE DELETE, DROP). | ES fo , DE | or var ESCR | ious c IBE, | latabases ALTER, | | | | | |
| | Week 3: | | | | | | | | | |

| | Write SQL queries to MANIPULATE TABLES for various databases using DML commands (i.e. INSERT, SELECT, UPDATE, DELETE, TRUNCATE). |
|------------------|--|
| | Week 4: |
| | Write SQL queries to create VIEWS for various databases (i.e. CREATE VIEW, UPDATE VIEW, ALTER VIEW, DELETE VIEW). |
| | Week 5: |
| | Write SQL queries to perform RELATIONAL SET OPERATIONS (i.e. UNION, UNION ALL, INTERSECT, MINUS, CROSS JOIN, NATURAL JOIN). |
| | Week 6: |
| | Write SQL queries to perform SPECIAL OPERATIONS (i.e. ISNULL, BETWEEN, LIKE, IN, EXISTS) |
| | Week 7: |
| | Write SQL queries to perform JOIN OPERATIONS (i.e. CONDITIONAL JOIN, EQUIJOIN, LEFT OUTER JOIN, RIGHT OUTER JOIN, FULL OUTER JOIN) |
| | Week 8: |
| | Write SQL queries to perform AGGREGATE OPERATIONS (i.e. SUM, COUNT, AVG, MIN, MAX). |
| | Week 9: |
| | Write SQL queries to perform ORACLE BUILT-IN FUNCTIONS (i.e. DATE, TIME). |
| | Week 10: |
| | Write PL/SQL programs for |
| | a) Calculating the factorial of given number. |
| | b) Finding the given number is Prime Number or not. |
| | c) Displaying the Fibonacci series up to an integer. |
| | Week 11: Write PL/SQL program to implement Stored Procedure on table. |
| | Week 12: Write PL/SQL program to implement Stored Function on table. |
| | Week 13: Write PL/SQL program to implement Trigger on table. |
| | Week 14: Write PL/SQL program to implement Cursor on table. |
| | 1. Raghurama Krishnan, Johannes Gehrke, Data base Management Systems, Tata McGraw Hill. |
| | 2. Peter Rob, AnandaRao and Carlos Corone, <i>Database</i> |
| Text Books | Rick F.Vander Lans, <i>Introduction to SQL</i>, Pearson Education. |
| Deference Deeles | 1. B.Rosen Zweig and E.Silvestrova, <i>Oracle PL/SQL</i> , Pearson Education. |
| NEIGI CHUC DOOKS | 2. Steven Feuerstein, Oracle PL/SQL Programming. |
| | 3. Dr. P. S. Deshpande, SQL & PL/SQL for Oracle 10g. Black |
| | Book, Dream Tech. |

| | 4. J. J. Patrick, SQL fundamentals, Pearson Education. | | | | | | | | | | |
|------------|---|--|--|--|--|--|--|--|--|--|--|
| Evaluation | Day to Day Performance (20%), Continuous Assessment (10%) Semester End Lab Examination (70%) | | | | | | | | | | |

| Course Outcomes | PO ₁ | PO ₂ | PO ₃ | PO ₄ | PO ₅ | PO ₆ | PO ₇ | PO ₈ | PO ₉ | PO ₁₀ | PO ₁₁ | PO12 | PSO ₁ | PSO ₂ |
|--------------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|------------------|------------------|------|------------------|------------------|
| CO1 | 2 | | 2 | | | 2 | | 1 | | 1 | 1 | | 2 | 2 |
| CO2 | 1 | | | | 1 | | | | | | 1 | | | |
| CO3 | 1 | | 2 | | | 3 | | 3 | | 2 | | 2 | 2 | 2 |
| CO4 | 2 | | | | | | 2 | | 2 | | 1 | | | 1 |
| CO5 | 3 | | 2 | 2 | | 3 | | 1 | | 1 | | | 3 | 2 |

ANNAMACHARYA INSTITUTE OF TECHNOLOGY & SCIENCES::RAJAMPET (AN AUTONOMOUS INSTITUTION) **III Year B. Tech. I Semester** Hours/Wee **Course Code: Course Name:** k 5G152 **COMPUTER NETWORKS** С (Common to CSE & IT) Т L Ρ 3 1 0 3 **Course Prerequisites** Data communications and networking, **Computer** system architecture Students are able to: **Course Objectives** To understand the fundamental concepts of computer networking. To illustrate Error handling mechanism in DLL and Channel • allocation for users. To focus on routing algorithms in Computer Networks. • To choose Transport protocols in computer networks. • To organize Application Layer in computer networks. After completion of the course, student will be able to: **Expected Outcomes** • Know the importance of data communications and internet in daily activities. Analyze the services and features of various layers of ٠ networks. Recognize the different internetworking devices & their functions. Design, calculate and apply subnet masks and addresses to fulfill networking requirements. Analyze the features and importance of various application layer protocols. UNIT 1 **15 Hours** INTRODUCTION: Network Hardware, Network Software, Reference Models-OSI, TCP/IP, Examples of Networks-The Internet, 3G Mobile Phone Networks, RFID and Sensor Networks. PHYSICAL LAYER: Guided Transmission, Wireless Transmission, Public switched telephone networks-Structure of the telephone system, FDM, TDM, CDM Switching. UNIT 2 13 Hours **DATA LINK LAYER:** Design issues, Error Detection and Correction, Elementary data link Protocol, Sliding Window protocols, Internet. MEDIUM ACCESS SUB LAYER: The Channel Allocation Problem, Multiple access protocols, IEEE 802.X Standard Ethernet, Wireless LANS. UNIT 3 12 Hours NETWORK LAYER: Network layer Design Issues, Routing Algorithms-Shortest path routing, Flooding, Hierarchical routing, Broadcast, Multicast, Distance vector routing, Link state routing, Congestion Control Algorithms. Quality of Service, The Network layer in the

| Internet-The IP-protocol, IP-addresses | Internet control protocols, | Internet multicasting, IPV6. |
|--|-----------------------------|------------------------------|
|--|-----------------------------|------------------------------|

| UNIT | 4 |
|------|---|
|------|---|

13 Hours

TRANSPORT LAYER: Transport Services, Elements of Transport protocols, Simple Transport Protocol, The Internet Transport Protocols-TCP and UDP protocols, Delay-Tolerant Networking.

UNIT 5

14 Hours

APPLICATION LAYER:

DOMAIN NAME SYSTEM: The DNS Name Space, Domain Resource Records, Name Servers.

STREAMING AUDIO & VIDEO: Digital Audio, Digital Video, Streaming Stored Media, Streaming Live Media, Real-Time Conferencing.

CONTENT DELIVERY: Content and Internet Traffic, Server Farms and Web Proxies, Content Delivery Networks, Peer-to-Peer Networks.

| Text Books | Andrew S Tanenbaum, <i>Computer Networks</i> . Pearson Education/PHI, 5 th Ed. | | | | | | | |
|------------------------|---|--|--|--|--|--|--|--|
| | 1. Behrouz A. Forouzan, Data Communications and Networking. TMH, 3 rd Ed. | | | | | | | |
| Reference Books | 2. S.Keshav, <i>An Engineering Approach to Computer Networks</i> . Pearson Education, 2 nd Ed. | | | | | | | |
| | 3. W.A. Shay, <i>Understanding communications and Networks</i> . Thomson, 3 rd Ed. | | | | | | | |
| Evaluation | Continuous Assessment (20%) and Assignments (10%) | | | | | | | |
| | Semester End Examination (70%) | | | | | | | |

| Course Outcomes | PO ₁ | PO ₂ | PO ₃ | PO ₄ | PO ₅ | PO ₆ | PO ₇ | PO ₈ | PO ₉ | PO ₁₀ | PO ₁₁ | PO12 | PSO ₁ | PSO ₂ |
|--------------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|------------------|------------------|------|------------------|------------------|
| CO1 | | | 3 | | | | 2 | | | | | 3 | 2 | |
| CO2 | | 3 | 3 | 3 | | | | | | | | | | 3 |
| CO3 | | 3 | 3 | 3 | | | | | | | | | | 3 |
| CO4 | | 3 | 3 | | | | | | | | | | | 3 |
| CO5 | | | | | | 1 | | | | | 1 | 3 | | 3 |

| ANNAMACHARYA INSTITUTE OF TECHNOLOGY & SCIENCES::RAJAMPET | | | | | | | | | | | |
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| (AN AUTONOMOUS INSTITUTION) | | | | | | | | | | | |
| III Year B. Tech. I Semester | | | | | | | | | | | |
| Course Code: | Course Name: Hours/Week | | | | | | | | | | |
| 5G356 | MICROPROCESSORS & INTERFACING | Р | с | | | | | | | | |
| | (Common to CSE and IT) | 3 | 1 | 0 | 3 | | | | | | |
| Course Prerequisites | Computer System Architecture | | | | | | | | | | |
| | Students are able to: | | | | | | | | | | |
| | The course aims to provide the student with the | he ab | ility | | | | | | | | |
| Course Objectives | • To know the basic concepts of first microprocessor. | 16 1 | bit ge | eneral | purpose | | | | | | |
| | • To learn the programming and I Microprocessors | nterfa | acing | Con | cepts of | | | | | | |
| | After completion of the course, student wil | l be a | able t | 0: | | | | | | | |
| Expected Outcomes | Know the Architectural features and programming of 8086. Ability to Interface various Intel devices with 8086. Understand the Interrupt structure of 8086 and servicing the interrupts using interrupt controller. | | | | | | | | | | |
| | Know the Salient features of advanced | 1 mic | ropro | cessor | (S. | | | | | | |
| | UNIT 1 | | | 14 | 4 Hours | | | | | | |
| 8086 ARCHITECTU Register organization, maximum mode of op 8086, Addressing mod language programs inv arithmetic expressions, | RE & PROGRAMMING: Architecture of Memory organization, Pin diagram of 808 peration, Timing diagrams, Machine language les of 8086, instruction set of 8086, Assembly volving logical, branch and call instructions string manipulation, Procedure and Macros. | of 80 36-M e inst ler di s, sor | 86 m inimu tructi- irectiv rting, | icroph im m on for ves, A evalu | ode and rmats of ssembly ation of | | | | | | |
| | UNIT 2 | | | 1 | 3 Hours | | | | | | |
| MEMORY & I/O INTERFACING: I/O Interfacing methods – I/O mapped I/O, Memory mapped I/O, Basic structure of SRAM and DRAM cell, Memory interfacing to 8086 (static RAM and EPROM). Interfacing I/O ports – latches and buffers.8255 PPI-various modes of operation and interfacing to 8086. Seven segment Displays, stepper motor, D/A, A/D converter. | | | | | | | | | | | |
| | UNIT 3 | | | 1 | 2 Hours | | | | | | |
| DMA &PIC: Need for DMA, Architecture of 8257 and interfacing with 8086.Data transfer methods-Programmed I/O; interrupt driven I/O, Interrupt structure of 8086, Vector interrupt table. Interrupt service routines. 8259 PIC architecture and interfacing, cascading of interrupt controller. | | | | | | | | | | | |
| | UNIT 4 | | | 13 | Hours | | | | | | |
| PROGRAMMABLE INTERVAL TIMER/ COUNTER & COMMUNICATION INTERFACE: Architecture of 8253 programmable interval timer/counter, mode of operations, interfacing with 8086. Asynchronous and synchronous data transfer schemes. Necessity of communication interfaces, 8251 USART architecture and interfacing Serial | | | | | | | | | | | |

communication standards-, RS-232C, 20mA current loop.TTL to RS232C and RS232C to TTL conversion.

| | UNIT 5 14 Hours | | | | | | | | | |
|--|---|---|----------------------------|--|--|--|--|--|--|--|
| ADVANCED MICROPROCESSORS: Introduction to 80286.salient features of 80386, Real and protected mode segmentation and paging, salient features of Pentium and Pentium pro processors. | | | | | | | | | | |
| Text Books | Text Books 1. A.K. Ray and K.M.Bhurchandi - Advanced microprocessor and peripherals, 2nd edition, TMH, 2000. 2. Douglas V.Hall - Microprocessors Interfacing, 2nd edition, 2007 | | | | | | | | | |
| Reference Books | 1. | 1. Liu and GA Gibson - Micro computer system 8066/8088 family Architecture, programming and Design, PHI, 2 nd Ed. | | | | | | | | |
| | 2. | Bhupendrasinghchabra - Intel 8086/8088 mid architecture, programming, design and interfacing, publications. | croprocessor Dhanpatrai | | | | | | | |
| | 3. | Barry B.Brey. | | | | | | | | |
| Evaluation | Contin | uous Assessment (20%) and Assignments (10%) | | | | | | | | |
| | Semes | ter End Examination (70%) | | | | | | | | |

| Course Outcomes | PO ₁ | PO ₂ | PO ₃ | PO ₄ | PO ₅ | PO ₆ | PO ₇ | PO ₈ | PO ₉ | PO ₁₀ | PO ₁₁ | PO12 | PSO ₁ | PSO ₂ |
|--------------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|------------------|------------------|------|------------------|------------------|
| CO1 | 3 | 3 | - | - | 3 | - | - | - | - | - | - | 3 | | |
| CO2 | 3 | 3 | - | 1 | 3 | - | - | - | - | - | - | 3 | | |
| CO3 | 3 | 3 | - | - | 3 | - | - | - | - | - | - | | | |
| CO4 | 3 | - | - | - | - | - | - | - | - | - | - | 3 | | |
| CO5 | | | | | | | | | | | | | | |
ANNAMACHARYA INSTITUTE OF TECHNOLOGY & SCIENCES::RAJAMPET (AN AUTONOMOUS INSTITUTION) **III Year B. Tech. I Semester** Hours/Week **Course Code: Course Name:** 5G451 ANDROID APPLICATION DEVELOPMENT Т L С Ρ 3 1 0 3 **Course Prerequisites** Students are able to: To study about the android architecture and the tools for developing android applications. **Course Objectives** To create an android application. To learn about the user interfaces used in android • applications. To learn about how to handle and share android data. • To learn about how to develop an android services and to publish android application for use. After completion of the course, student will be able to: Define the main characteristics and functionality of Android • devices. Reproduce the installation of the Android Eclipse SDK. • **Expected Outcomes** Define the Android user interface. • Customize icons. Implement audio in Android apps. • Develop Android apps. • UNIT 1 **14 Hours** INTRODUCTION: Android - Android Versions - Features of Android - Architecture of Android - Obtaining the Required Tools - Android SDK - Installing the Android SDK Tools -Configuring the Android SDK Manager – Eclipse - Android Development Tools (ADT) - Creating Android Virtual Devices (AVDs) - Creating Your First Android Application – Types of Android Application - Anatomy of an Android Application. UNIT 2 **13 Hours** ACTIVITIES, FRAGMENTS AND INTENTS: Understanding Activities - Creating Activities - Linking Activities Using Intents - Resolving Intent Filter Collision - Returning Results from an Intent - Passing Data Using an Intent Object - Fragments - Adding Fragments Dynamically - Life Cycle of a Fragment - Interactions between Fragments - Calling Built-In Applications Using Intents - Understanding the Intent Object - Using Intent Filters - Adding Categories - Displaying Notifications. UNIT 3 12 Hours ANDROID USER INTERFACE: Understanding the Components of a Screen - Adapting to Display Orientation - Managing Changes to Screen Orientation - Utilizing the Action Bar -Creating the User Interface Programmatically - Listening for UI Notifications - Designing

Your User Interface With Views - Using Basic Views - Using Picker Views - Using List

Views to Display Long Lists - Understanding Specialized Fragments – Displaying Pictures And Menus With Views - Using Image Views to Display Pictures – Using Menus with Views - Additional Views.

| | | . <u></u> |
|---|--|--|
| | UNIT 4 | 13 Hours |
| DATABASES, CO Preferences - Persis Sharing Data in And Using the Content P | NTENT PROVIDERS AND MESSAGING: Saving and L ting Data to Files - Creating and Using Databases - Content rovider - Using a Content Provider - Creating Your Own Content Provider – Messaging - SMS Messaging - Sending E-mail. | oading User t Providers - t Providers - |
| | UNIT 5 | 14 Hours |
| Location-Based Serv Project - Building a - Consuming JSON Creating Your Ow Activity - Binding Applications - Prepa | vices - Displaying Maps - Getting Location Data - Monitoring Location Tracker – Networking - Consuming Web Services N Services - Sockets Programming - Developing Android n Services – Establishing Communication between a Ser- Activities to Services - Understanding Threading - Publish uring for Publishing - Deploying APK Files. | a Location - Using HTTP I Services - vice and an ing Android |
| Text Books | Beginning Android 4 Application Development, We Wiley India (Wrox), 2013. Professional Android 4 Application Development, Wiley India, (Wrox), 2012. | i-Meng Lee, Reto Meier, |
| Reference Books | Zigurd Mednieks, Laird Dornin, Blake Meike G, a Nakamura, "Programming Android", O'Reilly books | and Masumi , 2011. |
| Evaluation | Continuous Assessment (20%) and Assignments (10%) Semester End Examination (70%) | |
| | Semester End Examination (70%) | |

| Course Outcomes | PO ₁ | PO ₂ | PO ₃ | PO ₄ | PO ₅ | PO ₆ | PO ₇ | PO ₈ | PO ₉ | PO ₁₀ | PO ₁₁ | PO12 | PSO_1 | PSO ₂ |
|--------------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|------------------|------------------|------|---------|------------------|
| CO1 | - | - | - | - | 3 | - | - | - | - | - | - | - | - | - |
| CO2 | - | - | 3 | - | - | - | 1 | - | - | - | - | - | 2 | - |
| CO3 | - | - | 2 | - | - | - | - | - | - | - | - | - | - | - |
| CO4 | 1 | 3 | - | - | 1 | 2 | - | - | - | - | - | - | - | - |
| CO5 | - | - | - | - | _ | 2 | _ | _ | - | - | - | - | - | 2 |

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| | (AN AUTONOMOUS INSTITUTION) | | | | | | | | |
| | III Year B. Tech. I Semester | r | | | | | | | |
| Course Code: | Course Name: | Но | urs/W | | | | | | |
| 5G452 | AUTOMATA AND COMPILER | | | | | | | | |
| | DESIGN | L | Т | Р | С | | | | |
| | | 3 | 1 | 0 | 3 | | | | |
| Course Prerequisites | | | | | | | | | |
| | Students are able to: | | | | | | | | |
| Course Objectives Expected Outcomes | To realize the computer science as applications. To introduce the major concept areas and compiler design. To learn how a compiler works and k compiler generation tools and technic the other non-compiler applications. To know the importance of code optime. Understand formal definitions of mach Classify machines by their power to result of the logical limits to a Understanding of the logical limits to a scomputer science. Find solutions to the problems using The Design of new grammar and language. Able to use the tools related to compiler application. | To realize the computer science as the basis for real the applications. To introduce the major concept areas of language translatic and compiler design. To learn how a compiler works and know about the power compiler generation tools and techniques, which are useful the other non-compiler applications. To know the importance of code optimization. Understand formal definitions of machine models. Classify machines by their power to recognize languages. Understanding of the logical limits to computational capacit After completion of the course, student will be able to: Construct finite state diagrams while solving problems of computer science. Find solutions to the problems using Turing machines. Design of new grammar and language. Able to design a compiler for a simple programming | | | | | | | |
| | efficiently. | | | | | | | | |
| | UNIT 1 | | | 14 | 4 Hours | | | | |
| INTRODUCTION T hierarchy of languages into DFA, Minimizatio NFA, Applications of F | UNIT 114 HoursINTRODUCTION TO AUTOMATA: Introduction to Formal Languages, Chomsky hierarchy of languages and recognizers, Finite Automata – DFA, NFA, Conversion of NFA into DFA, Minimization of DFA, Regular Expressions, Conversion of Regular Expression to NFA, Applications of Finite Automata | | | | | | | | |
| UNIT 2 13 Hours | | | | | | | | | |
| INTRODUCTION TO COMPILER: Phases of Compiler, Interpreters LEXICAL ANALYZER: Input Buffering, Scanning Algorithm, LEX Tools CONTEXT FREE GRAMMARS AND PARSING: Context free grammars, derivation, parse trees, ambiguity, Top- Down Parser, Recursive Parser, Recursive Descent Parser, and LL(K) grammars. | | | | | | | | | |
| | UNIT 3 | | | 1 | 2 Hours | | | | |
| BOTTOM -UP PARSING: Model of LR Parser Shift Reduce Parser SLR Parser CLR | | | | | | | | | |

Parser, LALR parser, YACC programming specification, Syntax directed translation, S-attributed and L-attributed grammars.

TYPE CHECKING: Specification of simple type checker, equivalence of type expressions, type conversions, overloading of functions and operations, Type Inference and Polymorphic Functions.

| UNIT 4 | | | | | | | | |
|---|---------------|--|--|--|--|--|--|--|
| INTERMEDIATE CODE GENERATION: Forms of Intermediate Code, Ab | stract syntax | | | | | | | |
| tree, translation of simple statements and control flow statements. | | | | | | | | |
| | | | | | | | | |

RUNTIME STORAGE: Storage organization, storage allocation strategies, Symbol Table Organization, dynamic storage allocation.

| UNIT 5 | |
|--------|--|
|--------|--|

14 Hours

CODE OPTIMIZATION: Principal sources of optimization, optimization of basic blocks, peephole optimization, flow graphs, Data flow analysis of flow graphs.

CODEGENERATION: Machine dependent code generation, object code forms, generic code generation algorithm, Register allocation and assignment, DAG representation of basic block.

| | 1. Aho, Ullman, Ravisethi, Compilers Principles, Techniques and Tools. Pearson Education. | | | | | | | | |
|-----------------|--|--|--|--|--|--|--|--|--|
| Text Books | Hopcraft H.E and Ullman J.D., Introduction to Automata Theory, Languages and computation. Pearson education. | | | | | | | | |
| | C. Andrew, W.Appel, Modern Compiler Construction, Cambridge University Press. | | | | | | | | |
| | 2. Louden, Compiler Construction, Cengage Learning. | | | | | | | | |
| | 3. V.Raghavan, Principles of Compiler Design, TMH. | | | | | | | | |
| Reference Books | 4. Kamala Krithivasan and Rama R, Introduction to Formal Languages and Automata Theory and Computation. Pearson. | | | | | | | | |
| | 5. D.Grune and others, Modern Compiler Design, Wiley-India. | | | | | | | | |
| | 6. A.Meduna, Automata and Languages, Springer. | | | | | | | | |
| | 7. Introduction to Theory of Computation, Thomson, 2^{nd} edition | | | | | | | | |
| Evaluation | Continuous Assessment (20%) and Assignments (10%) | | | | | | | | |
| | Semester End Examination (70%) | | | | | | | | |

| Course Outcomes | PO ₁ | PO ₂ | PO ₃ | PO ₄ | PO ₅ | PO ₆ | PO ₇ | PO ₈ | PO ₉ | PO ₁₀ | PO ₁₁ | PO12 | PSO ₁ | PSO ₂ |
|--------------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|------------------|------------------|------|------------------|------------------|
| CO1 | 3 | 3 | 3 | 3 | | 3 | | | 3 | | | | 3 | 3 |
| CO2 | 3 | 3 | 3 | | | 3 | | | 2 | | | | 2 | 3 |
| CO3 | 3 | 3 | 3 | 3 | 3 | 3 | | | | | | 3 | 3 | 3 |
| CO4 | | | | | 3 | | | | | | | | | |
| CO5 | 3 | 3 | 3 | | | | | | | | | | 3 | 3 |

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| | III Year B. Tech. I Semester | | | | | | | |
| Course Code: 5G454 | Course Name: | Но | urs/W | /eek | | | | |
| | DATA WAREHOUSING AND DATA MINING | L | Т | Р | С | | | |
| | | 3 | 1 | 0 | 3 | | | |
| Course Prerequisites | Basic Concepts of Data Base Management Syste | ms | | | | | | |
| Course Objectives | Students are able to: Understanding of the DATA AND MINING fundamental the data mining. | Wories | AR | EHO conc | USING cepts of | | | |
| | • Understand the process of data concepts involved. | mir | ning | and t | he key | | | |
| | learn data preprocessing techni basic algorithms and techniques patterns, associations, and correl | ique for atio | s, ar min ns. | nd too ing fi | o learn requent | | | |
| | • Develop a thorough understanding of popular classification and prediction techniques as well as unsupervised data mining techniques and the mathematical theory behind them. | | | | | | | |
| | After completion of the course, student wil | l be a | able t | 0: | | | | |
| Expected Outcomes | • Understand the fundamental con and data warehousing systems. | icept | ts of | data | mining | | | |
| | • Understand the practical implementation data preprocessing techniques. | ment | tatio | n of | various | | | |
| | • Develop a thorough understand techniques to identify new decision | ling ion a | of c ltern | lassif ative | fication s. | | | |
| | • Learn Association Techniqu techniques for effective decision | es mal | and king. | clu | stering | | | |
| | Understand the data mining functionalities on advanced databases. | | | | | | | |
| | UNIT 1 | | | 15 | 5 Hours | | | |
| INTRODUCTION Classification of Da | : Fundamentals of data mining, Data M ta Mining systems, Major issues in Data | ining Mir | g Fui ning. | nctior | nalities, | | | |
| DATA PREPROC Data Integration a Concept Hierarchy | ESSING: Needs Preprocessing the E and Transformation, Data Reduction, Generation. | Data, Di | Dat scret | ta Cle izatio | eaning, on and | | | |

| | UNIT 2 | 13 Hours | | | | | | |
|--|--|---|--|--|--|--|--|--|
| DATA WAREHOUSING: Data Warehouse and OLAP Technology for Data Mining Data Warehouse, Multidimensional Data Model, Data Warehouse Architecture, Data Warehouse Implementation, Further Development of Data Cube Technology, From Data Warehousing to Data Mining. MINING ASSOCIATION RULES IN LARGE DATABASES: Association Rule Mining, Mining Single-Dimensional Boolean Association Rules from Transactional Databases, Mining Multilevel Association Rules from Transaction Databases, Mining Multidimensional Association Rules from Relational Databases and Data Warehouses, From Association Mining to Correlation Analysis Constraint Based Association Mining | | | | | | | | |
| | UNIT 3 | 12 Hours | | | | | | |
| CLASSIFICATI and Prediction, Classification, C Concepts from Prediction, Classi | CLASSIFICATION AND PREDICTION: Issues Regarding Classification and Prediction, Classification by Decision Tree Induction, Bayesian Classification, Classification by Back propagation, Classification Based on Concepts from Association Rule Mining, Other Classification Methods, Prediction, Classifier Accuracy | | | | | | | |
| | UNIT 4 | 13 Hours | | | | | | |
| CLUSTER AN Analysis, A Cate Density-Based Methods, Outlier | CLUSTER ANALYSIS INTRODUCTION: Types of Data in Cluster Analysis, A Categorization of Major Clustering Methods, Partitioning Methods, Density-Based Methods, Grid-Based Methods, Model-Based Clustering Methods, Outlier Analysis. | | | | | | | |
| | UNIT 5 | 14 Hours | | | | | | |
| Multidimensiona Mining Spatial I and Sequence Da | Multidimensional Analysis and Descriptive Mining of Complex, Data Objects, Mining Spatial Databases, Mining Multimedia Databases, Mining Time-Series and Sequence Data, Mining Text Databases, Mining the World Wide Web. | | | | | | | |
| Text Books | &MichelineKamber,3 ¹⁴ Edition, Harcourt India. | | | | | | | |
| Reference Books | Data Mining Introductory and advance Margaret H Dunham, Pearson Education Data Mining Techniques, Arun K Pujari, Press. Data Warehousing in the Real World, Sam A Dennis Murray. Pearson Ed. Asia. Data Warehousing Fundamentals, Paulraj Wiley Student Edition. The Data Warehouse Life cycle Tool Kimball Wiley Student Edition. | ed topics, University Anahory & Ponnaiah kit, Ralph | | | | | | |

| Evaluation | Continuous Assessment (20 %) and Assignments (10%) |
|------------|--|
| | Semester End Examination (70%) |

| Course Outcomes | PO ₁ | PO ₂ | PO ₃ | PO ₄ | PO ₅ | PO ₆ | PO ₇ | PO ₈ | PO ₉ | PO ₁₀ | PO ₁₁ | PO12 | PSO ₁ | PSO ₂ |
|--------------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|------------------|------------------|------|------------------|------------------|
| CO1 | 3 | 3 | 3 | - | 3 | | | - | - | - | 2 | | 3 | |
| CO2 | 3 | 3 | 3 | 3 | 3 | 3 | | - | - | 3 | - | | 3 | 3 |
| CO3 | 3 | 3 | 3 | 3 | 3 | 3 | | - | - | 3 | - | | 3 | 3 |
| CO4 | 3 | 3 | 3 | 3 | 3 | 3 | | - | - | | 2 | | 3 | |
| CO5 | 3 | 3 | 3 | - | - | 3 | 3 | - | - | - | - | 3 | 3 | |

ANNAMACHARYA INSTITUTE OF TECHNOLOGY & SCIENCES::RAJAMPET (AN AUTONOMOUS INSTITUTION)

III Year B. Tech. I Semester

| Course Code: | Course Name: | Week | | | | | | | | | |
|--|--|--------------------|---------------------------|----------------------------------|-------------------|--|--|--|--|--|--|
| 5G455 | SOFTWARE TESTING | | | | | | | | | | |
| | METHODOLOGIES | L | Т | Р | С | | | | | | |
| | | 3 | 1 | 0 | 3 | | | | | | |
| Course Prerequisites | The Students should know about the software engineering pro They should know the basic understanding of the SDLC Understanding of software programming using any program language. | | | | | | | | | | |
| Course Objectives | Basic software debugging methods. | | | | | | | | | | |
| | • Various testing methodologies. | | | | | | | | | | |
| | • The procedure for designing test cases. | | | | | | | | | | |
| | • The significance of software testing | | | | | | | | | | |
| | After completion of the course, student will b | e ab | le to: | | | | | | | | |
| Expected Outcomes | Understand the basic testing procedures. Generating test cases and test suites. Test the applications manually and by automation using different testing methods Prepare paths and decision tables for various problems Propose state graphs for different problems and apply transition | | | | | | | | | | |
| | | | | 10.11 | | | | | | | |
| | | | | 10 H | lours | | | | | | |
| INTRODUCTION: Purj taxonomy of bugs. | pose of testing, Dichotomies, model for testin | g, co | onseq | uences o | of bugs, | | | | | | |
| | UNIT 2 | | | 12 H | ours | | | | | | |
| FLOW GRAPHS AND predicates and achievable | PATH TESTING: Basics concepts of path paths, path sensitizing, path instrumentation, app | tes licati | ting, ion of | predicat path tes | es, path ting. | | | | | | |
| | UNIT 3 | | | 15 H | ours | | | | | | |
| TRANSACTION FLOW TESTING: Transaction flows, transaction flow testing techniques. Dataflow testing: Basics of dataflow testing, strategies in dataflow testing, application of dataflow testing. DOMAIN TESTING: Domains and paths, Nice & ugly domains, domain testing, domains and interfaces testing. | | | | | | | | | | | |
| | UNIT 4 | | | 15 H | lours | | | | | | |
| PATHS, PATH PROD expression, reduction proc LOGIC BASED TESTIN | DUCTS AND REGULAR EXPRESSIONS: cedure, applications, regular expressions & flow a NG: Overview, decision tables, path expressions, | Pa nom kv cł | th pr aly de narts, | oducts etection. specifica | & path tions. | | | | | | |
| | UNIT 5 | | | 14 H | ours | | | | | | |

STATE, STATE GRAPHS AND TRANSITION TESTING: State graphs, good & bad state graphs, state testing.

GRAPH MATRICES AND APPLICATION: Motivational overview, matrix of graph, relations, power of a matrix, node reduction algorithm, building tools.

| Text Books | BarisBeizer, Software testing techniques, Dreamtech, 2 nd Ed | | | | | | | | |
|------------------------|---|--|--|--|--|--|--|--|--|
| Reference Books | 1. Dr.K.V.K.K.Prasad, Software Testing Tools, Dreamtech. | | | | | | | | |
| | 2. Brian Marick, Thecraft of software testing, Pearson Education. | | | | | | | | |
| | 3. Software Testing Techniques – SPD(Oreille). | | | | | | | | |
| Evaluation | ontinuous Assessment (20%) and Assignments (10%) | | | | | | | | |
| | Semester End Examination (70%) | | | | | | | | |

| Course Outcomes | PO ₁ | PO ₂ | PO ₃ | PO ₄ | PO ₅ | PO ₆ | PO ₇ | PO ₈ | PO ₉ | PO ₁₀ | PO ₁₁ | PO12 | PSO ₁ | PSO ₂ |
|--------------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|------------------|------------------|------|------------------|------------------|
| CO1 | 3 | 3 | | | | | | | 3 | | | 3 | 2 | 3 |
| CO2 | 3 | 3 | 3 | | | | | | 3 | | | 3 | 3 | 2 |
| CO3 | 3 | | 3 | | | | | | 3 | | | 3 | | 3 |
| CO4 | 3 | | 3 | | | | | 3 | 3 | | 3 | 3 | 3 | 3 |
| CO5 | 3 | | 3 | | 1 | | | 3 | 3 | | 3 | 3 | 3 | 3 |

ANNAMACHARYA INSTITUTE OF TECHNOLOGY & SCIENCES::RAJAMPET (AN AUTONOMOUS INSTITUTION) III Year B. Tech. I Semester Hours/Week **Course Code: Course Name:** С Т L Ρ 5GC52 **ENGLISH FOR COMPETITIVE EXAMINATIONS** 3 1 0 3 **Course Prerequisites** Students are able to: To allow the students learn Advanced Grammar and English • Comprehension. **Course Objectives** To expose the students to various kinds of competitive exam papers in English. After completion of the course, student will be able to: achieve proficiency in English synonyms, antonyms, idiomatic expressions and, accuracy in English spelling apply active reading strategies in order to comprehend, critically analyze and make inferences and predictions based on information in the text **Expected Outcomes** apply his/her knowledge of articles, prepositions, tenses and voice correct errors or improve sentences form meaningful sentences/passages out of the scrambled words/sentences **UNIT 1 15 Hours** Correct English Usage: Articles - Prepositions - Tenses - Voice - Error spotting and correcting - Sentence improvement. UNIT 2 13 Hours Vocabulary: Synonyms - Antonyms - Analogy - Words often confused. UNIT 3 12 Hours English Proficiency: One-word substitutions - Idioms and Phrases - Homonyms - Spellings. UNIT 4 **13 Hours** Logic-based English Language: Rearrangement of jumbled words and jumbled sentences word pairs - sentence completion. UNIT 5 14 Hours Comprehension Ability: Reading comprehension – Cloze tests. 1. R. S. Agarwal, "Objective English", S. Chand Publishers **Text Books** Hari Prasad, "Objective English for Competitive Exams", TMH. 2. **Reference Books** Collins Cobuild, "English Guides: Confusable Words". 1. Continuous Assessment (20 %) and Assignments (10%), Semester End **Evaluation** Examination (70%) **Program Articulation Matrix**

| Course | PO_1 | PO ₂ | PO ₃ | PO ₄ | PO ₅ | PO ₆ | PO ₇ | PO ₈ | PO ₉ | PO ₁₀ | PO ₁₁ | PO12 | PSO ₁ | PSO ₂ |
|--------|--------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|------------------|------------------|------|------------------|------------------|
|--------|--------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|------------------|------------------|------|------------------|------------------|

| Outcomes | | | | | | | | | | | | | |
|----------|---|---|---|---|---|---|---|---|---|---|---|---|--|
| CO1 | - | - | - | - | - | - | - | - | - | 2 | - | 3 | |
| CO2 | - | - | - | - | - | - | - | - | - | - | - | 3 | |
| CO3 | | | | | | | | | | 3 | | 3 | |
| CO4 | - | - | - | - | - | - | - | - | - | - | - | 1 | |
| CO5 | | | | | | | | | | | | | |

ANNAMACHARYA INSTITUTE OF TECHNOLOGY & SCIENCES::RAJAMPET (AN AUTONOMOUS INSTITUTION) **III Year B. Tech. I Semester** Hours/Week **Course Code: Course Name:** 5G456 ANDROID APPLICATION AND **COMPILER DESIGN LAB** L Т С Ρ 0 0 3 2 Eclipse, Java, C **Course Prerequisites Course Objectives** Students are able to: 1. Install android tools and run emulator over it. 2. Design the user interface accordingly needed. 3. Maintain a database with given credentials. 4. Develop a compiler with own syntax and semantics. 5. Construct the parser for the given languages. After completion of the course, student will be able to: **Expected Outcomes** 1. Install and use different open source tools 2. Develop their own android application 3. Store and retrieve the information from database 4. Understand about compiler working 5. Design the different parsers for respective languages **Android programs:** 1. Create an Android application that shows Hello + name of the user and run it on an emulator. (b) Create an application that takes the name from a text box and shows hello message along with the name entered in text box, when the user clicks the OK button. 2. Create a screen that has input boxes for User Name, Password, Address, Gender (radio buttons for male and female), Age (numeric), Date of Birth (Date Picket), State (Spinner) and a Submit button. On clicking the submit button, print all the data below the Submit Button. Use (a) Linear Layout (b) Relative Layout and (c) Grid Layout or Table Layout. **List of Experiments** 3. Develop an application that shows names as a list and on selecting a name it should show the details of the candidate on the next screen with a "Back" button. If the screen is rotated to landscape mode (width greater than height), then the screen should show list on left fragment and details on right fragment instead of second screen with back button. Use Fragment transactions and Rotation event listener. 4. Develop an application that uses a menu with 3 options for dialing a number, opening a website and to send an SMS. On selecting an option, the appropriate action should be invoked using intents. 5. Create an application that uses a text file to store user names and passwords (tab separated fields and one record per line). When the user submits a login name and password through a

| | screen, the details should be verified with the text file data and if they match, show a dialog saying that login is successful. Otherwise, show the dialog with Login Failed message. | | | | | | | | | |
|-----------------|---|--|--|--|--|--|--|--|--|--|
| | 6. Create a user registration application that stores the user details in a database table. | | | | | | | | | |
| | 7. Create a database and a user table where the details of login names and passwords are stored. Insert some names and passwords initially. Now the login details entered by the user should be verified with the database and an appropriate dialog should be shown to the user. | | | | | | | | | |
| | 8. Create an admin application for the user table, which shows all records as a list and the admin can select any record for edit or modify. The results should be reflected in the table. | | | | | | | | | |
| | 9. Create an alarm that rings every Sunday at 8:00 AM. Modify it to use a time picker to set alarm time. | | | | | | | | | |
| | 10. Develop an application that shows the current location's latitude and longitude continuously as the device is moving (tracking). | | | | | | | | | |
| | Compiler Design | | | | | | | | | |
| | 1. Design a Lexical analyzer for the given language. The lexical analyzer should ignore redundant spaces, tabs and newlines. It should also ignore comments. Although the syntax specification states that identifiers can be arbitrarily long, you may restrict the length to some reasonable value. | | | | | | | | | |
| | 2. Design Recursive Descent parser for the given language | | | | | | | | | |
| | 3. Design Predictive parser for the given language | | | | | | | | | |
| | 4. Design LALR bottom up parser for the given language. | | | | | | | | | |
| | 5. Convert the BNF rules into Yacc form and write code to generate abstract syntax tree. | | | | | | | | | |
| | Beginning Android 4 Application Development, Wei-Meng Lee, Wiley India (Wrox), 2013 | | | | | | | | | |
| Text Books | Aho, Ullman, Ravisethi, Compilers Principles, Techniques and Tools. Pearson Education. | | | | | | | | | |
| | 3. Hopcraft H.E and Ullman J.D., Introduction to Automata Theory, Languages and computation. Pearson education | | | | | | | | | |
| Reference Books | Professional Android 4 Application Development, Reto Meier, Wiley India, (Wrox), 2012. | | | | | | | | | |
| Evaluation | Day to Day Performance (20%), Continuous Assessment (10%) Semester End Lab Examination (70%) | | | | | | | | | |

| Course Outcomes | PO ₁ | PO ₂ | PO ₃ | PO ₄ | PO ₅ | PO ₆ | PO ₇ | PO ₈ | PO ₉ | PO ₁₀ | PO ₁₁ | PO12 | PSO ₁ | PSO ₂ |
|--------------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|------------------|------------------|------|------------------|------------------|
| CO1 | - | - | - | - | 3 | - | - | - | - | - | - | - | - | - |
| CO2 | - | 2 | 3 | - | - | - | - | - | - | 1 | - | - | - | 3 |
| CO3 | - | - | - | 2 | - | - | - | - | - | 1 | - | - | - | - |
| CO4 | - | - | - | - | 2 | - | - | - | - | 2 | - | - | 3 | - |
| CO5 | - | - | 2 | - | - | - | - | - | - | 1 | - | - | - | - |

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| | III Year B. Tech. I Semester | | | | | | | | | | |
| Course Code: | Course Name: | Н | ours/W | eek | | | | | | | |
| 5G457 | SOFTWARE TESTING AND DATA MINING LAB | L | Т | Р | с | | | | | | |
| | | 0 | 0 | 3 | 2 | | | | | | |
| Course Prerequisites | | | | | | | | | | | |
| | Students are able: | | | | | | | | | | |
| Course Objectives | Basic software debugging methods. White box testing methods and technique Black Box testing methods and technique Designing test plans. Different testing tools (familiar with oper | es. es. 1 sourc | e tools |) | | | | | | | |
| | After completion of the course, student will be | e able: | | | | | | | | | |
| Expected Outcomes | Investigate the reason for bugs and analyze the principles is software testing to prevent and remove bugs. Implement various test processes for quality improvement Design test planning. Apply the software testing techniques in commercial environment | | | | | | | | | | |
| | PART – A: | | | | | | | | | | |
| | 1. Write programs in C Language to demonst following constructs: | strate 1 | the wor | king of | fthe | | | | | | |
| | i) dowhile ii) whiledo iii) ifelse | iv) swi | itch v) f | or | | | | | | | |
| | 2. A program written in C language for Matrix Multiplication fails Introspect the causes for its failure and write down the possible reasons for its failure. | | | | | | | | | | |
| | 3. Take any system (e.g. ATM system) and specifications and report the various bugs | study : s. | its syste | em | | | | | | | |
| | 4. Write the test cases for any known applic application) | ation (| e.g. Ba | nking | | | | | | | |
| List of Experiments | 5. Create a test plan document for any applie Management System) | cation | (e.g. Li | ibrary | | | | | | | |
| | 6. Study of any testing tool (e.g. Win runner | r) | | | | | | | | | |
| | 7. Study of any web testing tool (e.g. Seleni | um) | | | | | | | | | |
| | 8. Study of any bug tracking tool (e.g. Bugz | zilla, bi | ugbit) | | | | | | | | |
| | 9. Study of any test management tool (e.g. 7 | Fest D | irector) | | | | | | | | |
| | 10. Study of any open source-testing tool (e.g | g. Test | Link) | | | | | | | | |
| | PART – B: | | | | | | | | | | |
| | 1. Implement the following Multidimensional Data Models | | | | | | | | | | |
| | i. Star Schema | | | | | | | | | | |
| | ii. Snowflake Schema | | | | | | | | | | |

| | iii. Fact Constellation |
|-----------------|--|
| | 2. Implement Apriori algorithm to generate frequent Item Sets |
| | 3. Implement the following clustering algorithms |
| | 1. K-means |
| | 2. K-mediods |
| | 4. Implement the following classification algorithms |
| | i. Decision Tree Induction |
| | ii. KNN |
| | 5. Perform data Preprocessing using WEKA |
| | 6. Perform Discritization of data using WEKA |
| | 7. Classification algorithms using WEKA |
| | 8. Apriori algorithm using WEKA |
| | 9. Perform data transformations using an ETL Tool |
| | 4. Software Testing Techniques – SPD(Oreille). |
| Text Books | 5. Edward Kit, Software Testing in the Real World, Pearson. |
| Reference Books | 1. Perry, Effective methods of Software Testing, John Wiley. |
| | 2. Meyers, Art of Software Testing, John Wiley. |
| Evaluation | Day to Day Performance(20%), Continuous Assessment (10%) Semester End Lab Examination (70%) |

| Course Outcomes | PO ₁ | PO ₂ | PO ₃ | PO ₄ | PO ₅ | PO ₆ | PO ₇ | PO ₈ | PO ₉ | PO ₁₀ | PO ₁₁ | PO12 | PSO ₁ | PSO ₂ |
|--------------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|------------------|------------------|------|------------------|------------------|
| CO1 | 3 | 3 | | 3 | 3 | | | | | | 2 | | 2 | 1 |
| CO2 | 3 | 2 | | 3 | 3 | | | | | | 2 | | 2 | 1 |
| CO3 | 2 | 3 | | 3 | 3 | | | | | | 2 | 1 | 3 | 2 |
| CO4 | 3 | 2 | | 2 | 3 | | | | | | 3 | | 3 | 2 |
| CO5 | 3 | | 2 | | 3 | | | | | | 3 | 2 | 3 | 2 |

| ANNAMACHARYA | A INSTITUTE OF TECHNOLOGY & SCIE | NCI | ES::R | AJAN | MPET | | | | | | | | |
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| (AN AUTONOMOUS INSTITUTION) | | | | | | | | | | | | | |
| | III Year B. Tech. I Semester | | | | | | | | | | | | |
| Course Code: | Course Name: | Но | urs/W | /eek | | | | | | | | | |
| AUDIT COURSE | PROFESSIONAL ETHICS | L | Т | D | с | | | | | | | | |
| | | | | | | | | | | | | | |
| Course Prerequisites | | - | v | U | | | | | | | | | |
| Course i rerequisites | | | | | | | | | | | | | |
| Course Objectives | To understand the relevance of engineering To appreciate the vulnerability to processes To comprehend the finer aspects reference to the responsibilities of To understand the link between r accountability. To understand the global impact of | f eth o fai of s engin espon | ics a lure c afety neers. nsibil ineeri | nd m of eng and r ity, rig | orals in ineering isk with ghts and ofession | | | | | | | | |
| After completion of the course, student will be able to: Expected Outcomes | | | | | | | | | | | | | |
| L'APECICU OUICOIICS | | | | | | | | | | | | | |
| | UNIT 1 | | | 14 | Hours | | | | | | | | |
| MORALS AND ETHE moral issues – Types o Gilligan's theory –I Professionalism – Profe | ICS IN ENGINEERING: Senses of 'Engineer f inquiry – Moral dilemmas – Moral Autonom ndian Theory-Consensus and Controversy essional Ideals and Virtues – Uses of Ethical Th | ring iy – I y – neorie | Ethics Kohlb Pro es. | s' – V erg's fessio | ariety of theory – ns and | | | | | | | | |
| | UNIT 2 | | | 13 | 3 Hours | | | | | | | | |
| ENGINEERING AS S Engineers as responsib Standards - A Balancee Case Study. | SOCIAL EXPERIMENTATION: Engineerin ole Experimenters – Research Ethics - Code d Outlook on Law – The Challenger Case Stu | ng as s of ıdy – | Expe Ethic Tita | erimer s – In nic dis | ntation – ndustrial saster as | | | | | | | | |
| | UNIT 3 | | | 12 | 2 Hours | | | | | | | | |
| ENGINEER'S RESP Safety and Risk – Ris Approach to Risk – Dis | ONSIBILITY FOR SAFETY: Safety and k Benefit Analysis – Reducing Risk – The Casters at Chernobyl and Bhopal - Case Studies. | Risk Gove | rnme | Assess nt Reg | ment of gulator's | | | | | | | | |
| | UNIT 4 | | | 13 | Hours | | | | | | | | |
| RESPONSIBILITIES Respect for Authority Occupational Crime – (IPR) – Discrimination. | RESPONSIBILITIES, RIGHTS AND ACCOUNTABILITY: Collegiality and Loyalty – Respect for Authority – Collective Bargaining – Confidentiality – Conflicts of Interest – Occupational Crime – Professional Rights – Employee Rights – Intellectual Property Rights (IPR) – Discrimination. | | | | | | | | | | | | |
| | UNIT 5 | | | 14 | 4 Hours | | | | | | | | |
| GLOBAL ISSUES: M Computer Ethics - Role as Managers – Consulti | Iultinational Corporations – Business Ethics - e in Technological Development – Weapons D ng Engineers – Engineers as Expert Witnesses | Env evelo and | ironm opmer Advis | ental nt – E sors – | Ethics – ngineers Honesty | | | | | | | | |

| - Sample Code of Conduct. |
|---|
| Mike Martin and Roland Schinzinger, "Ethics in Engineering", McGraw Hill New York 2005 |
| 11111, INCW 101K, 2003. |
| 1. Charles E Harris, Michael S Pritchard and Michael J Rabins, |
| "Engineering Ethics oncepts and Cases", Thompson Learning, |
| 2000. |
| 2. Charles D Fleddermann, "Engineering Ethics", Prentice Hall, |
| New Mexico, 1999. |
| 3. John R Boatright, "Ethics and the Conduct of Business", Pearson |
| Education, 2003. |
| 4. Edmund G Seebauer and Robert L Barry, "Fundamentals of |
| Ethics for Scientists and Engineers", Oxford University Press, |
| 2001. |
| 5. Prof. (Col) P S Bajaj and Dr. Raj Agrawal. "Business Ethics – |
| An Indian Perspective". Biztantra, New Delhi, 2004. |
| 6. David Ermann and Michele S Shauf. "Computers. Ethics and |
| Society" Oxford University Press 2003 |
| 7 Javashree Suresh Raghavan BS "Professional Ethics" S |
| Chand & Company I td 2005 |
| |

| Course Outcomes | PO ₁ | PO ₂ | PO ₃ | PO ₄ | PO ₅ | PO ₆ | PO ₇ | PO ₈ | PO ₉ | PO ₁₀ | PO ₁₁ | PO12 | PSO ₁ | PSO ₂ |
|--------------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|------------------|------------------|------|------------------|------------------|
| CO1 | 3 | - | - | 3 | - | - | - | - | - | - | - | 3 | - | - |
| CO2 | 3 | 3 | - | | - | - | - | - | - | - | - | 2 | 1 | - |
| CO3 | 3 | - | 3 | 2 | 2 | - | - | - | - | - | - | - | - | - |
| CO4 | 1 | | 3 | 3 | - | - | - | - | - | - | - | - | - | - |
| CO5 | 3 | | 3 | 3 | 2 | - | - | - | - | - | 1 | 1 | - | - |

ANNAMACHARYA INSTITUTE OF TECHNOLOGY & SCIENCES::RAJAMPET (AN AUTONOMOUS INSTITUTION) **III Year B. Tech. I Semester** Hours/Week **Course Code: Course Name:** Audit Course STRESS MANAGEMENT L Т С Ρ 2 0 0 0 **Course Prerequisites** Students are able to: • Understand the physiological systems that are affected by stressors and the long-term effects and illnesses that can result from stressors. **Course Objectives** Understand the specific applications of stress as it relates to the workplace and different target groups. Create effective stress management plans for individual • clients and for workplace environments. Enhancing significance of training and development, performance evaluation. After completion of the course, student will be able to: **Expected Outcomes** UNIT 1 14 Hours UNDERSTANDING STRESS: Meaning - Symptoms - Work Related Stress - Individual Stress - Reducing Stress -sources of stress -consequence of stress-burnout-symptoms of Burnout- stress verses Burnout-model of stress-strategies for coping stress (individual and organizational strategies) -case study. UNIT 2 13 Hours TIME MANAGEMENT: Techniques - Importance of Planning the day -developing concentration – Prioritizing Beginning at the start – Techniques for conquering procrastination - Sensible delegation - Taking the right breaks - Learning to say "No". 12 Hours **UNIT 3** CAREER PLATEAU: Career plateau – Identifying Career plateaus – Structural and Content - Plateauing – Making a fresh start – Importance of Sabbaticals – Counseling out – Executive leasing - Sustaining a marketable Career. **13 Hours UNIT 4 CRISIS MANAGEMENT:** Implications – People issues – Structure issues – Environmental issues – Learning to keep calm - Preventing interruptions – Controlling crisis – Pushing new ideas - Empowerment - Work place Humour, developing a sense of Humour - Learning to laugh - role of group cohesion and team spirit. **UNIT 5** 14 Hours SELF DEVELOPMENT: Improving personality - Leading with Integrity - Enhancing Creativity - Effective decision making - Sensible Communication - The Listening Game -Managing Self – Mediation for peace – Yoga for Life.

| | 1. Bhatia R.L., The Executive Track: An Action Plan for Self- | | | | | | | | | | | |
|-------------------|--|--|--|--|--|--|--|--|--|--|--|--|
| Text Books | Development Wheeler Publishing, New Delhi | | | | | | | | | | | |
| I CAL DUURS | 2. Charavathy.S.K, "Human Values for Manager", McGraw | | | | | | | | | | | |
| | Hill/Henely Management Series. | | | | | | | | | | | |
| | 8. Jeffr Davison, Managing Stress, Prentice Hall of India, New Delhi | | | | | | | | | | | |
| Poforonco Books | 9. Jerrold S Greenberg, Comprehensive Stress Management, Jain | | | | | | | | | | | |
| Kelei chice Dooks | Books, 2009. | | | | | | | | | | | |

| Course Outcomes | PO ₁ | PO ₂ | PO ₃ | PO ₄ | PO ₅ | PO ₆ | PO ₇ | PO ₈ | PO ₉ | PO ₁₀ | PO ₁₁ | PO12 | PSO ₁ | PSO ₂ |
|--------------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|------------------|------------------|------|------------------|------------------|
| CO1 | 3 | - | - | 3 | - | - | - | - | - | - | - | 3 | - | - |
| CO2 | 3 | 3 | - | | - | - | - | - | - | - | - | 2 | 1 | - |
| CO3 | 3 | - | 3 | 2 | 2 | - | - | - | - | - | - | - | - | - |
| CO4 | 1 | | 3 | 3 | - | - | - | - | - | - | - | - | - | - |
| CO5 | 3 | | 3 | 3 | 2 | - | - | - | - | - | 1 | 1 | - | - |

ANNAMACHARYA INSTITUTE OF TECHNOLOGY & SCIENCES::RAJAMPET (AN AUTONOMOUS INSTITUTION) **III Year B. Tech. II Semester** Hours/Week **Course Code: Course Name:** Т С L 5G161 **CRYPTOGRAPHY AND NETWORK** Ρ **SECURITY** 3 1 0 3 Computer Networks, Operating Systems, Network Management **Course Prerequisites** Systems, Web technologies Students are able to: **Course Objectives** To understand the network security threats, security services, and counters measures. To learn the fundamentals of cryptography and its application to network security. To acquire background knowledge on well-known network • security protocols such as IPSec, SSL, and SET. To understand the vulnerability analysis of network security. • To acquire background on Digital Signature, authentication, firewalls, intrusion detection techniques. After completion of the course, student will be able to: **Expected Outcomes** Identify the network security threats and determine efforts to • counter them. Design and develop a code for relevant cryptographic • algorithms. Understand the functions of Kerberos, X.509. Understand the requirements of SMTP. • Prevent the intruders from accessing the system. • UNIT 1 **12 Hours** Security Attacks (Interruption, Interception, Modification and Fabrication), Security Services (Confidentiality, Authentication, Integrity, Non-repudiation, access Control and Availability) and Mechanisms, A model for Internetwork security, Internet Standards and RFCs, Buffer overflow & format string vulnerabilities UNIT 2 18 Hours Conventional Encryption Principles, Conventional encryption algorithms, cipher block modes of operation, location of encryption devices, key distribution. Approaches of Message Authentication, Secure Hash Functions and HMAC, Public key cryptography principles, Public key cryptography algorithms, Digital signatures, digital Certificates, Certificate Authority and key management UNIT 3 12 Hours Kerberos, X.509 Directory Authentication Service, Email privacy: Pretty Good Privacy (PGP) and S/MIME.

| | UNIT 4 | 17 Hours | | | | | | | | | |
|--|--|---------------------------|--|--|--|--|--|--|--|--|--|
| IP Security Overview, IP Security Architecture, Authentication Header, Encapsulating Security Payload, Combining Security Associations and Key Management. | | | | | | | | | | | |
| Web Security Requirements, Secure Socket Layer (SSL) and Transport Layer Security (TLS), Secure Electronic Transaction (SET). | | | | | | | | | | | |
| | UNIT 5 | 11 Hours | | | | | | | | | |
| Basic concepts of S Firewall Design prin | Basic concepts of SNMP, Intruders, Intrusion Detection Systems, Viruses and related threats, Firewall Design principles, Trusted Systems. | | | | | | | | | | |
| Text Books | Network Security Essentials (Applications and St William Stallings, Pearson, Third Edition. Hack Proofing your network, Russell, Dreamte edition. | andards) by ch, Second | | | | | | | | | |
| Reference Books | 1. Cryptography and Network Security, Second Edition Forouzan | on, Behrouz | | | | | | | | | |
| Evaluation | Continuous Assessment (20%) and Assignments (10%) | | | | | | | | | | |
| | Semester End Examination (70%) | | | | | | | | | | |

| Course Outcomes | PO ₁ | PO ₂ | PO ₃ | PO ₄ | PO ₅ | PO ₆ | PO ₇ | PO ₈ | PO ₉ | PO ₁₀ | PO ₁₁ | PO12 | PSO ₁ | PSO ₂ |
|--------------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|------------------|------------------|------|------------------|------------------|
| CO1 | 3 | - | 3 | - | - | 3 | 2 | - | - | 3 | - | 3 | 3 | - |
| CO2 | 3 | 2 | - | - | - | 3 | - | - | - | - | - | 3 | - | 2 |
| CO3 | 3 | 2 | 3 | - | - | - | - | - | - | 3 | - | 3 | - | - |
| CO4 | 3 | - | 3 | - | - | - | - | - | - | - | - | 3 | 3 | 2 |
| CO5 | 3 | - | - | - | - | 3 | 2 | - | - | 3 | - | - | 3 | - |

ANNAMACHARYA INSTITUTE OF TECHNOLOGY & SCIENCES::RAJAMPET (AN AUTONOMOUS INSTITUTION) **III Year B. Tech. II Semester** Hours/Week Code: **Course Name:** Course 5G16C Т L С **INTERNET OF THINGS** Ρ 1 3 0 3 Python programming, Data communication systems, Computer networks **Course Prerequisites Microprocessors through interfacing** Students are able to: To Understand, the Enabling technologies of IoT. • • To Analyze various layers of Enterprise IoT Stack. To interpret various Applications of IoT. • **Course Objectives** To understand and memorize various Internet Protocols. • To Design Applications for real time scenario using the • concepts of Arduino Platform and Embedding Computing Basics. After completion of the course, student will be able to: • Understand the vision of IoT from a global context. Determine the Market perspective of IoT. • **Expected Outcomes** Use of Devices, Gateways and Data Management in IoT. • Building state of the art architecture in IoT. • Application of IoT in Industrial and Commercial Building . Automation and Real World Design Constraints. 15 Hours UNIT 1 THE INTERNET OF THINGS: AN OVERVIEW: Introduction to Internet of Things, History of IoT, The identifier in the IoT, Enabling technologies of IoT, Radio Frequency Identification Technology (RFID). UNIT 2 13 Hours ENTERPRISE IOT STACK: IoT stack, Device Layer, Communication Layer, Core Platform Layer, Analytics Platform Layer, Cognitive Platform Layer, Solutions Layer, IoT Security & Management, UNIT 3 12 Hours Application of IoT: Manufacturing, Monitoring & Utilization, Asset Management, Instrumentation, Handle Connectivity, Perform Monitoring, Condition Based Maintenance, Predictive Based Maintenance, Optimization, Connecting Connected Solutions, Connected Car. **UNIT 4 13 Hours** Internet Protocol: The Wireless Embedded Internet: Introduction to 6LoWPAN, The 6LoWPAN Architecture ,The Basic 6LoWPAN Format, Addressing telemetry .MO transport for sensor networks (MQTT-S),ZigBee compact application protocol, Contiki and uIPv6, Wireless RFID Infrastructure.

| | UNIT 5 | 14 Hours | | | | | | | | | | | |
|---|---|--|--|--|--|--|--|--|--|--|--|--|--|
| Embedded Device Choosing your Platfe Openness. | Embedded Devices: Embedded Computing Basics- Microcontrollers, System-on-Chips, Choosing your Platform, Arduino- Developing on the Arduino, Some Notes on the Hardware, Openness. | | | | | | | | | | | | |
| Text Books | The Internetof Things Connecting Objects to HakimaChaouchi, Wiley publications, 2010. (Unit I) Designing the Internet of Things, Adrian McEw Cassimally, Wiley 2014. Enterprise IoT, A Definitive Handbook by Naveen Ba 6LoWPAN: The WirelessEmbedded Internet, Zach Carsten Bormann, Wiley publications, first edition, 200 | the Web, ven, Hakim alani. Shelby and 09.(Unit IV) | | | | | | | | | | | |
| Reference Books | Internet of Things - A Hands-on Approach, Arshdee Vijay Madisetti, Universities Press, 2015, ISBN: 9783 Francis daCosta, "Rethinking the Internet of Things Approach to Connecting Everything", 1st Edition Publications, 2013 Getting Started with Raspberry Pi, Matt Richardso Wallace, O'Reilly (SPD), 2014, ISBN: 978935023975 | epBahga and 8173719547 A Scalable on, Apress n & Shawn 59 | | | | | | | | | | | |
| Evaluation | Continuous Assessment (20%) and Assignments (10%) | | | | | | | | | | | | |
| | Semester End Examination (70%) | | | | | | | | | | | | |

| Course Outcomes | PO ₁ | PO ₂ | PO ₃ | PO ₄ | PO ₅ | PO ₆ | PO ₇ | PO ₈ | PO ₉ | PO ₁₀ | PO ₁₁ | PO12 | PSO ₁ | PSO ₂ |
|--------------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|------------------|------------------|------|------------------|------------------|
| CO1 | 3 | - | 3 | 3 | - | - | - | - | - | - | - | 3 | 3 | 3 |
| CO2 | 3 | 3 | - | - | - | - | - | - | - | - | - | 3 | 3 | 3 |
| CO3 | 3 | 3 | - | - | - | - | - | - | - | - | - | 3 | 3 | 3 |
| CO4 | 3 | - | 3 | 3 | - | - | - | - | - | - | - | 3 | 3 | 3 |
| CO5 | 3 | - | 3 | 3 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 3 | 3 | 3 |

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| | III Year B. Tech. II Semester | | | | |
| Course Code: | Course Name | Ho | urs/W | eek | |
| 5G468 | PVTHON PROCRAMMING | 110 | | CCK | |
| 50400 | | L | т | D | с |
| | | 2 | 1 | г 0 | |
| ~ ~ | | 3 | I | 0 | 3 |
| Course Prerequisites | Problem solving techniques | | | | |
| | Students are able to: | | | | |
| | 1. Setup Python working environment | 1.4.4 | | | |
| ~ ~ ~ ~ ~ | 2. Know usage of List, dictionaries & S 3. Learn to use Turtle to develop GUL a | nnlic | ation | s | |
| Course Objectives | 4. Import the text files and process then | n acc | ordin | gly | |
| | 5. Understand the object-oriented featu | res o | f Pyth | on | |
| | After completion of the course, student will | l be a | ble to |): | |
| | 1. Visualize the basics of problem so | lving | tech | niques | |
| Expected Outcomes | 2. Understand usage of list, dictionar 3 Develop the GUI applications | ies ai | ia set | S | |
| | 4. Process the text files and Design | ı app | oroacl | n for | problem |
| | solving | | | | - |
| | 5. Summarize the object-oriented fea | tures | | | |
| | UNIT 1 | | | 1(|) Hours |
| INTRODUCTION: Programming Language | The process of computational Problem e, A First Program | solv | ing, | The | Python |
| DATA AND EXPRE and Data Types | SSIONS: Literals, Variables and Identifiers, | Ope | rators | s, Exp | ressions |
| | UNIT 2 | | | 12 | 2 Hours |
| CONTROL STRUCT Control | URES: Boolean Expressions (Conditions), Set | lectio | on Co | ntrol, | Iterative |
| LISTS: List Structure Python | s, Lists (Sequences) in Python, Iterating Ov | er L | ists (l | Seque | nces) in |
| | UNIT 3 | | | 13 | 3 Hours |
| FUNCTIONS: Program | n Routines, More on Functions | | | 1 | |
| OBJECTS: Software (| Objects, Turtle Graphics, Horse Race Simulatio | n Pro | ogram | | |
| | UNIT 4 | | | 12 | Hours |
| MODULAR DESIGN | : Modules, Top-Down Design, Python Module | S | | | |
| TEXT FILES: Using T | Text Files, String Processing, Exception Handli | ng | | | |
| | UNIT 5 | | | 14 | 4 Hours |
| DICTIONARIES ANI | D SETS: Dictionary Type in Python, Set Data ' | Туре | , | | |
| RECURSION: Recurs | ive Functions, Recursive Problem Solving, Iter | ation | vs. F | lecurs | ion |
| OBJECT-ORIENTED | PROGRAMMING: Encapsulation, Inheritan | nce, I | Polym | orphi | sm |
| | | | | | |

| Text Books | Charles Dierbach, Introduction to Computer Science using Python, Wiley, 2013 |
|-----------------|---|
| Reference Books | James Payne, Beginning Python: Using Python 2.6 and Python 3, Wiley India, 2010 Paul Gries, Jennifer Campbell, Jason Montojo, Practical Programming: An Introduction to Computer Science Using Python 3, Pragmatic Bookshelf, 2/E 2014 |
| Evaluation | Continuous Assessment (20 %), Assignments (10%), Semester End Examination (70%) |

| Course Outcomes | PO ₁ | PO ₂ | PO ₃ | PO ₄ | PO ₅ | PO ₆ | PO ₇ | PO ₈ | PO ₉ | PO ₁₀ | PO ₁₁ | PO12 | PSO ₁ | PSO ₂ |
|--------------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|------------------|------------------|------|------------------|------------------|
| CO1 | - | 3 | 2 | - | 1 | - | - | - | - | - | - | - | 3 | - |
| CO2 | - | - | 1 | 1 | - | - | - | - | - | - | - | - | - | - |
| CO3 | - | - | 2 | - | - | - | - | - | - | - | - | - | 2 | - |
| CO4 | - | - | 1 | 1 | 1 | - | - | - | - | 1 | - | - | - | 2 |
| CO5 | - | - | - | 2 | - | - | - | - | - | - | - | - | - | - |

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| | III Year B. Tech. II Semester | | | | [|
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| Course Code: | Course Name: | - | | | |
| 5G46A | WEB TECHNOLOGIES | L | Т | Р | C |
| | | 3 | 1 | 0 | 3 |
| Course Prerequisites | Object Oriented Programming Concepts, Java, | Scrip | ting La | anguag | jes |
| | Students are able to: | | | | |
| Course Objectives | Learn about HTML, DHTML conconcepts. Gain the Knowledge of XML and i beans components. Know about web servers and sever sid called Java Servlets. | ts ap le pro | anc plicat gram | l Java ions a ming | a Script and java concepts |
| | Learn JSP basics and MVC model cond Learn JSP application implementation | cepts. n co | ncept | s like | sharing |
| | data, databases from back end tools. | | 11 1 | - 1- 1 - | 4 |
| Expected Outcomes | Implement static, dynamic and inter using HTML and DHTML concepts. Implement client side validation using formed and XML document. Implement java bean applications using Implement database programming a Sevlets. Implement the server side 3-tier application | ractiv g Jav g Java applic licatio | e we a Scr a Bean cation | b app ipt an ns. s usi rograr | lications d a well ng Java ns using |
| | UNIT 1 | | | 15 | 5 Hours |
| HTML: Basic HTMI Multimedia Objects, Fr Introduction to Java Scr | L, The Document Body, Text, Hyperlinks, ames, Forms, The HTML Document Head, Ca ipt, Objects in Java Script, Dynamic HTML wit | List scadi h Jav | s, Ta ng St a Scri | ıbles, yle Sh pt. | Images, leets, An |
| | UNIT 2 | | | 1 | 3 Hours |
| XML: Basic XML, D Presenting XML, Using JAVA BEANS: Introc and Constrained Proper | Occument Type Definition, XML Schema, D XML: Parser. duction to Java Beans, Advantages of Java Bea ies, Persistence, Customizers, The Java Beans A | ocum ins, Ii API, I | nent (ntrosp Bean l | Object bectior Examp | Model, n, Bound ble. |
| | UNIT 3 | | | 1 | 2 Hours |
| WEB SERVERS AND Using Tomcat Web Se javax.servlet Package, HTTP Request & Respo | SERVLETS: Introduction to Servlets, JSDK erver for Servlet Development, Simple Servlet Reading Servlet Parameters, The javax.servlet onses, Using Cookies, Session Tracking. | , Life t, Th t.http | e cycl e Ser Pack | e of a vlet A age, I | Servlet, API, The Handling |
| | UNIT 4 | | | 13 | Hours |
| JSP APPLICATION | BASICS: Introducing Java Server Pages, JSP | Over | view: | The | Problem |

with Servlets, The Anatomy of a JSP Page, JSP Processing, JSP Application Design with MVC, Setting Up the JSP Environment.

| | UNIT 5 | 14 Hours | | | | | | | | | | |
|--|---|----------------------------------|--|--|--|--|--|--|--|--|--|--|
| JSP APPLICATION DEVELOPMENT : Generating Dynamic Content, Using JavaBeans Components in JSP Pages, Processing Input and Output, Error Handling and Debugging, Sharing Data Between JSP Pages, Requests and Users, Accessing Database, working with XML Data, Using Scripting Elements. | | | | | | | | | | | | |
| Chris Bates, Web Programming: Building Internet Applications, Wiley India Pvt. Ltd. (UNITS 1, 2) 2ndEdition. | | | | | | | | | | | | |
| Text Books | 5. Patrick Naughton and Herbert Schildt, The complete Reference Java2 5thEd. TMH (Chapters: 25, 27) (UNIT 3). 6. Hans Bergsten, Java Server Pages. SPD O'REILLY (UNIT4 and 5) | | | | | | | | | | | |
| Reference Books | John Pollac, JavaScript, McGraw Hill, Third Edition,20 Dietel and Nieto,"Internet and World Wide W program",PHI/PearsonEducation Asia. Jon Duckett "Beginning Web Programming" WROX. Marty Hall and Larry Brown "Core Servlets and Java S Vol. 1: Core Technologies", Pearson. | 010 eb–How to Server pages | | | | | | | | | | |
| Evaluation | Continuous Assessment (20 %) and Assignments (10%), Se Examination (70%) | emester End | | | | | | | | | | |

| Course Outcomes | PO ₁ | PO ₂ | PO ₃ | PO ₄ | PO ₅ | PO ₆ | PO ₇ | PO ₈ | PO ₉ | PO ₁₀ | PO ₁₁ | PO12 | PSO ₁ | PSO ₂ |
|--------------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|------------------|------------------|------|------------------|------------------|
| CO1 | 3 | - | 1 | 1 | - | - | - | - | - | - | 1 | - | 3 | 3 |
| CO2 | 3 | - | - | - | 1 | - | - | 1 | - | - | - | - | 3 | 2 |
| CO3 | 3 | - | 1 | 1 | - | - | 1 | | - | 1 | - | - | 2 | 2 |
| CO4 | 3 | - | 1 | - | 1 | - | - | - | - | 1 | 1 | 1 | 3 | 2 |
| CO5 | 3 | - | - | 1 | - | - | - | - | - | 1 | - | 1 | 2 | 3 |

| ANNAMACHARYA | A INSTITUTE OF TECHNOLOGY & SCIE (AN AUTONOMOUS INSTITUTION) | ENCI | ES::R | AJAI | МРЕТ | | | | |
|---|--|--|--|--|--|--|--|--|--|
| | III Year B. Tech. II Semester | | | | | | | | |
| Course Code: | Course Name: | Но | urs/W | /eek | | | | | |
| 5G461 | COMPUTER GRAPHICS AND MULTIMEDIA (PROFESSIONAL ELECTIVE-I) | Р | с | | | | | | |
| Course Proroquisites | Basics of Computers, Web Programming | 3 | I | 0 | 3 | | | | |
| Course riferequisites | Students are able to: | | | | | | | | |
| Course Objectives | Understand the Computer Graphi Transformations Understand the Clipping and Three-Dianov Know the projection and Animation of Understand the different Multimedia and Computer Science S | cs, imen f Gra pplic | Two sional phics cation | Dim Grap s | ensional hics. | | | | |
| | After completion of the course, student will | l be a | able to | D: | | | | | |
| Expected Outcomes | Apply the transformation principles, and windowing and clipping to design system. Apply the 3D graphics, projections to system. Apply animation methods and sur procedures for effective display of an and Apply the sound, data streams and M speech system for effective multimedi | segn n the o eva face imag IDI s a apr | nentat effec aluate and e. s/w's blicati | ion a tive g the g line to ana | lgorithm graphical graphical removal alyze the | | | | |
| | UNIT 1 | u upp | mouri | 14 | 4 Hours | | | | |
| INTRODUCTION: For generation, Random Service Draw Boundary-fill and Floor | Raster Scan displays, Pixels, Frame buffer can systems, Line Drawing Algorithms: Sim ving Algorithms: Midpoint Circle Drawing, P d-fill algorithms. | ; Ve ple l Polyg | ector DDA, on-Fi | & C Bres ll Alg | Character enham's orithms: | | | | |
| | UNIT 2 | | | 13 | 3 Hours | | | | |
| 2-D TRANSFORMA Homogenous coordinat Transformation, Line C | TIONS: Translation, Rotation, Scaling, e system, Matrix Transformation, Composite T lipping & Polygon Clipping Algorithms. | She Frans | earing forma | , Re tion, | flection, Viewing | | | | |
| UNIT 3 12 Hours | | | | | | | | | |
| 3-D TRANSFORMATIONS: Translation, Rotation and Scaling. Parallel & Perspective Projection: Types of Parallel & Perspective Projection, Hidden Surface Elimination: Back face detection algorithm, Painter's Algorithm, Z-Buffer Algorithm. Curve generation, Bezier and B-spline methods. | | | | | | | | | |
| | UNIT 4 | | | 13 | Hours | | | | |
| MULTIMEDIA: Characteristics of a multimedia presentation, Uses of Multimedia, Text – Types, Unicode Standard, text Compression, Text file formats, Audio- Components of an audio system, Digital Audio, Sound cards, Audio file formats, Audio Processing software, Video-Video color spaces, Digital Video, Video file formats. | | | | | | | | | |

| | UNIT 5 | 14 Hours | | | | | | | | |
|---|---|-----------------------------|--|--|--|--|--|--|--|--|
| ANIMATION: Uses of Animation, Principles of Animation, Computer based animation, 3D Animation, Animation file formats, Animation softwares. | | | | | | | | | | |
| Compression: Lossless/Lossy Compression techniques, Image, Audio & Video Compressions, MPEG Standards, Multimedia Architecture, Multimedia databases. | | | | | | | | | | |
| Text Books | Donald Hearn and M.P. Becker "Computer Graphi Pub. Parekh "Principles of Multimedia" Tata McGraw Hill | cs" Pearson | | | | | | | | |
| Reference Books | Rogers, "Procedural Elements of Computer Grap McGraw Hill. Maurya, "Computer Graphics with Virtual Reality Wiley India. Pathing "Computer Craphics, Multimedia & Anim | bhics", Tata V System ", | | | | | | | | |
| | Pakinia, Computer Graphics, Multimedia & Anni learning. Andleigh, Thakral, "Multimedia System Design ", PE | II Learning. | | | | | | | | |
| Evaluation | Continuous Assessment (20 %) and Assignments (10%) Semester End Examination (70%) | | | | | | | | | |

| Course Outcomes | PO ₁ | PO ₂ | PO ₃ | PO ₄ | PO ₅ | PO ₆ | PO ₇ | PO ₈ | PO ₉ | PO ₁₀ | PO ₁₁ | PO12 | PSO ₁ | PSO ₂ |
|--------------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|------------------|------------------|------|------------------|------------------|
| CO1 | 3 | 3 | 3 | 2 | - | - | - | - | - | - | - | 3 | 3 | - |
| CO2 | 3 | 3 | 3 | - | - | - | - | - | - | - | - | 3 | 3 | - |
| CO3 | 3 | 3 | 3 | - | - | - | - | - | - | - | - | 3 | 3 | - |
| CO4 | 3 | - | - | 2 | - | - | - | - | - | - | - | 3 | 3 | - |
| CO5 | 3 | - | - | - | - | - | - | - | - | - | - | 3 | 3 | - |

| ANNAMACHARYA INSTITUTE OF TECHNOLOGY & SCIENCES::RAJAMPET | | | | | | | | | | |
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| | (AN AUTONOMOUS INSTITUTION) | | | | | | | | | |
| | III Year B. Tech. II Semester | | | | | | | | | |
| | | | | | | | | | | |
| Course Code: | Course Name: | Но | urs/W | Veek | | | | | | |
| 5G467 | PERFORMANCE EVALUATION OF COMPUTER SYSTEM | L | Т | Ρ | с | | | | | |
| | (PROFESSIONAL ELECTIVE-I) | 3 | 1 | 0 | 3 | | | | | |
| Course Prerequisites | Basics of Computers, Operating Systems Con | cepts | | | | | | | | |
| | Students are able to: | | | | | | | | | |
| Course Objectives | The course teaches how to conduct performance analysis and prediction for computer systems in the fast-changing work environments of today so that performance goals are set and then met quickly. To this end, it elaborates the performance by design methodology on practical computer systems using a software analysis tool. | | | | | | | | | |
| | After completion of the course, student wil | l be a | able t | 0: | | | | | | |
| Expected Outcomes | Understand the techniques to approach performance problem. Select the number and size of system components and predict the performance of future workloads. Understand how to use monitors and accounting logs of systems use to improve the performance of the system. Implement different techniques in experimental design like factorial design techniques. | | | | | | | | | |
| | Apply mathematical techniques with types of Queuing models. | n stre | ess of | n lear | ning the | | | | | |
| | UNIT 1 | | | 14 | 4 Hours | | | | | |
| INTRODUCTION: T Evaluation, A System Technique, Selecting I Classification of Perfor | he Art of Performance Evaluation, Common Matic Approach to Performance Evaluation, Performance Metrics, Commonly Used Performance Metrics, Setting Performance Requirem | Mista selec ormar ents. | kes in ting nce N | n Perf an Ev Ietrics | ormance valuation , Utility | | | | | |
| | UNIT 2 | | | 1 | 3 Hours | | | | | |
| WORKLOADS, WORKLOAD SELECTION AND CHARACTERIZATION: Types of Work Loads, Addition Instructions, Instruction Mixes, Kernels; Synthetic Programs, Application Benchmarks, Popular Benchmarks. Work Load Selection: Services Exercised, Level of Detail; Representativeness; Timeliness, Other Considerations in Workload Selection. Work Load Characterization Techniques: Terminology, Averaging, Specifying Dispersion, Single Parameter Histograms, Multi Parameter Histograms, Principle Component Analysis, Markov Models, Clustering | | | | | | | | | | |
| | UNIT 3 | | | 1 | 2 Hours | | | | | |
| MONITORS PROC | RAM EXECUTION MONITORS AND A | |)TINI | TING | LOGS | | | | | |
| Monitors: Terminology hardware monitors, Fir Execution Monitors a Improving Program Accounting log data, us | and classification; Software and hardware m rmware and hybrid monitors, Distributed Sys nd Accounting Logs, Program Execution M Performance, Accounting Logs, Analysis sing accounting logs to answer commonly aske | onito stem onito and d que | ors, So Moni ors, T Inte | oftwar itors, 'echnic erpreta s. | Program ques for ation of | | | | | |

| | UNIT 4 13 Hours | | | | | | | | | |
|--|--|--------------|--|--|--|--|--|--|--|--|
| CAPACITY PLANNING AND BENCHMARKING: Steps in capacity planning and management; Problems in Capacity Planning; Common Mistakes in Benchmarking; Benchmarking Games; Load Drivers; Remote-Terminal Emulation; Components of an RTE; Limitations of RTEs, EXPERIMENTAL DESIGN AND ANALYSIS: Introduction:Terminology, Common mistakes in experiments, Types of experimental designs, 2kFactorial Designs, Concepts, Computation of effects, Sign table method for computing effects; Allocation of variance; General 2k Factorial Designs, General full factorial designs with k factors: Model, Analysis of a General Design, Informal Methods. | | | | | | | | | | |
| | UNIT 5 | 14 Hours | | | | | | | | |
| Types of Stochastic Process. Analysis of Single Queue: Birth-Death Processes; M/M/1 Queue; M/M/m Queue; M/M/m/B Queuewith finite buffers; Results for other M/M/1 Queuing Systems. Queuing Networks: Open and Closed Queuing Networks; Product form networks, queuing Network models of Computer Systems. Operational Laws: Utilization Law; Forced Flow Law; Little's Law; General Response Time Law; Interactive Response Time Law; Bottleneck Analysis; Mean Value Analysis and Related Techniques; Analysis of Open Queuing Networks: Mean Value Analysis: | | | | | | | | | | |
| Text Books | Raj Jain: The Art of Computer Systems Performan 1stedition, John Wiley and Sons, 2012. | ce Analysis, | | | | | | | | |
| Reference Books | Reference Books Paul J Fortier, Howard E Michel: computer Systems Performance Evaluation and prediction, 1stedition, Elsevier, 2009. Trivedi K S: Probability and Statistics with Reliability, Queuing and Computer Science Applications, 1stedition, PHI, 2011. | | | | | | | | | |
| Evaluation | Continuous Assessment (20 %) and Assignments (10%) Semester End Examination (70%) | | | | | | | | | |

| Course Outcomes | PO ₁ | PO ₂ | PO ₃ | PO ₄ | PO ₅ | PO ₆ | PO ₇ | PO ₈ | PO ₉ | PO ₁₀ | PO ₁₁ | PO12 | PSO ₁ | PSO ₂ |
|--------------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|------------------|------------------|------|------------------|------------------|
| CO1 | 3 | 2 | - | - | - | 2 | 3 | - | - | - | - | 3 | 3 | - |
| CO2 | 3 | - | - | - | - | 2 | 3 | - | - | - | - | 3 | 3 | - |
| CO3 | 3 | - | - | - | - | - | 3 | - | - | - | - | 3 | 3 | - |
| CO4 | 3 | - | 1 | 2 | - | - | 3 | - | - | - | - | 3 | 3 | - |
| CO5 | 3 | 2 | - | 2 | - | - | 3 | - | - | - | - | 3 | 3 | - |

ANNAMACHARYA INSTITUTE OF TECHNOLOGY & SCIENCES::RAJAMPET (AN AUTONOMOUS INSTITUTION) **III Year B. Tech. II Semester** Hours/Week **Course Code: Course Name:** Т С L 5G469 UNIX AND SHELL PROGRAMMING Ρ 3 1 0 3 **Course Prerequisites** Students should have knowledge of C and C++. Students are able to: **Course Objectives** Learn the architecture UNIX and important features of UNIX • Familiarize the basic commands used in UNIX Familiarize the text processing utilities grep, sed, awk • Discuss the shell programming concept • Develop programs using shell script • After completion of the course, student will be able to: 1. Associate with the working environment in UNIX operating **Expected Outcomes** system including its file system. 2. Interpret and use of utilities including file management with wild card in UNIX environment. 3. Use of shell features like redirection, pipe, communication and filter utilities, wildcard characters, programming construct and running jobs. 4. Develop, debug & execute shell script. 5. Develop and use of regular expression with pattern matching utilities like grep, sed and awk. 14 Hours UNIT 1 The UNIX Environment, Unix structure, Accessing UNIX, common and useful commands. The Vi Editor - Concepts, Modes and Commands. File Systems - File names and types, regular files and Directories and their implementation. Operations on directories, files and on both. Security levels, Changing permissions, Ownership and group UNIT 2 12 Hours SHELLS- UNIX Session, standard streams, redirection, pipes tee Command, Command Execution and Substitution, Command-Line Editing, job control, Aliases, Variable Types and options, Shell Customization. Filters and Pipes - related Commands. Commands for Translating Characters, Files with duplicate Lines, counting characters, words and Lines and Comparing files UNIT 3 12 Hours User Communication, Electronic mail, Remote access, and File Transfer. Vi Editor - Local, Global and Range commands and Text manipulation in vi. Editor, and Over view of ex Editor. Atoms and Operators. grep – family and operations and searching for file contents, Overview of sed and awk UNIT 4 12 Hours INTERACTIVE KORN SHELL AND KORN SHELL PROGRAMMING: Korn shell -

Features, Files, Variables, input and output. Environmental Variables and options. Startup Script, Command history and Execution process. Korn shell Programming- Script Concept, Expressions, Decision making and Repetition, Special Parameters and variables, Changing Positional parameters, Argument Validation, Debugging Scripts and Examples

| | UNIT 5 | 10 Hours | | | | | | | | |
|--|--|---|--|--|--|--|--|--|--|--|
| INTERACTIVE C SHELL AND C SHELL PROGRAMMING: C Shell – Features, Files and Variables, output, input, eval Command, environmental Variables, on-off Variables, Startup and Shutdown Scripts, Command history and execution Script. C Shell Programming – script Concepts, expressions, Decision making and repetition, Special Parameters, Changing Positional Parameters, argument Validation, Debugging Scripts and examples | | | | | | | | | | |
| Text Books | UNIX and Shell Programming, Behrouz A. Forouzan an Gilberg, cengage learning publications, Indian Reprint 20 Unix: The Ultimate Guide, Sumitabha Das, Tat I Edition, Indian reprint 2012 | d Richard F.)12 Mcgraw-Hill | | | | | | | | |
| Reference Books | UNIX and Linux System Administration Handbook, H Garth Snyder, Trent R. Hein and Ben Whaley, PHI. Essential Linux Administration: A Comprehensive Beginners, Chuck Easttom, Cengage Learning The Linux Programming Interface: A Linux and UN Programming Handbook, Michael Kerrisk, No Starch Pre A Practical Guide to Linux Commands, Editors, Programming, 3rd Edition, Mark G. Sobell, PHI Advanced Programming in the UNIX Environment, 3rd Richard Stevens and Stephen A. Rago, Addison-Wesley UNIX Network Programming, W. Richard Stevens, PHI | Evi Nemeth, Guide for NIX System ess and Shell Edition, W. professional | | | | | | | | |
| Evaluation | Continuous Assessment (20%) and Assignments (10%) | | | | | | | | | |
| | Semester End Examination (70%) | | | | | | | | | |

| Course Outcomes | PO ₁ | PO ₂ | PO ₃ | PO ₄ | PO ₅ | PO ₆ | PO ₇ | PO ₈ | PO ₉ | PO ₁₀ | PO ₁₁ | PO12 | PSO ₁ | PSO ₂ |
|--------------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|------------------|------------------|------|------------------|------------------|
| CO1 | 2 | 2 | - | - | - | - | - | - | - | - | - | - | - | - |
| CO2 | 1 | 1 | 1 | 1 | - | - | - | - | - | - | - | - | - | - |
| CO3 | 2 | 2 | 2 | 3 | - | - | - | - | - | - | - | - | 2 | 2 |
| CO4 | 2 | 2 | 2 | 2 | - | - | - | - | - | - | - | - | 3 | 2 |
| CO5 | 1 | 2 | 2 | 2 | - | - | - | - | - | - | _ | - | 2 | 2 |

| ANNAMACHARYA INSTITUTE OF TECHNOLOGY & SCIENCES::RAJAMPET | | | | | | | | | | | | |
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| | (AN AUTONOMOUS INSTITUTION) | | | | | | | | | | | |
| | III Year B. Tech. II Semester | | | | | | | | | | | |
| Course Code: | Course Name: | Но | urs/W | eek | | | | | | | | |
| 5G462 | E-COMMERCE | | | | | | | | | | | |
| | (PROFESSIONAL ELECTIVE-II) | L | Т | Р | С | | | | | | | |
| | | 3 | 1 | 0 | 3 | | | | | | | |
| Course Prerequisites | Online Shopping Application Concepts, Computer Fundamentals | | | | | | | | | | | |
| | Students are able to: | | | | | | | | | | | |
| Course Objectives | Understand the significance of E-Commerce. Understand the significance of Consumer oriented E-Commerce and EPS. Understand the significance of E-Commerce in Inter and Intra Organization. Understand the mechanisms for Securing E-Commerce. Understand the mechanisms for Advertising in E-Commerce | | | | | | | | | | | |
| After completion of the course, student will be able to: | | | | | | | | | | | | |
| Expected Outcomes | Know the significance of E-Commerce. Perform the online transactions Using EPS. Interchange the data in Inter and Intra Organizational E-commerce. Usage of Wireless or Mobile E-commerce Design mechanism for educativity in the E-commerce in the E-commerce. | | | | | | | | | | | |
| | UNIT 1 | | | 14 | 4 Hours | | | | | | | |
| ELECTRONIC COM Commerce Consumer a | IMERCE: Frame work, Anatomy of E-Complications, E-Commerce organization application | nmer tions. | rce ap | plicat | ions, E- | | | | | | | |
| | UNIT 2 | | | 1 | 3 Hours | | | | | | | |
| CONSUMER ORIEN | TED ELECTRONIC COMMERCE: Merca | ntile | Proce | ss Mo | dels. | | | | | | | |
| ELECTRONIC PAY and Risks in Electronic | MENT SYSTEMS: Digital Token-Based, Sm Payment Systems. | nart C | Cards, | Cred | it Cards, | | | | | | | |
| | UNIT 3 | | | 1 | 2 Hours | | | | | | | |
| INTER ORGANIZATIONAL COMMERCE: EDI, EDI Implementation, Value added networks. INTRA ORGANIZATIONAL COMMERCE: Work-Flow, Automation Customization and Internal Commerce, Supply Chain Management | | | | | | | | | | | | |
| UNIT 4 13 Hours | | | | | | | | | | | | |
| MOBILE ELECTRONIC COMMERCE: Wireless Industry Standards, Wireless Communication Platforms for LANs, Wireless WANs, Facilitators of Wireless Environment, Concerns for the Mobile Enterprise. CORPORATE DIGITAL LIBRARY: Document Library, Digital Document types, Corporate Data Warehouses. | | | | | | | | | | | | |
| | UNIT 5 | | | 1 | 4 Hours | | | | | | | |

ADVERTISING AND MARKETING: Information based marketing, advertising on Internet, on-line marketing process, market research.

CONSUMER SEARCH AND RESOURCE DISCOVERY: Information search and Retrieval, Commerce Catalogues, Information Filtering.

| | 1. Kalakata, Whinston, Frontiers of electronic commerce, Pearson | | | | | | | |
|------------------|--|--|--|--|--|--|--|--|
| Text Books | Education. | | | | | | | |
| ICAL DOORS | 2. Efrain Turbon, Jae Lee, David King, H. Michael Chang, E- | | | | | | | |
| | Commerce. | | | | | | | |
| | 1. Hendry Chan, Raymond Lee, Tharam Dillon EllizabethChang, E- | | | | | | | |
| Reference Books | Commerce fundamentals and applications. John Wiley. | | | | | | | |
| Kelei ence Dooks | 2. S. Jaiswal, E-Commerce. Galgotia. | | | | | | | |
| | 3. Gary P. Schneider, Electronic Commerce. Thomson. | | | | | | | |
| | 4. Kenneth C. Taudon, E-Commerce-Business, Technology, | | | | | | | |
| | Society, Carol GuyericoTraver. | | | | | | | |
| Evaluation | Continuous Assessment (20%) and Assignments (10%) | | | | | | | |
| | Semester End Examination (70%) | | | | | | | |
| | Semester End Examination (7070) | | | | | | | |

| Course Outcomes | PO ₁ | PO ₂ | PO ₃ | PO ₄ | PO ₅ | PO ₆ | PO ₇ | PO ₈ | PO ₉ | PO ₁₀ | PO ₁₁ | PO12 | PSO ₁ | PSO ₂ |
|--------------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|------------------|------------------|------|------------------|------------------|
| CO1 | 3 | - | - | - | - | - | - | 3 | - | - | 3 | 3 | 3 | - |
| CO2 | 3 | - | - | - | - | 3 | - | 3 | - | 2 | 3 | 3 | 3 | - |
| CO3 | 3 | - | - | - | - | - | - | - | - | 2 | 3 | 3 | 3 | - |
| CO4 | 3 | - | - | - | - | 3 | - | - | - | - | 3 | 3 | 3 | - |
| CO5 | 3 | - | - | - | - | 3 | - | 3 | - | - | 3 | 3 | 3 | - |

| ANNAMACHA | ARYA INSTITUTE OF TECHNOLOGY & SCIE | ENCES | ::RAJ | AMP | ЕТ | | | | | | |
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| | (AN AUTONOMOUS INSTITUTION) | | | | | | | | | | |
| | III Year B. Tech. II Semester | | | | | | | | | | |
| | | Ног | ırs/We | ek | | | | | | | |
| Course Code: | Course Name: | T | т | | C | | | | | | |
| 30404 | HUMAN COMPUTER INTERACTION | 2 | 1 | P 0 | 2 | | | | | | |
| | (PROFESSIONAL ELECTIVE-II) | 5 | 3 | | | | | | | | |
| Course Prerequisites | Students should have knowledge on: | | | | | | | | | | |
| | Computer System Hardware, Software and peripherals. Computer Graphics Interface Designing | | | | | | | | | | |
| | Students are able to: | | | | | | | | | | |
| Course Objectives | Gain an overview of Human-Computer Interaction (HCI), with an understanding of user interface design. Become familiar with the vocabulary associated with sensory and cognitive systems as relevant to task performance by humans. Be able to apply models from cognitive psychology to predicting user performance in various human computer interaction tasks and recognize the limits. Of human performance as they apply to computer operation. Be familiar with a variety of both conventional and non-traditional user | | | | | | | | | | |
| | After completion of the course, student will be a | able to: | | | | | | | | | |
| Expected Outcomes | Find innovative ways of interacting with compositeHelp the disabled by designing non-traditional | uters ways of | intera | cting. | | | | | | | |
| | • Use cognitive psychology in the design of devi | ces for i | interact | ion. | | | | | | | |
| | UNIT 1 | | | 5 Ho | ours | | | | | | |
| INTRODUCTION: In good design, A brief his | nportance of user Interface – definition, importance story of Screen design. | e of go | od des | sign. E | Benefits of | | | | | | |
| | UNIT 2 | | | 12 H | ours | | | | | | |
| THE GRAPHICAL USER INTERFACE: Popularity of graphics, the concept of direct manipulation, graphical system, Characteristics, Web user – Interface popularity, characteristics-Principles of user interface. DESIGN PROCESS: Human interaction with computers, importance of human characteristics human consideration. Human interaction speeds, and understanding business injections. | | | | | | | | | | | |
| UNIT 3 Hours | | | | | | | | | | | |
| SCREEN DESIGNIN ordering of screen data amount of information information retrieval or | G: Design goals – Screen planning and purpose, and content – screen navigation and flow – Visually – focus and emphasis – presentation information h web – statistical graphics– Technological consider | organi / pleasi n simpl ation in | zing s ng o y and interf | creen compo mean face de | elements, sition – ingfully – sign. | | | | | | |
| | UNIT 4 | | | Но | ırs | | | | | | |
| WINDOWS: New and | Navigation schemes selection of window, selection | n of dev | vices h | ased a | and screen | | | | | | |
based controls.

COMPONENTS: Text and messages, Icons and increases – Multimedia, colors, uses problems, choosing colors.

| | UNIT 5 | Hours | | | | | | | |
|--|---|-----------------------|--|--|--|--|--|--|--|
| SOFTWARE TOO | SOFTWARE TOOLS: Specification methods, interface – Building Tools. | | | | | | | | |
| INTERACTION DEVICES: Keyboard and function keys – pointing devices – speech recognition digitization and generation – image and video displays – drivers. | | | | | | | | | |
| Toyt Books | 1. Wilbert O Galitz, The essential guide to user int DreamTech. | terface design, Wiley | | | | | | | |
| 1 ext Books 2. Ben Shneidermann, Designing the user interface, Pearson Edu Asia,3 rd Ed. | | | | | | | | | |
| Reference Books | 1. Alan Dix, Janet Fincay, GreGoryd, Abowd, Ru Computer Interaction, Pearson Education | issell Bealg, Human | | | | | | | |
| | 2. Prece, Rogers, and Sharp, Interaction Design, Wiley D | reamtech. | | | | | | | |
| | 3. SorenLauesen, User Interface Design, Pearson Educa | tion. | | | | | | | |
| Evaluation | Continuous Assessment (20%) and Assignments (10%) | | | | | | | | |
| | Semester End Examination (70%) | | | | | | | | |

| Course Outcomes | PO ₁ | PO ₂ | PO ₃ | PO ₄ | PO ₅ | PO ₆ | PO ₇ | PO ₈ | PO ₉ | PO ₁₀ | PO ₁₁ | PO12 | PSO ₁ | PSO ₂ |
|--------------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|------------------|------------------|------|------------------|------------------|
| CO1 | 3 | - | 2 | - | 2 | - | - | 2 | - | 3 | 3 | 3 | 3 | - |
| CO2 | - | 3 | 2 | 2 | 2 | 2 | 1 | - | 1 | 3 | - | 3 | - | 3 |
| CO3 | 3 | 3 | - | - | - | - | _ | 2 | - | - | 3 | 3 | 3 | 3 |
| CO4 | 3 | - | - | - | - | 2 | - | - | - | 3 | - | - | 3 | - |
| CO5 | 3 | 3 | - | 2 | - | - | - | - | - | 3 | 3 | 3 | 3 | 3 |

| ANNAMACHARYA INSTITUTE OF TECHNOLOGY & SCIENCES::RAJAMPET | | | | | | | | | | | |
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| (AN AUTONOMOUS INSTITUTION) | | | | | | | | | | | |
| | III Year B. Tech. II Semester | | | | | | | | | | |
| Course Code: | Course Name: | Но | urs/W | /eek | | | | | | | |
| 5G465 | NETWORK PROGRAMMING AND MANAGEMENT | L | Т | Р | С | | | | | | |
| | (PROFESSIONAL ELECTIVE-II) | 3 | 1 | 0 | 3 | | | | | | |
| Course Prerequisites | Computer Networks | 1 | | | | | | | | | |
| | Students are able to: | | | | | | | | | | |
| Course ObjectivesEnable the students with the features of multiprocessing like UNIX and how to enable basic communication between two computersand two process using Socket Programming, Inter Processes Communication and Remote Procedure Call. | | | | | | | | | | | |
| After completion of the course, student will be able to: | | | | | | | | | | | |
| Expected Outcomes | • Analyze the security requirements of a networked programming environment and identify the issues to be solved. | | | | | | | | | | |
| | Implement a programming solution and develop the applications. Understand the UDP protocols and Sockets. Be familiar with several common programming interfaces for network communication | | | | | | | | | | |
| | • Have a detailed knowledge on Simple | Netv | vork | Manag | gement. | | | | | | |
| | UNIT 1 | | | 14 | 4 Hours | | | | | | |
| ELEMENTARY TCI TCP/IP Protocols –Int functions – address con listen, accept, read, wri | P SOCKETS: Introduction to Socket Progra roduction to Sockets – Socket address Stru- iversion functions – Elementary TCP Sockets te, close functions – Iterative Server – Concurr | ammi acture – so ent S | ing – es – cket, erver | Over Byte conne | view of ordering ect, bind, | | | | | | |
| | UNIT 2 | | | 1 | 3 Hours | | | | | | |
| APPLICATION DEV handling – Server with host Crashes, Server C – select function – shut TCP echo Client (with | ELOPMENT: TCP Echo Server – TCP Echo multiple clients – boundary conditions: Server rashes and reboots, Server Shutdown – I/O m down function – TCP echo Server (with multip Multiplexing). | o Clie proc ultipl olexir | ent – cess C exing ig) – j | POSE Crashes – I/O poll fu | X Signal s, Server Models inction – | | | | | | |
| | UNIT 3 | | | 1 | 2 Hours | | | | | | |
| SOCKET OPTIONS, ELEMENTARY UDP SOCKETS: Socket options – getsocket and setsocket functions – generic socket options – IP socket options – ICMP socket options – TCP socket options – Elementary UDP sockets – UDP echo Server – UDP echo Client – Multiplexing TCP and UDP sockets – Domain name system – gethostbyname function – Ipv6 support in DNS – gethostbyaddr function – getservbyname and getservbyport functions. | | | | | | | | | | | |
| | UNIT 4 | | | 13 | Hours | | | | | | |
| ADVANCED SOCKE and termination – TC sockets – raw socket c | UNIT 4 13 Hours ADVANCED SOCKETS: Ipv4 and Ipv6 interoperability – threaded servers – thread creation and termination – TCP echo server using threads – Mutexes – condition variables – raw sockets – raw socket creation – raw socket output – raw socket input – ping program – trace | | | | | | | | | | |

| route program. | | | | | | | | | |
|---|--|---|--|--|--|--|--|--|--|
| | UNIT 5 | 14 Hours | | | | | | | |
| SIMPLE NETWORK MANAGEMENT: SNMP network management concepts – SNMP management information – standard MIB's – SNMPv1 protocol and Practical issues – introduction to RMON, SNMPv2 and SNMPv3. | | | | | | | | | |
| Text Books | W. Richard Stevens, "Unix Network Programming Vol-I", Second Edition, Pearson Education, 1998. Mani Subramaniam, "Network Management: Principles and Practice", Addison Wesley", First Edition, 2001. | | | | | | | | |
| Reference Books | D.E. Comer, "Internetworking with TCP/IP Vol- Sockets Version), Second Edition, Pearson Education III William Stallings, "SNMP, SNMPv2, SNMPv3 and and 2", Third Edition, Addison Wesley, 1999. | D.E. Comer, "Internetworking with TCP/IP Vol- III", (BSD Sockets Version), Second Edition, Pearson Education, 200UNIT III William Stallings, "SNMP, SNMPv2, SNMPv3 and RMON 1 and 2" Third Edition. Addison Wesley, 1999 | | | | | | | |
| Evaluation | Continuous Assessment (20 %) and Assignments (10%) Semester End Examination (70%) | | | | | | | | |

| Course Outcomes | PO ₁ | PO ₂ | PO ₃ | PO ₄ | PO ₅ | PO ₆ | PO ₇ | PO ₈ | PO ₉ | PO ₁₀ | PO ₁₁ | PO12 | PSO ₁ | PSO ₂ |
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| CO1 | 3 | - | 3 | - | - | - | 3 | - | - | 3 | - | 3 | 3 | 3 |
| CO2 | 3 | - | 3 | - | - | - | - | - | - | 3 | - | 3 | 3 | - |
| CO3 | 3 | - | 3 | - | - | - | - | - | - | 3 | - | 3 | 3 | 3 |
| CO4 | 3 | - | 3 | - | - | - | 3 | - | - | 3 | - | 3 | 3 | - |
| CO5 | 3 | - | 3 | - | - | - | 3 | - | - | 3 | - | 3 | 3 | - |

| ANNAMACHARYA INSTITUTE OF TECHNOLOGY & SCIENCES::RAJAMPET | | | | | | | | | | | | |
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| (AN AUTONOMOUS INSTITUTION) III Vear B. Tech. II Semaster | | | | | | | | | | | | |
| | III Year B. Tech. II Semester | , | | | 1 | | | | | | | |
| Course Code: | Course Name: | Но | urs/V | | | | | | | | | |
| 5G46D | PYTHON PROGRAMMING AND IOT | | | | | | | | | | | |
| | LAB | L | Т | Р | C | | | | | | | |
| | | 0 | 0 | 3 | 2 | | | | | | | |
| Course Prerequisites | Problem solving skills, Object oriented language | ! | | I | <u> </u> | | | | | | | |
| Course Objectives | Students are able to: | | | | | | | | | | | |
| | Knowing the python interpreter. Design the UI using turtle in python. Know about the usage of object in pyt To analyze the basics of Raspberry Pi To Create Traffic Light Scenario usin lights. To Design Applications using the Platform and Smoke Sensor, Humidity To Design Applications using the Platform and PIR Sensor, Soil Moistu | Knowing the python interpreter. Design the UI using turtle in python. Know about the usage of object in python. To analyze the basics of Raspberry Pi. To Create Traffic Light Scenario using Raspberry Pi and LED lights. To Design Applications using the concepts of Arduino Platform and Smoke Sensor, Humidity Sensor. To Design Applications using the concepts of Arduino Platform and Smoke Sensor, Humidity Sensor. | | | | | | | | | | |
| Expected Outcomes | After completion of the course, student wil | l be a | able t | : 0: | | | | | | | | |
| | Download and install different open source python tools Design the application with user specifications in python and solve the problems by applying OOPS concept analyze the basics of Raspberry Pi. Create Traffic Light Scenario using Raspberry Pi and LED lights. Design Applications using the concepts of Arduino Platform and Smoke Sensor, Humidity Sensor. Design Applications using the concepts of Arduino Platform | | | | | | | | | | | |
| | PYTHON PROGRAMMING | | | | | | | | | | | |
| | 1. Write a python program involving the u | sage | of dic | ctionar | ries. | | | | | | | |
| | 2. Write a Python program mentioning Tuples. | the | usage | e of] | lists and | | | | | | | |
| List of Experiments | 3. Write a Python program for creating a S to a simple client. | impl | e Ser | ver co | nnecting | | | | | | | |
| | 4. Write a Python program to create a simple | ole w | eb ap | plicati | ion. | | | | | | | |
| | 5. Write a Python program for File handlin error handling. | ng op | peration | ons ale | ong with | | | | | | | |
| | 6. Create a Simple GUI application using TKinter library in Python. | | | | | | | | | | | |
| | 7. Write a python program involving the co | oncep | ots of | Threa | ıds | | | | | | | |
| | 8. Write a simple program implementi (Jython). | ng j | ava | inside | python | | | | | | | |
| | 9. Write a Python program for Online T using Mysqldatabase in background. | icket | resei | rvation | n system | | | | | | | |

| | INTERNET OF THINGS |
|------------------------|--|
| | 1. Introduction to Python Programming. |
| | 2. Demonstrate LED blinking using Raspberry Pi. |
| | 3. Demonstrate Traffic Light implementation using |
| | Raspberry Pi. |
| | 4. Using Arduino platform demonstrate the usage of |
| | Smoke Sensor. |
| | 5. Using Arduino platform demonstrate the usage of PIR Sensor. |
| | 6. Using Arduino platform demonstrate the usage of |
| | Humidity Sensor. |
| | 7. Using Arduino platform demonstrate the usage of Soil |
| | Moisture Sensor. |
| | 1. Charles Dierbach, Introduction to Computer Science using |
| Text Books | Python, Wiley, 2013. |
| | 2. Enterprise IoT, A Definitive Handbook by Naveen Balani. |
| Reference Books | 1. James Payne, Beginning Python: Using Python 2.6 and |
| | Python 3, Wiley India, 2010. |
| | 2. Getting Started with Raspberry Pi, Matt Richardson & Shawn |
| | Wallace, O'Reilly (SPD), 2014, ISBN: 9789350239759. |
| Evaluation | Day to Day Performance (20%), Continuous Assessment (10%) |
| | Semester End Lab Examination (70%) |

| Course Outcomes | PO ₁ | PO ₂ | PO ₃ | PO ₄ | PO ₅ | PO ₆ | PO ₇ | PO ₈ | PO ₉ | PO ₁₀ | PO ₁₁ | PO12 | PSO ₁ | PSO ₂ |
|--------------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|------------------|------------------|------|------------------|------------------|
| CO1 | - | 2 | - | - | 1 | - | - | - | - | - | - | - | - | - |
| CO2 | - | 2 | 3 | - | - | - | - | - | - | - | - | - | 2 | - |
| CO3 | - | - | 3 | 3 | 3 | - | - | - | - | - | - | 3 | 3 | 3 |
| CO4 | - | - | 3 | 3 | 3 | - | - | - | - | - | - | 3 | 3 | 3 |
| CO5 | - | - | 3 | 3 | 3 | - | - | - | - | - | - | 3 | 3 | 3 |

| ANNAMACHARYA | A INSTITUTE OF TECHNOLOGY & SCIE | ENCI | ES::F | RAJA | MPET | | | | | |
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| | (AN AUTONOMOUS INSTITUTION) | | | | | | | | | |
| | III Year B. Tech. II Semester | <u> </u> | | | 1 | | | | | |
| | | Но | | | | | | | | |
| Course Code: | Course Name: | | | | | | | | | |
| 5G46E | WEB TECHNOLOGIES AND | L | Т | Р | С | | | | | |
| | NETWORKS LAB | 0 | 0 | 3 | 2 | | | | | |
| Course Prerequisites | | | | | | | | | | |
| | Students are able to: | | | | | | | | | |
| Course Objectives | Learn about HTML, DHTML Java Script, XML and its applications and java beans components. Know about web servers and sever side programming concepts called Java Servlets. Learn JSP basics, MVC model concepts and implementation concepts like sharing data, databases from back end tools. Analyze the traffic flow and the contents of protocol frames. Implement client-server socket programs and setup network apprint to provide the traffic flow. | | | | | | | | | |
| | After completion of the course, student wil Implement static, dynamic and inter | l be a activ | able t | o: b app | lications | | | | | |
| Expected Outcomes | using HTML and DHTML, client side validation using Java Script. Develop well-formed XML documents and java bean applications using Java Beans. Implement database programming applications using Java | | | | | | | | | |
| | Analyze the contents the packet contents of difference protocols. Implement the socket programming for client serve architecture and setup organization network using pack | | | | | | | | | |
| | LIST OF EXPEDIMENTS | | | | | | | | | |
| | LIST OF EAPEKIMENTS | | | | | | | | | |

PART-A : WEB TECHNOLOGIES

Week 1:

Design a static web page with the following using HTML

- i). To embed an image map in a web page
- ii). To fix the hot spots
- iii). Show all the related information when the hot spots are clicked.

WEEK-2:

Design a web page with the following Cascading Style sheets.

- i) Inline style sheets
- ii) Internal style sheets
- iii) External style sheets

WEEK 3:

Write **client side java script** for validating web form controls using DHTML.

1. Name (Name should contain alphabets and the length should be more than 6

characters).

- 2. Password (Password should be more than six characters length).
- 2. E-Mail ID (E-Mail ID should contain any valid and follow the standard pattern <u>name@domain.com</u>)
- 3. Phone Number (Phone Number should be 10 digits only).

WEEK 4:

i). Write an XML file which will display the Book information which includes the following:

- a) Title of the book b) Author Name c) ISBN number d) Publisher name e) Edition f) Price
- ii). Write a Document Type Definition (DTD) to validate the above XML file.

Note:- Display the XML files as follows.

The contents should be displayed in a table. The header of the table should be in color GREY. And the Author names column should be displayed in one color and should be capitalized and in bold. Use your own colors for remaining columns. Use XML schemas XSL and CSS for the above purpose.

Week 5:

Write a **Java Bean** program for incorporating the following features:

- i) Create a simple visual bean with an area filled with a color.
- ii) The shape of the area depends on the property shape. If it is set true, then the shape of the area is **Square** and it is **Circle**, if it is false.
- iii) The color of the area should be changed dynamically for every mouse click. The color should also be changed if we change the color in the "property window ".

Week 6:

Write **java applet** program for incorporating the following features.

- i) Create a color palette with matrix of buttons
- ii) Set background and foreground of the control text area by selecting a color from color palette.
- iii) In order to select foreground or background use check box control as radio buttons to set background image.

Week 7:

Write a **java servlet** programs:

- i) To invoke servlet from html form
- ii) To invoke servlet from applet

Week 8:

Write a java servlet program to access student mark database using JDBC.

Note: Create Student Table with the following fields:

Student Hall Ticket Number, Student Name, Mark1, Mark2, Mark3, Mark4, Mark5, Mark6, Mark7, Mark8, Total Marks, Percentage of Marks.

Week 9:

Write a server side scripts to create three-tier Architecture using JSP and back-end database.

i. for conducting on-line examination. ii) for displaying student mark list.

Note: Assume that student information is available in a database which has been stored in a database server.

PART-B: NETWORKS

- 1. Implementation of stop and wait protocol
- 2. Implementation of Go Back-N and selective repeat protocols

| 3. Implementation | 3. Implementation of distance vector routing algorithm | | | | | | | | |
|--|---|--|--|--|--|--|--|--|--|
| 4. Implementation | 4. Implementation of Link state routing algorithm | | | | | | | | |
| 5. Implementation of Data encryption and decryption. | | | | | | | | | |
| Text Books | Deital and Deital, Goldberg, "Internet & World Wide Web, How To Program", third edition, Pearson Education, 2004. Naughton , Herbert Schildt , "Java2, Complete Reference", 4th edition, TMH,2000. | | | | | | | | |
| Reference Books | Deital & Deital, "Java How to program", Prentice hall 2000. Web Technology version 1.0 by R. Bremananth, C.S. Senthil Raja. | | | | | | | | |
| Evaluation | Day to Day Performance (20%), Continuous Assessment (10%) Semester End Lab Examination (70%) | | | | | | | | |

| Course Outcomes | PO ₁ | PO ₂ | PO ₃ | PO ₄ | PO ₅ | PO ₆ | PO ₇ | PO ₈ | PO ₉ | PO ₁₀ | PO ₁₁ | PO12 | PSO ₁ | PSO ₂ |
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| CO1 | 3 | - | 2 | - | - | - | - | 1 | - | 2 | 1 | 2 | 3 | 3 |
| CO2 | 2 | - | 1 | - | - | - | 1 | - | - | - | - | 1 | - | 1 |
| CO3 | 3 | - | - | - | - | 1 | 1 | - | - | - | - | - | 3 | 2 |
| CO4 | - | - | - | - | - | 1 | - | 1 | 1 | - | - | 1 | 2 | 3 |
| CO5 | 3 | - | - | - | - | 1 | - | 1 | 1 | - | - | 1 | 3 | 3 |

| ANNAMACHARYA INSTITUTE OF TECHNOLOGY & SCIENCES::RAJAMPET | | | | | | | | | | | | |
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| | <u>III Year B. Tech. II Semester</u> | Ho | urc/W | look | | | | | | | | |
| Course Code | ADVANCED ENCLISH LANCHACE | 110 | | CCK | | | | | | | | |
| Audit Course | ADVANCED ENGLISH LANGUAGE AND COMMUNICATION SKILLS LAB | L | Т | Р | с | | | | | | | |
| num course | | 0 | 0 | 2 | 2 | | | | | | | |
| Course Prerequisites | Basics of English | v | v | - | - | | | | | | | |
| Course rerequisites basics of English | | | | | | | | | | | | |
| Course Objectives To allow the students learn Advanced Grammar and English Comprehension. To expose the students to various kinds of competitive exam papers in English. | | | | | | | | | | | | |
| After completion of the course, student will be able to: | | | | | | | | | | | | |
| achieve proficiency in English synonyms, antonyms, idiomatic expressions and, accuracy in English spelling apply active reading strategies in order to comprehend, critically analyze and make inferences and predictions based on information in the text apply his/her knowledge of articles, prepositions, tenses and voice correct errors or improve sentences form meaningful sentences/passages out of the scrambled words/sentences | | | | | | | | | | | | |
| | UNIT 1 | | | 1 | 5 Hours | | | | | | | |
| RESUME PREPARA objective - projecting of cover letter. | TION: Structure, formats and styles - pla one's strengths and skills - creative self-mark | nning eting | g - d —sam | efinin ple re | g career esumes - | | | | | | | |
| | UNIT 2 | | | 1 | 3 Hours | | | | | | | |
| INTERVIEW SKILL language - answering st | S : Concept and process - pre-interview plann rategies – frequently asked questions. | ing – | - prep | aratio | n - body | | | | | | | |
| | UNIT 3 | | | 1 | 2 Hours | | | | | | | |
| GROUP DISCUSSIO agreeing and disagree solution on any given clarity - body language | N: Communicating views and opinions – dising –asking for and giving clarification - su topic across a cross-section of individuals - – case study. | scuss: 1bstai modu | ing – ntiatin Ilatior | inter g - p of v | vening – providing oice and | | | | | | | |
| | UNIT 4 | | | 13 | Hours | | | | | | | |
| ORAL PRESENTATIONS (INDIVIDUAL): Collection of data from various sources – planning, preparation and practice – attention gathering strategies -transition – handling questions from audience. ORAL PRESENTATIONS (TEAM) : Appropriate use of visual aids – Using PowerPoint for | | | | | | | | | | | | |
| <u> </u> | UNIT 5 | | | 1 | 4 Hours | | | | | | | |
| READING COMPRE | CHENSION: Reading for facts – scanning | – sk | immi | ng – | guessing | | | | | | | |
| meanings | from context– spe | ed | | U | reading. | | | | | | | |

| LISTENING COM | PREHENSION: Listening for understanding - responding relevantly. |
|--------------------------|--|
| Minimum Requirements: | Advanced English Language Communication Skills Lab is conducted at two places: |
| | Computer-aided Language Lab with 60 computer machines, one teacher console, LAN facility and Language Learning software for self-study. Communication Skills Lab with movable chairs, a discussion room, Public Address System, a Television, a DVD Player, a camcorder, an LCD Projector and a computer machine. Manual cum Record, prepared by Faculty Members of English of the college will be used by students. |
| Suggested Software: | It's your Job published by Clarity Business Writing published by Clarity Active Listening published by Clarity Active Reading published by Clarity Software published by Globerana Cambridge Advanced Learner's Dictionary Oxford Advanced Learner's Dictionary |
| Evaluation | Continuous Assessment (20 %) and Assignments (10%), Semester End Examination (70%) |

| Course Outcomes | PO ₁ | PO ₂ | PO ₃ | PO ₄ | PO ₅ | PO ₆ | PO ₇ | PO ₈ | PO ₉ | PO ₁₀ | PO ₁₁ | PO12 | PSO ₁ | PSO ₂ |
|--------------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|------------------|------------------|------|------------------|------------------|
| CO1 | - | - | - | - | - | - | - | - | - | 2 | - | 3 | - | - |
| CO2 | - | - | - | - | - | - | - | - | - | - | - | 3 | - | - |
| CO3 | - | - | - | - | - | - | - | - | - | 3 | - | 3 | - | - |
| CO4 | - | - | - | - | - | - | - | - | - | - | - | 1 | - | - |
| CO5 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |

ANNAMACHARYA INSTITUTE OF TECHNOLOGY & SCIENCES::RAJAMPET (AN AUTONOMOUS INSTITUTION) **IV Year B. Tech. I Semester** Hours/Week **Course Name: Course Code:** ENTERPRISE PROGRAMMING Т L С 5G172 Ρ (Common to CSE & IT) 3 1 0 3 **Course Prerequisites** Students should have knowledge on: Hyper Text Markup Language, JavaScript, AJAX, Servlets **Object Oriented Programming Language** Students are able to: To understand the insights of the Internet programming and how to design and implement complete applications over the web and projectbased experience needed for entry into web design and development careers. To analyze the notions of Web servers and Web Application Servers, Design Methodologies with concentration on Object-Oriented concepts, Client-Side Programming, Server-Side Programming, Active Server **Course Objectives** Pages, Database Connectivity to web applications, Adding Dynamic content to web applications, Programming Common Gateway Interfaces, Programming the User Interface for the web applications. To acquire the knowledge and usage of recent platforms used in developing web applications such as the XML and AJAX. To develop awareness and appreciation of the many ways that people • access the web, and will be able to create standards-based websites that can be accessed by the full spectrum of web access technologies. After completion of the course, student will be able to: **Expected Outcomes** Demonstrate the ability to Create, install and update sophisticated web • sites, Install and manage server software and other server side tools. Know regarding internet related technologies. Systematic way of developing a website using PHP programming. Demonstrate their understanding of SQL language & the ability to • modify, add, and delete data in a database through a web page. Able to understand the fundamentals of XML & AJAX to create good, effective and customized websites. 06 Hours UNIT 1 **INTRODUCTION TO WEB TECHNOLOGIES:** Introduction to Web servers like XAMPP (Bundle Server), WAMP (Bundle Server), Handling HTTP Request and Response, installations of above servers. INTRODUCTION TO PHP: Downloading, installing, configuring PHP, Programming in a Web environment like XAMPP and WAMPP Bundle Servers. The anatomy of a PHP Page. UNIT 2 **19 Hours** OVERVIEW OF PHP DATA TYPES AND CONCEPTS: Variables and data types, Operators, Expressions and Statements, Strings, Arrays and Functions. **OVERVIEW OF CLASSES, OBJECTS, AND INTERFACES:** Creating instances using

Constructors, Controlling access to class members, Extending classes, Abstract classes and methods, using interfaces, Using class destructors, File Handling and Using Exceptions.

| | UNIT 3 12 Hours | | | | | | | | | | | | |
|---|---|--|--|--|--|--|--|--|--|--|--|--|--|
| PHP ADVANCE Authenticating users CREATING AND | D CONCEPTS: Using Cookies, Using HTTP Header, Using Environment and Configuration variables, Working w USING FORMS: Understanding Common Form Issues, GET | ers, Using Sessions, ith Date and Time. Vs. POST, Validating | | | | | | | | | | | |
| form input, Working | with multiple forms, and Preventing Multiple Submissions of | | | | | | | | | | | | |
| | UNIT 4 | 14 Hours | | | | | | | | | | | |
| PHP AND DATABASE ACCESS: Basic Database Concepts, Connecting to a MYSQL database, Retrieving and Displaying results, Modifying, Updating and Deleting data. MVC architecture. | | | | | | | | | | | | | |
| INTRODUCTION TOAJAXs: Introducing Ajax -From CGI to Flash to DHTML, Pros and Cons of Today's Web Application Environment, Enter Ajax, Ajax Requirements, Ajax Basics-HTTP Request and Response Fundamentals, The XML Http Request Object, XMLHttpRequest Methods, XMLHttpRequest Properties, Cross-Browser Usage, Sending a Request to the Server, Basic Ajax Example. | | | | | | | | | | | | | |
| | UNIT 5 | 10 Hours | | | | | | | | | | | |
| PHP and Ajax: Why PHP and Ajax, Client-Driven Communication, Server-Side Processing, Basic Examples, Expanding and Contracting Content, Auto-Complete, Form Validation, Tooltips, Forms :Bringing in the Ajax: GET vs. POST Passing Values, Form Validation. | | | | | | | | | | | | | |
| | 1. Jason Gilmore, Beginning PHP and MySQL, Apress tech.), 3 rd edition. | s Publications (Dream | | | | | | | | | | | |
| Text Books | Lee Babin, Nathan A Good, Frank M.Kromann and Recipes A problem Solution Approach. | Jon Stephens .PHP 5 | | | | | | | | | | | |
| | 3. Lee Babin, Beginning Ajax with PHPFrom Novice r Publications (Dream tech.). 3 rd edition. | to Professional, Apress | | | | | | | | | | | |
| Reference Books | 1. J.Lee and B.Ware .Open Source Web Developmen Linux, Apache, MySQL, Perl and PHP, (Addis Education. | nt with LAMP using on Wesley) Pearson | | | | | | | | | | | |
| | 2. Julie Meloni and Matt Telles, PHP 6 Fast and Eas CengageLearning Publications. | y Web Development, | | | | | | | | | | | |
| | 3. E.Quigley, PHP and MySQL by Example, Prentice H | all(Pearson). | | | | | | | | | | | |
| | V.Vaswani, PHP Programming solutions, TMH | | | | | | | | | | | | |
| Evaluation | Continuous Assessment (20%) and Assignments (10%) | | | | | | | | | | | | |
| | Semester End Examination (70%) | | | | | | | | | | | | |
| Program Articulati | on Matrix | | | | | | | | | | | | |

| Course Outcomes | PO ₁ | PO ₂ | PO ₃ | PO ₄ | PO ₅ | PO ₆ | PO ₇ | PO ₈ | PO ₉ | PO ₁₀ | PO ₁₁ | PO12 | PSO ₁ | PSO ₂ |
|--------------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|------------------|------------------|------|------------------|------------------|
| CO1 | 3 | 3 | - | 2 | 2 | - | 3 | - | - | - | 3 | 3 | 3 | - |
| CO2 | - | 3 | 2 | - | - | - | 3 | 1 | - | 2 | | 3 | 3 | 3 |
| CO3 | 3 | 3 | - | - | 2 | - | - | - | - | | 3 | - | - | 3 |
| CO4 | - | - | - | 2 | - | 1 | 3 | - | - | 2 | 3 | 3 | 3 | - |
| CO5 | 3 | 3 | 2 | - | - | - | - | - | - | - | 3 | 3 | - | 3 |

| ANNAMACHARYA INSTITUTE OF TECHNOLOGY & SCIENCES::RAJAMPET Department of Information Technology (AN AUTONOMOUS INSTITUTION) | | | | | | | | | | | | | |
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| | (AN AUTONOMOUS INSTITUTION) IV Year B. Tech. I Semester | | | | | | | | | | | | |
| Course Code: | Course Name: | Н | lours | /Week | | | | | | | | | |
| 5G471 | CLOUD COMPUTING | | | | | | | | | | | | |
| | (Common to CSE & IT) | L | Т | Р | С | | | | | | | | |
| | | 0 | 3 | | | | | | | | | | |
| Course Prerequisites | Basic understanding about Distributed Computing Basic understanding about networking like VLAN , IP addressing (Class A , B , C), VNET , Subnet , Introduction to RFC 1918 , DNS systems and how they work in general Cloud Storage Systems. Ability to run scripts using Python or any programming language will be very helpful to try out some examples. | | | | | | | | | | | | |
| Students are able: | | | | | | | | | | | | | |
| Course Objectives | To learn the new computing model this enables shared resources on demand over the network. To learn about the pay-per-use scenarios. To learn about the new kind of service models and deployment models. | | | | | | | | | | | | |
| | • To learn about the virtualization technology. | | | | | | | | | | | | |
| Expected Outcomes | After completion of the course, student will be Analyze the transformation that led to the computing, it's vulnerabilities and its im Design different workflows according apply map reduce programming model. Make performance comparison of we optimization of virtualization. Create combinatorial auctions for cloud scheduling algorithms for computing cloud | e a the pac to virtu | ble t evolut. requal sources. | o: ution of uiremen machine ces and | Cloud ts and s and design | | | | | | | | |
| | • Assess cloud Storage systems and Cloud a involved, its impact and develop cloud a | oua Innl | secu licati | irity, the | e risks | | | | | | | | |
| | UNIT 1 | <u>TT'</u> | | 13 1 | Hours | | | | | | | | |
| INTRODUCTION: N systems, V Cloud Com models &Services, Ethi | letwork centric computing and network centric aputing: an old idea whose time has come, Clou cal issues, Cloud vulnerabilities, Challenges. | cc d C | onten Comp | t, Peer-touting de | co-peer elivery | | | | | | | | |
| CLOUD INFRASTRUCTURE: Amazon,Google, Azure & online services, open source private clouds. Storage diversity and vendor lock-in, inter cloud, Energy use & ecological impact of data centers, service level and compliance level agreement, Responsibility sharing, user experience, Software licensing. | | | | | | | | | | | | | |
| | UNIT 2 | - | | 13 | lours | | | | | | | | |
| CLOUD COMPUTING: APPLICATIONS & PARADIGMS , Challenges, existing and new application opportunities, Architectural styles of cloud applications: single, multi, hybrid cloud site, redundant, non redundant, 3 tier, multi-tier architectures. Workflows coordination | | | | | | | | | | | | | |

cloud site, redundant, non redundant, 3 tier, multi-tier architectures, Workflows coordination of multiple activities, Coordination based on a state machine model -the Zoo Keeper, The Map Reduce programming model, Apache Hadoop, A case study: the Grep The Web application **APPLICATIONS:** Healthcare, Energy systems, transportation, manufacturing, Education, Government, mobile communication, application development.

| | | | I | UNIT | 3 | | | | | | 14 Ho | urs |
|--|----------------------------------|--|------------------------------|-----------------------------|----------------------------|------------------------------|-------------------------------|---------------------------|------------------------------|-----------------------------|---------------------------------|--------------------|
| CLOUD RESOURCE VIRTUALIZATION: Definition, merits and demerits, types & Techniques, Layering, Virtual machine monitors, Hardware support for virtualization Case study: Xen –a VMM based on para virtualization, Optimization of network virtualization in Xen 2.0, vBlades-para virtualization targeting a x86-64 Itanium processor, A performance comparison of virtual machines, The darker side of virtualization, Software fault isolation. | | | | | | | | | | | | |
| UNIT 4 15 Hours | | | | | | | | | | | | |
| CLOUD RESOURCE MANAGEMENT AND SCHEDULING: Policies and mechanisms for resource management, Applications of control theory to task scheduling on a cloud, Stability of a two level resource allocation architecture, Feedback control based on dynamic thresholds, Coordination of specialized autonomic performance managers, A utility-based model for cloud-based web services, Resource bundling, combinatorial auctions, fair queuing, Start time fair queuing, borrowed virtual time, Cloud scheduling subject to deadlines, Scheduling map reduce applications subject to deadlines, Resource management and application scaling | | | | | | | | | | | | |
| | | | I | UNIT | 5 | | | | | | 14 Ho | urs |
| STORAGE SYS parallel File system CLOUD SECUE image, manageme | TEMS m, GF RITY: ent OS | S: Evo S, Had Risks, Xoar. | lution, loop, L , Secu | , Stora Locks rity, p | age me & Chu privacy | odels, ibby, T y, Trus | file sy TPS, No st. Sec | stems, OSQL urity o | databa , Big T of OS,V | ases, D able, M VM, V | PFS, Ger Iega stor MM, sh | eral e. ared |
| Text Books Reference Books | | Cloud Computing Theory and Practice – DAN C. Marinescu – ELSEVIER Cloud Computing: A hands on Approach BaghaMadisetti Distributed and Cloud Computing, From Parallel Processing to | | | | | | | | | | |
| the Internet of Things, Kai Hwang, Jack Dongarra, Geoffrey Fox. MK Publishers. Cloud Computing: A Practical Approach, Anthony T. Velte, Toby J. Velte, Robert Elsenpeter, McGraw Fill, 2010 | | | | | | | | | | | | |
| Evaluation | Co Ex | ontinuo aminat | us Astion (7 | sessm '0%) | ent (2 | 0 %), | Assign | ments | (10%) | and S | emester | End |
| Program Articul | ation | Matrix | ĸ | | | | | | | | | |
| | DO | DO | DO | DO | DO | DO | DO | DO | DO | DO | DO12 | DCO |

| Course Outcomes | PO ₁ | PO ₂ | PO ₃ | PO ₄ | PO ₅ | PO ₆ | PO ₇ | PO ₈ | PO ₉ | PO ₁₀ | PO ₁₁ | PO12 | PSO ₁ | PSO ₂ |
|--------------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|------------------|------------------|------|------------------|------------------|
| CO1 | 3 | 3 | - | - | - | - | - | - | - | - | 3 | - | 3 | 2 |
| CO2 | 3 | 3 | - | - | 2 | - | - | - | - | - | 2 | 3 | 2 | 3 |
| CO3 | 3 | 3 | - | - | - | - | - | - | - | - | 3 | 3 | 3 | 3 |
| CO4 | 3 | 3 | 3 | - | 2 | - | - | - | - | - | 3 | 3 | 3 | 2 |
| CO5 | 3 | 3 | 3 | - | 2 | - | - | - | - | - | 3 | 3 | 3 | 2 |

| ANNAMACHARYA INSTITUTE OF TECHNOLOGY & SCIENCES::RAJAMPET (AN AUTONOMOUS INSTITUTION) | | | | | | | | | | | | | |
|---|---|--|--------------------------|--------------------------|-----------------------------------|--|--|--|--|--|--|--|--|
| | IV Year B. Tech. I Semester | | | | | | | | | | | | |
| | | Но | urs/W | eek | | | | | | | | | |
| Course Code: | Course Name: | _ | 6 | | | | | | | | | | |
| 5G474 | DATA SCIENCE AND BIG DATA ANALYTICS | Р 0 | د ء | | | | | | | | | | |
| Course Prerequisites | Data Mining, Machine Learning | U | 3 | | | | | | | | | | |
| | Students are able to: | | | | | | | | | | | | |
| Course Objectives | To provide an overview of data science and an exciting growing field of Big Data Analytics. To discuss traditional data base concepts and challenges of mining algorithms face when analyzing Big Data. To learn the machine learning concepts and data analysis processing concepts To learn R programming basics which are used in analyzing of Big Data and Map Reduce concepts. To study the various case studies of Big Data tools | | | | | | | | | | | | |
| | After completion of the course, student will be able to: | | | | | | | | | | | | |
| Expected Outcomes | To understand the Data Science print Cycle process steps. To understand the basics of datal principles and mining process. To understand the machine learning and unsupervised learning concepts. To learn the implementation of R pro- Map Reduce process. To study the case studies of various E | To understand the Data Science principles and Big Data Life Cycle process steps. To understand the basics of databases and data mining principles and mining process. To understand the machine learning concepts like supervised and unsupervised learning concepts. To learn the implementation of R programming concepts and Map Reduce process. | | | | | | | | | | | |
| | in real time applications. | | | 14 | Hound | | | | | | | | |
| | UINII I BIC DATA. Big Data Oyonyiayy with tymica | love | mpla | | t in Data | | | | | | | | |
| Science, Introduction to cycle. | big Data Analytics, Data Analytics Life cyc | le, D | omair | s, what n-spec | ific Life | | | | | | | | |
| | UNIT 2 | | | 13 | 3 Hours | | | | | | | | |
| Data, Data Range, Data Databases and Relation Standard Deviation, Est Ngrams, Use Case: Est | a Management, Data Mining, Data Munging, V al Algebra, Parallel Data Bases, Parallel Quer timation Only Analyses, Use Case: Watching I imating Move. | Wran y Pro Data ' | gling ocessi Trend | and C ng, M s with | Cleaning, Iean and I Google | | | | | | | | |
| UNIT 3 12 Hours | | | | | | | | | | | | | |
| INTRODUCTION TO ANALYTICS - introduction to machine learning, Supervised learning overview, simple nearest neighbor, decision trees/forests, regression, Unsupervised learning: k-means, multi-dimensional scaling Graph Analytics: PageRank, community detection, recursive queries, iterative processing, Text Analytics: latent semantic analysis, Visualization & visual data analytics. | | | | | | | | | | | | | |

13 Hours

Tools and Methods deployed in Data Science: Introduction to R language, R functions and programming, R Graphics, R and commonly used statistics, R Commander, analyzing and exploring data with R, R studio, Advantages and disadvantages of R, R vs SAS Map Reduce/Hadoop, MapR Technologies and The Most Powerful, Elegant FREE Version of Hadoop Window and MADlib functions.

| | UNIT 5 14 Hours | | | | | | | | | | |
|--|---|--|--|--|--|--|--|--|--|--|--|
| INFOSPHERE STREAMS: Case Studies and Illustrations BigInsights, BigSheets, and Netezza Customer Intelligence, RainStor Big Data Analytics on Hadoop - The Industry's First Enterprise-Class Database Running Natively on Hadoop, DataStax (Including Coverage of the Free "Community Edition" of DataStax's Cassandra Implementation, with OpsCenter), Microsoft's Big Data Solution,Jigsaw: Visualization for Investigative Analysis and latest state of the art examples. | | | | | | | | | | | |
| Text Books | Chen, M., Mao, S., Zhang, Y., & Leung, V. C., "Big Data Related Technologies, Challenges and Future Prospects", 2014 Springer (Chapters: 1-6) Lin, J., & Dyer, C. "Data-intensive text processing with MapReduce",2010, (Chapters: 2and 5) Robert I. Kabacoff, "R in Action", 2011, (Chapter 2 Pages:21- 32) Zumel, N., & Mount, J. "Practical data science with R", 2014 (Chapters: 5, Pages 81-91) | | | | | | | | | | |
| Reference Books | O. R. Team. Big Data Now: Current Perspectives from O'Reilly Radar. O'Reilly Media, 2011. Adler, Joseph, R in a Nutshell, Second Edition, O'Reilly Media | | | | | | | | | | |
| Evolution | 2012. | | | | | | | | | | |
| Evaluation | Continuous Assessment (20 %) and Assignments (10%) Semester End Examination (70%) | | | | | | | | | | |

| Course Outcomes | PO ₁ | PO ₂ | PO ₃ | PO ₄ | PO ₅ | PO ₆ | PO ₇ | PO ₈ | PO ₉ | PO ₁₀ | PO ₁₁ | PO12 | PSO_1 | PSO ₂ |
|--------------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|------------------|------------------|------|---------|------------------|
| CO1 | 1 | 3 | 2 | 2 | - | - | 3 | 1 | 2 | - | 2 | 3 | 1 | 1 |
| CO2 | 1 | 1 | - | - | 1 | - | 2 | 1 | 1 | 2 | 1 | 3 | 2 | 2 |
| CO3 | 1 | - | 2 | - | - | - | 3 | 1 | - | - | - | 2 | 2 | 2 |
| CO4 | 1 | - | 3 | 2 | 1 | 2 | 1 | 1 | 1 | - | - | 1 | 3 | 3 |
| CO5 | - | - | - | 1 | - | - | - | - | - | - | - | - | 1 | 1 |

ANNAMACHARYA INSTITUTE OF TECHNOLOGY & SCIENCES::RAJAMPET (AN AUTONOMOUS INSTITUTION) **IV Year B. Tech. I Semester** Hours/Week **Course Code: Course Name:** 5G478 **OBJECT ORIENETED ANALYSIS** AND DESIGN L Т С Ρ 3 1 0 3 OOPS Concepts, C++/JAVA **Course Prerequisites** Students are able to: **Course Objectives** • Describe the pillars of object-orientation and explain the benefits of each. Create use case documents that capture requirements for a software system. Create class diagrams that model both the domain model and • design model of a Software system. Create interaction diagrams that model the dynamic aspects of a software system. Explain the facets of the Unified Process approach to • designing and building software System. After completion of the course, student will be able to: **Expected Outcomes** • Learn the fundamental principles of OO programming. Differentiate the OOA from the traditional approach in • completing systems analysis and design. Design the basic, advanced, structural and behavioral • modeling. Construct the various UML diagrams using the appropriate notation. • Implement a case study using UML concepts. UNIT 1 **12 Hours** INTRODUCTION TO UML: Importance of modeling, principles of modeling, object oriented modeling, conceptual model of the UML, Architecture, and Software Development Life Cycle. BASIC STRUCTURAL MODELING: Classes, Relationships, common Mechanisms, and diagrams. UNIT 2 14 Hours ADVANCED STRUCTURAL MODELING: Advanced classes, advanced relationships, Interfaces, Types and Roles, Packages CLASS & OBJECT DIAGRAMS: Terms, concepts, modeling techniques for Class & Object Diagrams. Design class diagram for Library information system. **UNIT 3** 16 Hours **BASIC BEHAVIORAL MODELING-I:** Interactions, Interaction diagrams. BASIC BEHAVIORAL MODELING-II: Use cases, Use case Diagrams, Activity Diagrams. Design Use cases, Use case diagrams, Interaction diagram and Activity diagram for library system.

| | UNIT 4 | 12 Hours | | | | | | | | | |
|---|--|-------------|--|--|--|--|--|--|--|--|--|
| ADVANCED BEHAVIORAL MODELING: Events and signals, state machines, processes and Threads, time and space, state chart diagrams. Design state machine for different objects in library system. | | | | | | | | | | | |
| UNIT 5 13 Hours | | | | | | | | | | | |
| ARCHITECTURAL MODELING:Component, Deployment, Component diagrams and Deployment diagrams. Design & document of library system. | | | | | | | | | | | |
| Text Books | 1. Grady Booch, James Rumbaugh, IvarJacobson: The Unified Modeling Language User Guide, Pearson Education. | | | | | | | | | | |
| | Hans-Erik Eriksson, Magnus Penker, Brian Lyons, J UML 2 Toolkit, WILEY-Dreamtech India Pvt. Ltd. | David Fado: | | | | | | | | | |
| Reference Books | Meilir Page-Jones: Fundamentals of Object Oriente UML, Pearson Education. | d Design in | | | | | | | | | |
| | Pascal Roques: Modeling Software Systems Us WILEY- Dreamtech India Pvt. Ltd. | ing UML2, | | | | | | | | | |
| Evaluation | Continuous Assessment (20%) and Assignments (10%) | | | | | | | | | | |
| | Semester End Examination (70%) | | | | | | | | | | |

| Course Outcomes | PO ₁ | PO ₂ | PO ₃ | PO ₄ | PO ₅ | PO ₆ | PO ₇ | PO ₈ | PO ₉ | PO ₁₀ | PO ₁₁ | PO12 | PSO ₁ | PSO ₂ |
|--------------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|------------------|------------------|------|------------------|------------------|
| CO1 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | - | - | - | 3 | 3 | 3 |
| CO2 | 3 | 3 | 3 | - | - | 3 | - | 3 | 3 | 3 | - | 3 | 3 | 3 |
| CO3 | 3 | 3 | 3 | - | 3 | - | 3 | 3 | 3 | | 2 | - | 3 | 3 |
| CO4 | 3 | 3 | 3 | 3 | 3 | - | - | 3 | 3 | 3 | - | - | 3 | 3 |
| CO5 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 2 | 3 | 3 | - |

ANNAMACHARYA INSTITUTE OF TECHNOLOGY & SCIENCES::RAJAMPET (AN AUTONOMOUS INSTITUTION) **IV Year B. Tech. I Semester** Hours/Week **Course Code: Course Name:** 5G475 **DISTRIBUTED SYSTEMS** Т L С (PROFESSIONAL ELECTIVE-II) Ρ 3 1 0 3 **Course Prerequisites** Operating Systems, Computer Networks, Data base management Systems, Advanced Java Programming and Web Technologies Students are able: To understand the characteristics of distributed systems. • To acquire the depth knowledge on distributed objects. • To understand various issues of naming services. • **Course Objectives** To understand the different issues of Global clocks, coordination and agreement. To acquire depth knowledge concurrency control and distributed transactions. After completion of the course, student will be able to: Learn the uses and challenges faced by the DS • Understand about the concepts of Distributed objects and • remote invocation issues. **Expected Outcomes** Learn about the Distributed file systems. Familiar with Name services and Peer to Peer Systems. • Know the importance of Time and Clocks synchronization. ٠ Understand the Transactions and Concurrency control mechanisms in DS. Analyzes the Security issues in DS. • UNIT 1 **14 Hours** CHARACTERIZATION OF DISTRIBUTED SYSTEMS: Introduction, Examples of Distributed systems, Resource sharing and web, challenges SYSTEM MODELS: Introduction, Architectural and Fundamental models, networking and Inter-networking, Inter-process Communication. UNIT 2 13 Hours AND REMOTE DISTRIBUTED **OBJECTS INVOCATION:** Introduction, Communication between distributed objects, RPC, Events and notifications, Case study-Java RMI. **OPERATING SYSTEM SUPPORT:** Introduction, OS layer, Protection, Processes and Threads, Communication and Invocation, Operating system architecture. Distributed File Systems-Introduction, File Service architecture. UNIT 3 12 Hours

NAME SERVICES: Introduction, Name Services and the Domain Name System, Case study of the Global Name Service.

PEER TO PEER SYSTEMS: Introduction, Napster and its legacy, Peer to Peer middleware, routing overlays.

| | UNIT 4 | 13 Hours |
|---|--|--|
| TIME AND GLO Synchronizing phys debugging. | DBAL STATES: Introduction, Clocks, events and Prosical clocks, logical time and logical clocks, global states, | cess states, , distributed |
| COORDINATION Elections, Multicast | AND AGREEMENT: Introduction, Distributed mutual communication, consensus and related problems. | exclusion, |
| | UNIT 5 | 14 Hours |
| TRANSACTIONS Nested Transactions DISTRIBUTED TI Atomic commit pr deadlocks, Transac Transactions with re | AND CONCURRENCY CONTROL: Introduction, T , Locks, Optimistic concurrency control, Timestamp ordering. RANSACTIONS: Introduction, Flat and Nested Distributed T rotocols, Concurrency control in distributed transactions, ction recovery, Replication-Introduction, Fault toleran uplicated data. | Transactions, Transactions, Distributed t services, |
| Text Books | 1. G Coulouris, J Dollimore and T Kindberg, <i>Distribute Concepts and Design</i> , Pearson Education, 4 th Ed. | uted Systems |
| Reference Books | S.Mahajan and S.Shah, Distributed Computing University Press. PradeepK.Sinha, Distributed Operating Systems Conductor Design. PHI. M Singhal, N G Shivarathri, Advanced Concepts in Systems. TMH Edition. K.P.Birman, Reliable Distributed Systems, Springer. A.S. Tanenbaum and M.V. Steen, Distributed Systems and Paradigms, Pearson Education. R.Chow, T.Johnson, Distributed Operating Sy AlgorithmAnalysis. Pearson. A.S.Tanenbaum, Distributed Operating Systems Education. S.Ghosh, Distributed Systems, ChapmanHall/CRC Francis Group, 2010. | ng. Oxford oncepts and on Operating s: Principles ostems and c, Pearson c Taylor & |
| Evaluation | Continuous Assessment (20%) and Assignments (10%) | |
| | Semester End Examination (70%) | |

| Course Outcomes | PO ₁ | PO ₂ | PO ₃ | PO ₄ | PO ₅ | PO ₆ | PO ₇ | PO ₈ | PO ₉ | PO ₁₀ | PO ₁₁ | PO12 | PSO ₁ | PSO ₂ |
|--------------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|------------------|------------------|------|------------------|------------------|
| CO1 | 3 | - | - | - | - | - | 3 | - | - | 2 | - | 3 | 3 | - |
| CO2 | 3 | - | 2 | - | - | - | 3 | - | - | - | - | 3 | 3 | 3 |
| CO3 | 3 | - | - | - | - | - | - | - | - | - | - | 3 | | 3 |
| CO4 | 3 | - | 2 | - | - | - | - | - | - | 2 | - | 3 | 3 | - |
| CO5 | 3 | 3 | - | - | - | - | - | - | - | - | - | 3 | - | - |

ANNAMACHARYA INSTITUTE OF TECHNOLOGY & SCIENCES::RAJAMPET (AN AUTONOMOUS INSTITUTION) **IV Year B. Tech. I Semester** Hours/Week **Course Code: Course Name:** 5G476 **IMAGE PROCESSING** Т L С (PROFESSIONAL ELECTIVE-III) Ρ 3 1 0 3 **Course Prerequisites** Students are able to know: The fundamental of image processing. • • Various transforms used in image processing. **Course Objectives** About the various techniques of image enhancement, reconstruction, compression and segmentation. After completion of the course, student will be able to: Understand image formation and the role human visual system • plays in perception of gray and color image data. Get broad exposure to and understanding of various applications of image processing in industry, medicine, and defense. **Expected Outcomes** • Learn the signal processing algorithms and techniques in image enhancement and image restoration. Acquire an appreciation for the image processing issues and techniques and be able to apply these techniques to real world problems. Be able to conduct independent study and analysis of image processing problems and techniques. UNIT 1 **14 Hours** DIGITAL IMAGE FUNDAMENTALS: Introduction-Elements of Digital Image Processing system- Visual perception and properties of human eyeImageRepresentation-A simple image model-Some basic relationship between Pixels-Image geometry. UNIT 2 13 Hours IMAGE TRANSFORMS: Introduction to Fourier Transform and DFT - Properties of 2D Fourier Transform-FFT- Separable Image Transforms - Walsh - Hadamard - Discrete Cosine Transform, Haar, -KL transforms. UNIT 3 12 Hours IMAGE ENHANCEMENT: Image Enhancement - Histogram Modeling, equalization and modification, Image Smoothing-Image sharpening, Spatial Filtering-Homomorphic filtering for image enhancement. UNIT 4 **13 Hours** IMAGE RESTORATION: Model of Image Degradation/Restoration process -Inverse filtering -Least Mean Square(Wiener) filtering - Constrained least mean square restoration -Singular value Decomposition-Recursive filtering.

| | UNIT 5 | 14 Hours |
|--|---|----------------------------|
| IMAGE COMPRE models- Lossless co Transform coding, V | ESSION AND SEGMENTATION: Fundamentals -Image oppression: Variable length coding, LZW coding. Lossy C Vavelet coding. | compression ompression: |
| IMAGE SEGMEN | NTATION: Detection of Discontinuities-Edge linking an | d boundary |
| Detection-Threshold | ling-Region oriented segmentation and Texture. | |
| | | |
| Text Books | | |
| | | |
| Reference Books | | |
| Evaluation | Continuous Assessment (20%) and Assignments (10%) | |
| | Semester End Examination (70%) | |

| Course Outcomes | PO ₁ | PO ₂ | PO ₃ | PO ₄ | PO ₅ | PO ₆ | PO ₇ | PO ₈ | PO ₉ | PO ₁₀ | PO ₁₁ | PO12 | PSO ₁ | PSO ₂ |
|--------------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|------------------|------------------|------|------------------|------------------|
| CO1 | 3 | - | - | - | - | - | - | - | - | - | - | 3 | 3 | - |
| CO2 | 3 | - | - | - | 2 | - | 1 | - | - | - | - | 3 | 3 | - |
| CO3 | 3 | 3 | - | - | 2 | - | - | - | - | - | - | 3 | 3 | - |
| CO4 | 3 | 3 | - | - | - | - | - | - | - | - | - | 3 | 3 | - |
| CO5 | 3 | 3 | - | - | - | - | - | - | - | - | - | 3 | 3 | - |

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| | (AN AUTONOMOUS INSTITUTION) | | | | |
| | IV Year B. Tech. I Semester | | | | |
| Course Code: | Course Name: | Но | urs/W | /eek | |
| 5G477 | MIDDLEWARE TECHNOLOGIES | | | | |
| | (PROFESSIONALELECTIVE-III) | L | Т | Ρ | С |
| | | 3 | 1 | 0 | 3 |
| Course Prerequisites | JAVA | | | | |
| | Students are able to: | | | | |
| | Get the motivation of using middlewaLearn the basic concepts underlying the | re tec ne AS | chnolo SP.net | ogies. and C | C#.net; |
| Course Objectives | • Learn to make judgment in choosing | gas | uitab | le mic | ldleware |
| | Understand the basic concepts of Web | Serv | vices | | |
| | Understand the basic concepts of Vec Understand the basic concepts of EJB | | | • | |
| | After completion of the course, student wil | l be a | able t | 0: | |
| | • Understand the motivation of using m | iddle | ware | | |
| | • Understand the basic concepts unde | rlyin | g the | ASP | .net and |
| Expected Outcomes | • Learn to make judgment in choosin | т э с | uitah | e mic | Idleware |
| | for application problems | gas | unao | | |
| | • Understand the basic concepts of Web | Serv | vices | | |
| | • Understand the basic concepts of EJB | • | | | |
| | UNIT 1 | | | 14 | 4 Hours |
| EMERGENCE OF M Elements, Vendor Arch of Middleware,RMI, JI | MIDDLEWARE : Introduction, Objects, We nitecture, interoperability, Middleware in distributed of the DBC, Client/Server CORBA Style. | b Se outed | rvices appli | , Mic cation | ldleware s, Types |
| | UNIT 2 | | | 1 | 3 Hours |
| ASP.NET: Introducti Database Access,AD Controls,Security,Data | on,Lifecycle,ServerControls,Basic Controls, O.Net,File Uploading, Data Sources, Caching,Multithreading, Deployment. | Dire Data | ctive Bi | s, Va nding | llidators, ,Custom |
| | UNIT 3 | | | 1 | 2 Hours |
| FUNDAMENTALS OOPs with C#, Attrib Generics, Anonymous | OF C#& .NET PLATFORM: Comprehen outes, Reflection, Properties, Indexers, Deleg Methods, Unsafe Codes and Multithreading. | sive gates, | .NET Even | Ass ts,Col | emblies, lections, |
| | UNIT 4 | | | 13 | Hours |
| Introduction, Architectu Services, Extending We | re, Components,Security, XML Web Service b Services, Messaging Protocol,describing,disc | Stand cover | lards, ing,se | Creat | ing Web g. |
| | UNIT 5 | | | 1 | 4 Hours |
| EJB: Java Bean C Service, Message Drive | omponent Model,EJB Architecture,Session n Bean,Entity Bean. | Bea | ın, J | ava | Message |
| | 1. WortgangEmmerich John, "Engineerin | g Di | stribu | ited (| Objects", |

| Text Books | Wiley, 2000. 2. Mesbah Ahmed, Chris Garrett, Jeremy Faircloth, Chris Payne, DotThatCom.com, "ASP.net web developer guide", Wei Meng Lee (Series Editor), Jonothon Ortiz (Technical Editor), Syngress Publications, 2001. |
|-----------------|---|
| Reference Books | Andrew Troelsen, "C# and the .NET Platform", Apress Wiley- dreamtech, India Pvt.Ltd, 2011. ".NET Web Services-Architecture and Implementation", Keith Ballinger, Pearson Education, 2002. |
| Evaluation | Continuous Assessment (20 %) and Assignments (10%) Semester End Examination (70%) |

| Course Outcomes | PO ₁ | PO ₂ | PO ₃ | PO ₄ | PO ₅ | PO ₆ | PO ₇ | PO ₈ | PO ₉ | PO ₁₀ | PO ₁₁ | PO12 | PSO ₁ | PSO ₂ |
|--------------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|------------------|------------------|------|------------------|------------------|
| CO1 | 3 | - | 3 | - | - | - | - | - | - | - | - | 3 | 3 | 3 |
| CO2 | 3 | - | 3 | - | 3 | - | 2 | - | 3 | - | 2 | 3 | 3 | 3 |
| CO3 | 3 | - | 3 | - | 3 | - | 2 | - | 3 | - | 2 | 3 | 3 | 3 |
| CO4 | 3 | - | 3 | - | 3 | - | - | - | 3 | - | - | 3 | 3 | 3 |
| CO5 | 3 | - | 3 | - | 3 | - | - | - | 3 | - | - | 3 | 3 | 3 |

ANNAMACHARYA INSTITUTE OF TECHNOLOGY & SCIENCES::RAJAMPET (AN AUTONOMOUS INSTITUTION) IV Year B. Tech. I Semester Hours/Week **Course Code: Course Name:** 5G47A **BIG DATA AND CLOUD COMPUTING LAB** Т L С Ρ 0 0 3 2 Data Mining Concepts and Tools, Big Data Concepts, Cloud **Course Prerequisites Computing Concepts Course Objectives Students are able:** To impart knowledge of Map reduce paradigm to solve complex problems Map-Reduce. To introduce the tools required to manage and analyze big data like Hadoop. To introduce several new algorithms for big data mining like classification, clustering and finding frequent patterns. To open source cloud implementation and administration using Open Stack. To various Cloud services provided by Amazon Web • Services. After completion of the course, student will be able: **Expected Outcomes** To implement applications Big Data Frameworks like Hadoop. To construct scalable algorithms for large Datasets using Map ٠ Reduce techniques. To implement algorithms for Clustering, Classifying and ٠ finding associations in Big Data. To examine the installation and configuration of Open stack • cloud. To analyze and understand the functioning of different components involved in Amazon web services cloud platform. PART – A 1. Creating an interactive Hadoop MapReduce job flow. 2. Querying Hadoop MapReduce jobs using Hive. 3. Loading unstructured data into Hadoop Distributed File System (HDFS). **List of Experiments** 4. Simplifying Big Data processing and communicating with Pig Latin. 5. Using weka tool to exploring the data. 6. Preprocess the given data using weka tool. 7. Apply different classification techniques to classify the given data set. 8. Apply various clustering techniques to cluster the data. 9. Apply various association rule mining algorithms. PART – B 1. Study and Usage of Google Apps. 2. Implement Virtual OS using virtual box.

| | Simulate VM allocation algorithm using cloudSim. Simulate Task Scheduling algorithm using CloudSim. Simulate Energy-conscious mode006C using CloudSim. Setup a Private Cloud Using Open Stack or Eucalyptus. Implement Open Stack Nova-Compute. Implement Open Stack Image services – Glance. |
|-----------------|--|
| Text Books | Jiawei Han, Micheline Kamber "Data Mining Concepts and Techniques", Second Edition, Elsevier, Reprinted 2008. Robert I. Kabacoff, "R in Action", 2011, (Chapter 2 Pages:21-32) O. R. Team. Big Data Now: Current Perspectives from O'Reilly Radar. O'Reilly Media, 2011. Kai Hwang, Geoffery C. Fox and Jack J. Dongarra, "Distributed and Cloud Computing: Clusters, Grids, Clouds and the Future of Internet", First Edition, Morgan Kaufman Publisher, an Imprint of Elsevier, 2012. |
| Reference Books | Anand Rajaraman and Jeffrey David Ullman, Mining of Massive Datasets, Cambridge University Press, 2012. Adler, Joseph. R in a Nutshell, Second Edition. O'Reilly Media, 2012. Jason Venner, "Pro Hadoop- Build Scalable, Distributed Applications in the Cloud", A Press, 2009. |
| Evaluation | Day to Day Performance (20%), Continuous Assessment (10%) Semester End Lab Examination (70%) |

| Course Outcomes | PO ₁ | PO ₂ | PO ₃ | PO ₄ | PO ₅ | PO ₆ | PO ₇ | PO ₈ | PO ₉ | PO ₁₀ | PO ₁₁ | PO12 | PSO ₁ | PSO ₂ |
|--------------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|------------------|------------------|------|------------------|------------------|
| CO1 | 3 | - | - | 1 | 2 | - | - | - | - | 1 | - | - | 3 | 3 |
| CO2 | 2 | - | - | - | 2 | 1 | - | - | - | - | 1 | 1 | 2 | 3 |
| CO3 | - | - | - | - | 1 | 1 | - | - | 1 | - | 1 | 1 | 1 | 1 |
| CO4 | 2 | 1 | - | - | - | - | - | - | 1 | - | - | - | 2 | 1 |
| CO5 | 3 | 1 | - | - | - | - | 1 | - | 1 | 1 | - | - | 1 | 2 |

| ANNAMACHARYA | A INSTITUTE OF TECHNOLOGY & SCIE | ENCI | ES::R | AJAI | MPET |
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| | (AN AUTONOMOUS INSTITUTION) | | | | |
| | IV Year B. Tech. I Semester | | | | |
| | | Но | urs/W | eek | |
| Course Code: | Course Name: | | | | |
| 5G47B | ENTERPRISE PROGRAMMING AND | L | Т | Ρ | C |
| | CASE TOOLS LAB | 0 | 0 | 3 | 2 |
| Course Prerequisites | PHP Programming, Web Technologies Concepts, | 00A | D Cor | cepts | |
| | Students are able: | | | | |
| Course Objectives | To understand the insights of the In how to design and implement compleweb and project-based experience nedesign and development careers. To acquire the knowledge and usage in developing web applications such a To create a fully functional website w To Develop an online Book store usin amazon .com). To analyze the notions of Web server Servers, Design Methodologies with o Oriented concepts, Client-Side Programming, | terne ete aj eeded of re s the ith M ng we ers an conce ogran | t prog oplica for e cent p XM VC a can d We entrationing | gramn tions entry i blatfor L and rchite sell bo sell bo ion on , Ser | ning and over the nto web ms used AJAX. cture. poks (Ex plication Object- ver-Side |
| | After completion of the course, student wil | l be a | able: | | |
| Expected Outcomes | To implement Internet programming implement complete applications over based experience needed for entry development careers. To apply the knowledge and usage in developing web applications such a To create a fully functional website w To Develop an online Book store usin amazon .com). To use the notions of Web servers Servers, Design Methodologies with oriented concepts, Client-Side Process. | g and er th into of re- s the ith M ng we s and conce ogran | how e web cent p XM VC a can l We entrationing | to de b and b des blatfor L and rchite sell bo b App ion on , Ser | sign and project- ign and ms used AJAX. cture. poks (Ex plication Object- ver-Side |
| | Programming, | -51 uil | ng | , 501 | |
| Hardware and Software Requirements | A working computer system Linux. A web browser either IE or fire 3. Apache web server or xan servers A database either Mysql or Or | with efox. npp acle. | eithe | r Win wamp | dows or bundle |
| | Part – A (Enterprise Prog | ram | ming | g) | |
| | Week1: | | č | <i></i> | |
| | 1) Installation of apache webserver | | | | |

| | | | | ~ | |
|---------------------|--------------|-------------------------------|---|------------------|-----------------|
| | 2) In | stallation of | f XAMPP Bundle | Server | |
| | 3) In | stallation of | f WAMP Bundle S | Server | |
| | Week2: | | | | |
| | Design | the followi | ng web pages usir | ng PHP require | d for an online |
| | book st | ore web sit | e. | | |
| | 1) HO | ME PAGE | 2: | | |
| | The | home page | must contain thre | e frames. | |
| List of Experiments | Тој | p frame: Lo | ogo and the colle | ge name and l | inks to Home |
| | pag | ge, Login pa ge (the desci | ige, Registration p | age, Catalogue | page and Cart |
| | pug Lef | t frame· Δ | t least four links | for navigatio | n which will |
| | disj | play the cat | alogue of respectiv | ve links. | ii, winen win |
| | For | e.g.: Whe | n you click the li | nk "CSE" the | catalogue for |
| | CS | E Books sh | ould be displayed | in the Right fra | ame. |
| | Rig | tht frame: T | The pages to the li | nks in the left | frame must be |
| | loa | ded here. I | Initially this page | contains desc | cription of the |
| | wci | J site. | | | |
| | | | Web Site | a Nama | |
| | Logo | | Web 310 | | |
| | Home | Login | Registration | Catalogue | Cart |
| | CSE | | | | |
| | ECE | | | | |
| | EEE | | Description of | the Web Site | |
| | CIVIL | | | | |
| | | | | | |
| | 2) LOGIN | PAGE: Th | is page looks like | below: | |
| | | | | | |
| | Logo | | Web Sit | e Name | |
| | Home | Login | Registration | Catalogue | Cart |
| | CSE | | | | |
| | ECE | | Log | gin : | |
| | EEE | | Passy | word: | |
| | CIVIL | | | | |
| | | | Submit | Reset |] [|
| | | | | | |
| | | | | | |
| | 3) CATOL | OGUE PA | GE: | | |
| | The c | catalogue pa | age should contain web site in a table | n the details of | f all the books |
| | The d | letaile choul | d contain the follo | wing | |
| | | non chot of | Cover Dogo | , willig. | |
| | | uthor Name | Cover rage. | | |
| | 2. A | utior mame | e. | | |

| | | | Web | Site Name | | |
|--|--|--|--|--|--|----------------|
| Login | | Registra | ation | | Catalogue | |
| | Book : X | ML Bible | | | | |
| XMI | Author : V | Winston | | | \$ 40.5 | 😛 A |
| Bible | Publicatio | on :Wiely | | | | |
| Artifical intelligence | Book : A | Ι | | | | |
| | Author :S | .Russel | | | \$ 63 | 😛 A |
| Direct Restored & Direct Name | Publicatio | on : Princet | ton hal | 1 | | |
| | Book : Ja | va 2 | | | | |
| 1 | Author : V | Watson | | | \$ 35.5 | 😛 A |
| CHINA-RUB.COM | Publicatio | on : BPB p | ublicat | tions | | |
| === /] | Book : H | TML in 24 | 4 hours | 5 | | |
| | Author : S | Sam Peter | | | \$ 50 | 🕞 A |
| HIML4 | Publicatio | C | 1 1 | | | |
| Note: Week 3: 4) CART The addee | eek 3 contain F PAGE: cart page c d to the cart. | ns the rema | aining e deta | pages and t | heir descriptic | on. ich are |
| Note: Week 3: 4) CART The added | eek 3 contain F PAGE: cart page c d to the cart. page should | on : Sam purchase on the remains the remains the look like t | aining e deta his: | pages and t | heir descriptio | on. ich are |
| Note: Week 3: 4) CART The added The cart Logo | r ublication ceek 3 contain F PAGE: cart page c d to the cart. page should | on : Sam pu | aining e deta his: Web | pages and t ils about t Site Name | their descriptio | n. ich are |
| Note: Week 3: 4) CART The added The cart Logo Home | r ublication eek 3 contain F PAGE: cart page c d to the cart. page should Login | ns the rema ontains the look like t Registrat | aining e deta his: Web | pages and t ils about t Site Name Catalogu | their description the books wh the books wh | n. ich are |
| Note: Week 3: 4) CART The added The cart Logo Home CSE | Problematic ceek 3 contain F PAGE: cart page c d to the cart. page should Login | ns the rema ontains the look like t Registrat | aining e deta his: Web tion | pages and t ils about t Site Name Catalogu antity | their description the books wh the books wh | n. ich are |
| Note: Week 3: 4) CART The added The cart Logo Home CSE ECE | eek 3 contain F PAGE: cart page c d to the cart. page should Login Book name Java 2 | ns the rema ontains the look like t Registrat Price \$35.5 | aining e deta his: Web tion Qua 2 | pages and t ils about t Site Name Catalogu antity \$70 | their description the books wh the books wh | n. ich are |
| Note: We Week 3: 4) CART The added The cart Logo Home CSE ECE EEE | eek 3 contain F PAGE: cart page c d to the cart. page should Login Book name Java 2 XML bible | ns the rema ontains the look like t Registrat Price \$35.5 \$40.5 | aining e deta his: Web tion Qua 2 1 | pages and t pages and t ils about t Site Name Catalogu antity \$70 \$40 | their description the books wh the books wh ue Ca Amount | n. ich are |
| Note: Week 3: 4) CART The added The cart Logo Home CSE ECE EEE CIVIL | eek 3 contain F PAGE: cart page c d to the cart. page should Login Book name Java 2 XML bible Total amou | ns the rema ontains the look like t Registrat Price \$35.5 \$40.5 | aining e deta his: Web tion Qua 2 1 | pages and t ils about t Site Name Catalogu antity \$70 \$40 | their description the books wh the books wh the books wh the books wh the books wh the books wh the books wh | n. ich are |
| Note: We Week 3: 4) CART The added The cart Logo Home CSE ECE EEE CIVIL | eek 3 contain F PAGE: cart page c d to the cart. page should Login Book name Java 2 XML bible Total amou | ns the rema ontains the look like t Registrat Price \$35.5 \$40.5 | aining e deta his: Web tion Qua 2 1 | pages and t ils about t Site Name Catalogu antity \$70 \$40 \$13 | their description the books when the books when the books when the books when the | n. ich are |

| 2) Password (password field) |
|--|
| 3) E-mail id (text field) |
| 4) Phone number (text field) |
| 5) Sex (radio button) |
| 6) Date of birth (3 select boxes) |
| 7) Languages known (check boxes – English, Telugu, Hindi, Tamil) |
| 8) Address (text area) |
| WEEK 4: |
| VALIDATION: |
| Write <i>PHP Script</i> to validate the following fields of the above |
| registration page. |
| 1. Name (Name should contains alphabets and the length should not be less than 6 characters). |
| 2. Password (Password should not be less than 6 characters length). |
| 3. E-mail id (should not contain any invalid and must follow the standard pattern <u>name@domain.com</u>) |
| 4. Phone number (Phone number should contain 10 digits only). |
| Note : You can also validate the login page with these parameters. |
| Week 5: |
| Design a web page using CSS (Cascading Style Sheets) which includes the following: 1) Use different font, styles: In the style definition you define how each selector should work (font, color etc.). |
| Then, in the body of your pages, you refer to these selectors to activate the styles. |
| For example: |
| |
| <pre><html> <head> <style type="text/css"> B.headline {color:red, font-size:22px, font-family:arial, text- decoration:underline} </style> </head> <body> This is normal bold Selector {cursor:value} For example: <html> <head> <style type="text/css"> .xlink {cursor:crosshair} .hlink{cursor:help} </style> </head></html></body></html></pre> |
| |

| <body></body> |
|--|
| |
| CROSS LINK |
| |
| HELP LINK |
| |
| |
| |
| <0 class= neadine >1 lis is neadine style bold 0 |
| |
| |
| Set a background image for both the page and single elements on the page. |
| You can define the background image for the page like this: |
| BODY {background-image:url(myimage.gif),} |
| 3) Control the repetition of the image with the background-repeat property. |
| As background-repeat: repeat |
| Tiles the image until the entire page is filled, just like an ordinary background image in plain HTML. |
| 4) Define styles for links as |
| A:link |
| A:visited |
| A:active |
| A:hover |
| Example: |
| <style type="text/css"></th></tr><tr><th>A:link {text-decoration: none}</th></tr><tr><td>A:visited {text-decoration: none}</td></tr><tr><td>A:active {text-decoration: none}</td></tr><tr><td>A:hover {text-decoration: underline, color: red,} </style> |
| 5) Work with layers: |
| For example: |
| LAYER 1 ON TOP: |
| <pre><div style="position:relative,font-size:50px, z-index:2,">LAYER 1</div></pre> |
| <pre><div style="position:relative, top:-50, left:5, color:red, font-size:80px, z- index:1">LAYER 2</div></pre> |
| LAYER 2 ON TOP: |
| <pre><div style="position:relative, font-size:50px, z-index:3,">LAYER 1</div></pre> |
| <div style="position:relative, top:-50, left:5, color:red, font-size:80px, z-index:4">LAYER 2</div> |
| 6) Add a customized cursor: |
| Selector{cursor:value} |
| For example: |
| гот слатрис. |

| <html></html> | | | |
|---|---|---|-----------------|
| <head></head> | | | |
| <style< th=""><th></th><th>type</th><th>="text/css"></th></style<> | | type | ="text/css"> |
| .xlink | | {curso | or:crosshair} |
| .hlink{curs | or:help} | | |
| | - | | |
| | | | |
| <body></body> | - <a class="xlin</th><th>k" href="mypag</th><th>ge.htm">CROSS | | |
| LINK | | - | |
| <a l<="" th=""><th>ref="mypage.htm"</th><th>class="hlink">HELP</th><th>LINK</th> | ref="mypage.htm" | class="hlink">HELP | LINK |
| | | | |
| | | | |
| | | | |
| Week6: | | | |
| Usor | Authentication · Ass | ume four users user1 | user? user3 |
| and u respec | ser4 having the passw tively. Write a PHP f | words pwd1, pwd2, pwd for doing the following. | d3 and pwd4 |
| | 1. Create a Cookie passwords to this | e and add these four u s Cookie. | iser id's and |
| | 2. Read the user id | and passwords entered | in the Login |
| | form (week1) ar | nd authenticate with the | values (user |
| | id and password | s) available in the cook | ies. If he is a |
| | valid user (i.e., u | user-name and password | d match) you |
| | should welcome | him by name(user-nai | me) else you |
| | should display " | You are not an authentic | cated user". |
| | Use init-paramet | ters to do this. | |
| Week 7: | - | | |
| 1 | Install a database to | ol (Mysal or Oracle) | |
| 1. | Create a table ro | high shareld santain | -4 14 41 |
| ۷. | following fields | men should contain | at least the |
| | number (these should | liame, password, ema | a magistration |
| | form) | | e registration |
| | 101111). | | |
| week 8: | | | |
| Write | a PHP program to | connect to that database | e and extract |
| data | from the tables and | display them. Expendent | riment with |
| vario | us SQL queries. | | |
| Insert | the details of the us | sers who register with | the web site, |
| when | ever a new user clicks | s the submit button in th | e registration |
| page | (week2). | | C |
| Week9: | . / | | |
| Write | a PHP which does th | e following job: | |
| Incom | the details of the 2 c | or A users who register | with the web |
| inseri | $\frac{1}{1000}$ $\frac{1}{1000}$ $\frac{1}{1000}$ $\frac{1}{10000000000000000000000000000000000$ | stration form Authors | with the web |
| site (| he submits the log | in form using the use | ar name and |
| maceu | ord from the date | ahase (similar to week | 8 instead of |
| cooki | ora nome the data | uouse (similar to week | o msteau OI |
| Wash-10- | | | |
| week10: | | | |
| Creat | e tables in the databas | se which contain the de | tails of items |
| | a wa ayyu adaa lilya Da | ok nomo Urico (Juant | ity Amount) |

| | of each category. Modify your catalogue page (week 2) in such | | | | | | | | | | | |
|-----------------|---|--|--|--|--|--|--|--|--|--|--|--|
| | a way that you should connect to the database and extract data from the tables and display them in the catalogue page using | | | | | | | | | | | |
| | from the tables and display them in the catalogue page using | | | | | | | | | | | |
| | | | | | | | | | | | | |
| | Part – B (Case Tools): | | | | | | | | | | | |
| | The student should take up the case study of Unified Library application which is mentioned in the theory, and Model it in different views i.e. Use case view, logical view, component view, Deployment view, Database design, forward and Reverse Engineering, and Generation of documentation of the project. | | | | | | | | | | | |
| | Student has to take up another case study of his/her own interest and do the same whatever mentioned in first problem. Some of the ideas regarding case studies are given in reference books which were mentioned in theory syllabus can be referred for some idea. | | | | | | | | | | | |
| | 4. Jason Gilmore, Beginning PHP and MySQL, Apress Publications (Dream tech.), 3 rd edition. | | | | | | | | | | | |
| Tavt Books | 5. Lee Babin, Nathan A Good, Frank M.Kromann and Jon Stephens .PHP 5 Recipes A problem Solution Approach. | | | | | | | | | | | |
| TCAT DOORS | 6. Lee Babin, Beginning Ajax with PHP From Novice to Professional, Apress Publications (Dream tech.). 3 rd edition. | | | | | | | | | | | |
| | 4. J.Lee and B.Ware .Open Source Web Development with LAMP using Linux, Apache, MySQL, Perl and PHP, (Addison Wesley) Pearson Education. | | | | | | | | | | | |
| Reference Books | 5. Bayross and S.Shah .PHP 5.1, I., The X Team, SPD. | | | | | | | | | | | |
| Reference Doors | 6. E.Quigley, PHP and MySQL by Example, Prentice Hall(Pearson). | | | | | | | | | | | |
| | 7. V.Vaswani, PHP Programming solutions, TMH. | | | | | | | | | | | |
| Evaluation | Day to Day Performance (20%), Continuous Assessment (10%) | | | | | | | | | | | |
| | Semester End Lab Examination (70%) | | | | | | | | | | | |

| Course Outcomes | PO ₁ | PO ₂ | PO ₃ | PO ₄ | PO ₅ | PO ₆ | PO ₇ | PO ₈ | PO ₉ | PO ₁₀ | PO ₁₁ | PO12 | PSO ₁ | PSO ₂ |
|--------------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|------------------|------------------|------|------------------|------------------|
| CO1 | 3 | - | - | 3 | - | - | - | - | - | - | - | 3 | 3 | - |
| CO2 | 3 | 3 | - | | - | - | - | - | - | - | - | 3 | 3 | - |
| CO3 | 3 | - | 3 | 3 | 2 | - | - | - | - | - | - | 3 | 3 | - |
| CO4 | 3 | 3 | 3 | 3 | - | - | - | - | - | - | - | 3 | 3 | - |
| CO5 | 3 | 3 | 3 | 3 | 2 | - | - | - | - | - | 1 | 3 | 3 | - |

| ANNAMACHARYA INSTITUTE OF TECHNOLOGY & SCIENCES::RAJAMPET | | | | | | | | | | |
|---|--|--------|--------|-------|---------|--|--|--|--|--|
| IV Year B.Tech. II Semester | | | | | | | | | | |
| Course Code: | Course Name: Hours/Week | | | | | | | | | |
| 5G182 | ADVANCED COMPUTER ARCHITECTURE | Р | с | | | | | | | |
| | (PROFESSIONAL ELECTIVE - IV) (Common for CSE & IT) | 3 | 1 | 0 | 3 | | | | | |
| Course Prerequisites | Computer System Architecture | | | | | | | | | |
| Course Objectives | Students are able to: To learn Program, Network Properties of various parallel computer models. To know about new trends in Operating and designing various parallel computers | | | | | | | | | |
| | After completion of the course, student wil | l be a | able t | 0: | | | | | | |
| Expected Outcomes | Calculate performance measures of different parallel computers. Find the difference between parallel computer with and without shared-memory organization. Design Instruction Displays and able to use measured. | | | | | | | | | |
| | Find out differences between properties of Data Flow Architectures and other types | | | | | | | | | |
| | Know about the parallelism used processors. | l in | vario | ous a | dvanced | | | | | |
| | UNIT 1 | | | 14 | 4 Hours | | | | | |
| PARALLEL COMPUTER MODELS: - The state of computing-Multiprocessors and Multi computers- Multivector and SIMD Computers-PRAM and VLSI Models. PROGRAM AND NETWORKS PROPERTIES: - Conditions of Parallelism- Program Partitioning and Scheduling- Program Flow Mechanisms-System Interconnect Architectures. PRINCIPLES OF SCALABLE PERFORMANCE: - Performance Metrics and Measures-Parallel Processing Applications-Speedup Performance Laws-Scalability Analysis and Approaches | | | | | | | | | | |
| | UNIT 2 | | | 13 | 3 Hours | | | | | |
| PROCESSORS AND MEMORY HIERARCHY: - Advanced Processor Technology- Superscalar and Vector Processors- Memory Hierarchy Technology. BUS, CACHE AND SHARED MEMORY: - Bus Systems-Cache Memory Organizations- Shared-Memory Organizations. | | | | | | | | | | |
| | UNIT 3 12 Hours | | | | | | | | | |
| PIPELINING AND SUPER SCALAR TECHNIQUES: - Linear Pipeline Processors- Nonlinear Pipeline Processors-Instruction Pipeline Design. MULTIPROCESSORS AND MULTI COMPUTERS: -Multiprocessor System Interconnects-Cache Coherence and Synchronization Mechanisms-Message-Passing Mechanisms. | | | | | | | | | | |

| UNIT 4 | | | | | | | |
|---|------------------------------|------------------|----------------------|-------------|--|--|--|
| MULTIVECTOR AND SIMD COMPUTERS: - Vector Processing Principles-Multivector Multiprocessors-Compound Vector Processing-SIMD Computer Organizations-The Connection Machine CM-5. | | | | | | | |
| SCALABLE, MULTITHREADED, AND DATAFLOW ARCHITECTURES: - Latency – Hiding Techniques-Principles of Multithreading-Scalable and Multithreaded Architectures- Dataflow and Hybrid Architectures. | | | | | | | |
| UNIT 5 14 Hours | | | | | | | |
| INSTRUCTION LEVEL PARALLELISM:- Introduction-Basic Design Issues-Problem Definition-Model of a Typical Processor- Operand Forwarding-Reorder Buffer-Register Renaming-Tomasulo's Algorithm- Branch Prediction- Limitations in Exploiting Instruction Level Parallelism-Thread Level Parallelism. | | | | | | | |
| TRENDS IN PARA Intel Pentium Proces | LLEL SYSTEMS: - Foi sors. | rms of Paralleli | ism-Case Studies: AN | AD Opteron, | | | |
| ext Books 1. Advanced Computer Architecture- by Kai Hwang &Jotwani, 3 rd Edition, McGraw-Hill Publications. | | | | | | | |

| Text Books | | Edition, McGraw-Hill Publications. | | | | | | | | | |
|-----------------|--------|---|----------------|-------------------|-------------------------|--------------|--|--|--|--|--|
| | 1. | Advanced | Computer | Architecture, | D.Sima, | T.Fountain, | | | | | |
| Reference Books | | P.Kacsuk, P | Pearson Educa | tion. | | | | | | | |
| Reference Dooks | 2. | Computer A | Architecture A | A quantitative ap | pproach 3 rd | edition john | | | | | |
| | | L.Hennessy | & David A. | Patterson, Morga | an Kufman | n(An Imprint | | | | | |
| | | of Elsevier). | | | | | | | | | |
| | 3. | 3. Computer Architecture and parallel processing by Hwang and | | | | | | | | | |
| | | Briggs. | | | | | | | | | |
| Evaluation | Contin | uous Assessi | ment (20 %) a | and Assignments | s (10%) | | | | | | |
| | Semes | Semester End Examination (70%) | | | | | | | | | |

| Program | Articulation | Matrix |
|---------|-----------------|--------|
| | 1 II viculation | |

| Course Outcomes | PO ₁ | PO ₂ | PO ₃ | PO ₄ | PO ₅ | PO ₆ | PO ₇ | PO ₈ | PO ₉ | PO ₁₀ | PO ₁₁ | PO12 | PSO ₁ | PSO ₂ |
|--------------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|------------------|------------------|------|------------------|------------------|
| CO1 | 3 | 1 | 2 | 1 | - | - | - | - | - | - | - | 3 | 3 | - |
| CO2 | 3 | - | 2 | | - | - | - | - | - | - | - | 3 | 3 | - |
| CO3 | 3 | - | - | - | 2 | - | - | - | - | - | - | 3 | 3 | - |
| CO4 | 3 | - | - | - | 2 | - | - | - | - | - | - | 3 | 3 | - |
| CO5 | 3 | - | - | - | - | - | - | - | - | - | - | 3 | 3 | - |

| ANNAMACHARY | A INSTITUTE OF TECHNOLOGY & SCIE | ENCI | ES::R | AJAI | MPET | | | | | | |
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| (AN AUTONOMOUS INSTITUTION) | | | | | | | | | | | |
| IV Year B. Tech. II Semester | | | | | | | | | | | |
| Course Code: | Course Name: | Veek | | | | | | | | | |
| 5G482 | MOBILE COMMUNICATIONS | Ŧ | T | _ | 6 | | | | | | |
| | (PROFESSIONAL ELECTIVE - IV) | PROFESSIONAL ELECTIVE - IV) L 1 3 1 | | | | | | | | | |
| | | 3 | 1 | 3 | | | | | | | |
| Course Prerequisites | | | | | | | | | | | |
| | Students are able to: | | | | | | | | | | |
| Course Objectives | Study the convergence of networks. Understand the concept of mobile computing paradigm, its novel applications and limitations. Understand the architecture of GSM, GPRS. Understand data dissemination in mobile environment. Learn about emerging networks Adhoc and sensor networks. | | | | | | | | | | |
| | After completion of the course, student wil | l be a | able t | 0: | | | | | | | |
| Expected Outcomes | Learn the concept of mobile computing paradigm, its novel applications and limitations. Know the medium access control and mobile network layer. Contribute to the body of the knowledge in adhoc and sensor network areas. Develop technologies for integration of different networks Know the database issues and data dissemination in mobile available and the available of the sensor of the database issues and data dissemination in mobile available of the sensor of the database issues and data dissemination in mobile available of the sensor of the sensor of the sensor of the database issues and data dissemination in mobile available of the sensor of the sen | | | | | | | | | | |
| | UNIT 1 | | | 14 | 4 Hours | | | | | | |
| INTRODUCTION T Computing (MC): Intro GSM: Mobile service calling, Handover, Secu | O MOBILE COMMUNICATIONS AND oduction to MC, Novel applications, limitations s, System architecture, Radio interface, Prot urity and New data services. | CON and tocols | IPUT archit s, Lo | TING: tecture calizat | Mobile e. tion and | | | | | | |
| | UNIT 2 | | | 1 | 3 Hours | | | | | | |
| (WIRELESS) MEDIUM ACCESS CONTROL: Motivation for a specialized MAC (Hidden and exposed terminals, near and far terminals), SDMA, FDMA, TDMA, CDMA. MOBILE NETWORK LAYER: Mobile IP (Goals, assumptions, entities and terminology, IP packet delivery, agent advertisement and discovery, registration, tunneling and encapsulation optimizations) Dynamic Host Configuration Protocol (DHCP) | | | | | | | | | | | |
| | UNIT 3 12 Hours | | | | | | | | | | |
| MOBILE TRANSPO TCP, Fast retransmit/Fa Transaction oriented T | RT LAYER: Traditional TCP, Indirect TCP, ast recovery, Transmission/Time-out freezing, CP. | Sno Selec | oping tive r | TCP. | , Mobile mission, | | | | | | |
| MOBILE ADHOC spectrum of MANET MANETs. | NETWORKS (MANETs): Overview, Pro applications, routing and various routing | pertie algo: | es of rithm | f a N s, sec | MANET, curity in | | | | | | |
| | UNIT 4 | | | 13 | Hours | | | | | | |
PROTOCOLS AND TOOLS: Wireless LAN IEEE 802.11(System architecture, Protocol architecture, 802.11a, 802.11b), Wireless Application Protocol-WAP (Introduction, protocol architecture and treatment of protocols of all layers), Bluetooth (User scenarios, physical layer, MAC layer, networking, security, link management) and J2ME.

| 5 / 5 / | | | | | | | | | | |
|--|--|--------------|--|--|--|--|--|--|--|--|
| | UNIT 5 | 14 Hours | | | | | | | | |
| DATABASE ISSUES: Hoarding techniques, caching invalidation mechanisms, client server computing with adaption, power-aware and context-aware computing, transactional models, query processing, recovery and quality of service issues. DATA DISSEMINATION: Communications asymmetry, classification of new data delivery mechanisms, push-based mechanisms, pull-based mechanisms, hybrid mechanisms, selective tuning (indexing) techniques. | | | | | | | | | | |
| Text Books | 2. Jochen Schiller, Mobile Communications. Addis (Chapters 4,7,9,10,11), 2004, 2 nd Ed. | on Wesley | | | | | | | | |
| | 3. Raj Kamal, Mobile Computing. Oxford University Press (Contents 1, 3, 4, 5, 6, 7, 8, 11). | | | | | | | | | |
| Reference Books | RezBehravanfar, Mobile Computing Principles: Designing and Developing Mobile Applications with UML and XML. ISBN: 0521817331, Cambridge University Press, October 2004. | | | | | | | | | |
| | Adelstein, Frank, Gupta, Sandeep KS, Richard III, Golder Schwiebert, Loren, Fundamentals of Mobile and Pervasiv Computing. ISBN: 0071412379, McGraw-Hill Professiona 2005. | | | | | | | | | |
| | 4. Hansmann, Merk, Nicklous, Stober, Principles Computing. Springer, 2003, 2 nd Ed. | of Mobile | | | | | | | | |
| | MartynMallick, Mobile and Wireless Design Essen DreamTech, 2003. | tials. Wiley | | | | | | | | |
| Evaluation | Continuous Assessment (20%) and Assignments (10%) | | | | | | | | | |
| | Semester End Examination (70%) | | | | | | | | | |

| Course Outcomes | PO ₁ | PO ₂ | PO ₃ | PO ₄ | PO ₅ | PO ₆ | PO ₇ | PO ₈ | PO ₉ | PO ₁₀ | PO ₁₁ | PO12 | PSO ₁ | PSO ₂ |
|--------------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|------------------|------------------|------|------------------|------------------|
| CO1 | 3 | - | - | - | - | - | 3 | - | - | - | - | 3 | 3 | - |
| CO2 | 3 | - | - | - | - | - | 3 | - | - | - | - | 3 | 3 | - |
| CO3 | 3 | - | - | - | - | - | 3 | - | - | - | - | 3 | 3 | - |
| CO4 | 3 | - | 1 | - | 1 | | 3 | - | - | - | - | 3 | 3 | - |
| CO5 | 3 | - | - | - | - | | 3 | - | - | - | - | 3 | 3 | - |

| ANNAMACHARYA INSTITUTE OF TECHNOLOGY & SCIENCES::RAJAMPET | | | | | | | | | | | | |
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| | (AN AUTONOMOUS INSTITUTION) | | | | | | | | | | | |
| | IV Year B. Tech. II Semester | | | | | | | | | | | |
| ~ ~ . | | Па | | lool. | | | | | | | | |
| Course Code: | Course Name: | Но | urs/ w | еек | | | | | | | | |
| 5G485 | SOFT COMPUTING | т | т | | C | | | | | | | |
| | (PROFESSIONAL ELECTIVE - IV) | | 1 | P | | | | | | | | |
| | (Common for CSE & II) | 3 | 1 | 0 | 3 | | | | | | | |
| Course Prerequisites | | | | | | | | | | | | |
| | Students are able to: | | | | | | | | | | | |
| | • To familiarize with soft computing co | ncept | s. | | | | | | | | | |
| | • To introduce the ideas of Neural ne | tworl | ks, fu | zzy lo | ogic and | | | | | | | |
| Course Objectives | • To introduce the concepts of Ger | rienco | e. algor | rithm | and its | | | | | | | |
| | applications to soft computingusing so | ome a | | ations | | | | | | | | |
| | After completion of the course, student will be able to: | | | | | | | | | | | |
| | • Learn about soft computing techniques and their applications | | | | | | | | | | | |
| | • Analyze various neural network archit | ectur | es | | | | | | | | | |
| Expected Outcomes | • Understand perceptions and counter p | ropag | gation | netwo | orks. | | | | | | | |
| | • Define the fuzzy systems | | | | | | | | | | | |
| | Analyze the genetic algorithms and their applications. | | | | | | | | | | | |
| UNIT 1 14 Hours | | | | | | | | | | | | |
| ARTIFICIAL NEUR | AL NETWORK: Introduction – Fundamental | cond | cept - | - Evol | ution of | | | | | | | |
| ANNs – McCulloch-Pit | tts Neuron – Linear Separability – Hebb Networks | porta | ht Tei | mino. vised I | logies of | | | | | | | |
| Network: Perceptron | Networks – Adaline – Multiple Adaptive L | inear | Neu | rons | – Back- | | | | | | | |
| Propagation Network – | Radial Basis Function Network. | | | | | | | | | | | |
| | UNIT 2 | | | 13 | 3 Hours | | | | | | | |
| ARTIFICIAL NEUR | AL NETWORK: Associative Memory Networ | rks: T | raini | ng Alg | gorithms | | | | | | | |
| for Pattern Association | n – Autoassociative Memory Network – He | teroa | SSOCia | ative | Memory Itorativo | | | | | | | |
| AutoAssociative Memo | ory Networks – Temporal Associative Memory | Net Net | vork. | – Unsu | pervised | | | | | | | |
| Learning Networks: Fix | ked weight Competitive Nets – Kohonen Self-G | Drgar | izing | Featu | re Maps | | | | | | | |
| - Learning Vector Qu | antization – Counter propagation Networks | – A | dapti | ve Re | sonance | | | | | | | |
| Theory Networks – Spe | ecial Networks. | | | 1 | | | | | | | | |
| | UNIT 3 | | | 12 | 2 Hours | | | | | | | |
| FUZZY SET THEOR | Y: Introduction to Classical Sets and Fuzzy set | ets – | Class | sical F | Relations | | | | | | | |
| and Fuzzy Relations – | Tolerance and Equivalence Relations – Non Exercision – Mathada of Mambarshin | intera | active | Fuzz | y sets – | | | | | | | |
| Defuzzification – Lar | nbda-Cuts for Fuzzy sets and Fuzzy Rela | v ai tions | ue Α - Γ | efuzz | ification | | | | | | | |
| Methods. | | | | | | | | | | | | |
| | UNIT 4 | | | 13 | Hours | | | | | | | |
| FUZZY SET THEO | RY: Fuzzy Arithmetic and Fuzzy Measures | : Fuz | zy R | ule B | ase and | | | | | | | |
| Approximate Reasonin | g: Truth values and Tables in Fuzzy logic | – Fu | zzy I | Propos | sitions – | | | | | | | |
| Formation of Rules – | Decomposition and Aggregation of rules – Fu | ızzy | Reaso | oning | – Fuzzy | | | | | | | |

| Inference Systems (I | FIS) – Fuzzy Decision Making – Fuzzy Logic Control Systems | 5. | | | | | | | |
|---|--|---|--|--|--|--|--|--|--|
| | UNIT 5 | 14 Hours | | | | | | | |
| GENETIC ALGORITHM: Introduction – Basic Operators and Terminologies in GAs – Traditional Algorithm vs. Genetic Algorithm – Simple GA – General Genetic Algorithm – The Scheme Theorem – Classification of Genetic Algorithm – Holland Classifier Systems – Genetic Programming. Applications of Soft Computing: AFusion Approach of Multispectral Images with SAR Image for Flood Area Analysis – Optimization of Travelling Salesman Problem using Genetic Algorithm Approach – Genetic Algorithm based Internet Search Technique – Soft Computing based Hybrid FuzzyControllers – Soft Computing based Rocket Engine – Control. | | | | | | | | | |
| Text Books | S.N. Sivanandan and S.N. Deepa, Principles of Soft Wiley India, 2007.ISBN: 10: 81-265-1075-7. | 1. S.N. Sivanandan and S.N. Deepa, Principles of Soft Computing, Wiley India, 2007.ISBN: 10: 81-265-1075-7. | | | | | | | |
| Reference Books | S. Rajasekaran and G.A.V.Pai, Neural Networks, F and Genetic Algorithms, PHI, 2003. Timothy J.Ross, Fuzzy Logic with Engineering A McGraw-Hill, 1997. | Fuzzy Logic | | | | | | | |
| | 3. J.S.R.Jang, C.T.Sun and E.Mizutani, Neuro-Fuzz Computing, PHI, 2004,Pearson Education. | y and Soft | | | | | | | |
| Evaluation | Continuous Assessment (20 %) and Assignments (10%) Semester End Examination (70%) | | | | | | | | |

| Course Outcomes | PO ₁ | PO ₂ | PO ₃ | PO ₄ | PO ₅ | PO ₆ | PO ₇ | PO ₈ | PO ₉ | PO ₁₀ | PO ₁₁ | PO12 | PSO ₁ | PSO ₂ |
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| CO1 | 3 | - | - | - | - | - | 1 | - | - | - | - | 3 | 3 | - |
| CO2 | 3 | 2 | - | - | - | - | - | - | - | - | - | 3 | 3 | - |
| CO3 | 3 | - | - | 3 | - | - | - | - | - | - | - | 3 | 3 | - |
| CO4 | 3 | - | - | 3 | - | - | - | - | - | - | - | 3 | 3 | - |
| CO5 | 3 | 2 | - | 3 | - | - | - | - | - | - | - | 3 | 3 | - |

ANNAMACHARYA INSTITUTE OF TECHNOLOGY & SCIENCES::RAJAMPET (AN AUTONOMOUS INSTITUTION) **IV Year B. Tech. II Semester** Hours/Week **Course Code: Course Name:** 5G481 **DESIGN PATTERNS** L Т С (PROFESSIONAL ELECTIVE - V) Ρ 3 1 0 3 **Course Prerequisites** Students are able to: • Understand that design patterns are standard solutions to common software design problems. **Course Objectives** Use systematic approach that focus and describe abstract systems of interaction between classes, objects, and communication flow. Understand the design patterns that provide common solutions • for various objectives of object oriented software applications. Understand how these patterns related to object- oriented design. After completion of the course, student will be able to: Understand and identify appropriate patterns for design • problems. • Learn creational, structural, behavioral patterns. **Expected Outcomes** Apply key pattern-oriented software architecture techniques to develop reusable object-oriented software infrastructure and apps. Utilize Java programming language features and libraries to develop pattern oriented -oriented software. Successfully apply concurrency patterns to achieve synchronization in Object oriented applications. UNIT 1 14 Hours **INTRODUCTION:** What Is a Design Pattern, Design Patterns in Smalltalk MVC, Describing Design Patterns, The Catalog of Design Patterns, Organizing the Catalog, How Design Patterns Solve Design Problems, how to Select a Design Pattern, how to Use a Design Pattern. UNIT 2 13 Hours A CASE STUDY: Designing a Document Editor: Design Problems, Document Structure, Formatting, Embellishing the User Interface, Supporting Multiple Look-and-Feel Standards, Supporting Multiple Window Systems, User Operations Spelling Checking and Hyphenation, Summary. UNIT 3 12 Hours CREATIONAL PATTERNS: Abstract Factory, Builder, Factory Method, Prototype, Singleton, Discussion of Creational Patterns. 13 Hours UNIT 4

14 Hours

Flyweight, Proxy.

BEHAVIORAL PATTERNS PART: Chain of Responsibility, Command, Interpreter, Iterator. Mediator, Memento, Observer, State, Strategy, Template Method, Visitor, Discussion of Behavioral Patterns. What to Expect from Design Patterns, A Brief History, The Pattern Community an Invitation, A Parting Thought.

| Text Books | Design Patterns by Erich Gamma, Pearson Education | | | | | | | | | | |
|------------------------|---|--|--|--|--|--|--|--|--|--|--|
| | 1. Pattern's in JAVA Vol-I by Mark Grand, Wiley DreamTech. | | | | | | | | | | |
| | 2. Pattern's in JAVA Vol-II by Mark Grand, Wiley DreamTech. | | | | | | | | | | |
| | 3. JAVA Enterprise Design Patterns Vol-III by Mark Grand, Wiley | | | | | | | | | | |
| Reference Books | DreamTech. | | | | | | | | | | |
| | 4. Head First Design Patterns by Eric Freeman-Oreilly-spd | | | | | | | | | | |
| | 5. Design Patterns Explained by Alan Shalloway, Pearson | | | | | | | | | | |
| | Education. | | | | | | | | | | |
| Evaluation | Continuous Assessment (20%) and Assignments (10%) | | | | | | | | | | |
| | Semester End Examination (70%) | | | | | | | | | | |

| Course Outcomes | PO ₁ | PO ₂ | PO ₃ | PO ₄ | PO ₅ | PO ₆ | PO ₇ | PO ₈ | PO ₉ | PO ₁₀ | PO ₁₁ | PO12 | PSO ₁ | PSO ₂ |
|--------------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|------------------|------------------|------|------------------|------------------|
| CO1 | 3 | - | - | 3 | - | - | - | - | - | - | - | 3 | 3 | - |
| CO2 | 3 | 3 | - | | - | - | - | - | - | - | - | 3 | 3 | - |
| CO3 | 3 | - | 3 | 3 | 2 | - | - | - | - | - | - | 3 | 3 | - |
| CO4 | 3 | 3 | 3 | 3 | - | - | - | - | - | - | - | 3 | 3 | - |
| CO5 | 3 | 3 | 3 | 3 | 2 | - | - | - | - | - | 1 | 3 | 3 | - |

| ANNAMACHARYA INSTITUTE OF TECHNOLOGY & SCIENCES::RAJAMPET | | | | | | | | | |
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| | (AN AUTONOMOUS INSTITUTION) | | | | | | | | |
| | IV Year B. Tech. II Semester | [| | | | | | | |
| | | | | | | | | | |
| Course Code: | Course Name: | Ho | urs/V | Veek | | | | | |
| 5G483 | OPTIMIZATION TECHNIQUES | | | | | | | | |
| | (PROFESSIONAL ELECTIVE - V) | L | Т | Р | C | | | | |
| | | 3 | 1 | 0 | 3 | | | | |
| Course Prerequisites | | | | | | | | | |
| | Students are able to: | | | | | | | | |
| Course Objectives | This subject introduces the optimization techniques for various engineering applications. And also mainly this course concentrates on various linear, non-linear and dynamic programming. | | | | | | | | |
| | After completion of the course, student will | l be a | able t | 0: | | | | | |
| Expected Outcomes | Understand basic theoretical principles in optimization. Understand the Formulation of Linear Programming. Understand the Solution methods in optimization. Understand the approximation methods for constrained problems. Understand the Methods of sensitivity analysis and post processing of results applications to a wide range of | | | | | | | | |
| | UNIT 1 | | | 14 | 4 Hours | | | | |
| | CONTINUZATION: Dequiremente for | . 41. | ~ ^ | | tion of | | | | |
| Optimization Method Optimization Problem Functions, Optimality Point Estimation Meth Search Methods, Gradi | s, Applications of Optimization in Eng s, Functions of a Single Variable: Proper Criteria, Region Elimination Methods, Polyno nods. Functions of a Several Variables: Optient Based Methods, Comparison of Methods and | ineer ties omia imali nd Nu | e A ring, of S l App ty Cu umeri | Struc ingle- oroxin riteria, cal Re | variable variable variable variable variable variable variable | | | | |
| | UNIT 2 | | | 1 | 3 Hours | | | | |
| LINEAR PROGRAM Solution of Linear Pro Principles of the Sim Optimal Solution for H Problems, Hungarian M | MMING: Formulation of Linear Programm gramming in Two Variables, Linear Program plex Method, Applications. Transportation BFS, Unbalanced Transportation Problem, Tra Method. | ing ming Prob nsshi | Mode in S lems: pmer | els, C tandaı Intro nt, Ass | Graphical rd Form, oduction, signment | | | | |
| | UNIT 3 | | | 1 | 2 Hours | | | | |
| CONSTRAINED OPTIMALITY CRITERIA: Equality-Constrained Problems, Lagrange Multipliers, Economic Interpretation of Lagrange Multipliers, Kuhn-Tucker Conditions, Kuhn-Tucker Theorems, SaddlePoint Conditions, Second-Order Optimality Conditions, Transformation Methods: Penalty Concept, Algorithms, Codes, and Other Contributions, Method of Multipliers, Constrained Direct Search: Problem Preparation, Adaptations of Unconstrained Search Methods, Random-Search Methods. | | | | | | | | | |
| | UNIT 4 | | | 13 | Hours | | | | |
| QUADRATIC APPR | OXIMATION METHODS FOR CONSTR | AIN | ED I | PROF | BLEMS: | | | | |

Direct Quadratic Approximation, Quadratic Approximation of the Lagrangian Function, Variable Metric Methods for Constrained Optimization, Structured Problems and Algorithms: Integer Programming, Quadratic Programming, Complementary Pivot Problems, Goal Programming.

| | UNIT 5 | 14 Hours | | | | | | | |
|--|--|--|--|--|--|--|--|--|--|
| PROJECT MANAGEMENT: Introduction, Critical Path Method, Critical Path Determination, Optimal Scheduling by CPM, Project Evaluation and Review Technique, Dynamic Programming: Introduction, Formulation, Recursive Relations, Continuous Cases, Discrete Cases, Forward Recursions, Linear Programming vs. Dynamic Programming. | | | | | | | | | |
| Text Books | Ravindran. K, M. Ragsdell, G.V. Reklaitis, H Optimization: Methods and Applications. Wiley Ind 2ndEd. H. S. Kasana, K. D. Kumar, Introductory Operation Theory and Applications. Springer International Edition | Engineering dia Edition, n Research: ons. | | | | | | | |
| Reference Books | K.V. Mital and C.Mohan, Optimization Methods in Research and systems Analysis. New Age Intern Limited, Publishers, 3rdEd, 1996. J. K. Sharma, Operations Research. MacMillan. H.A. Taha, Operations Research: An Introduction, PH Pearson Education, 6th Ed. | Operations national (P) HI Pvt. Ltd., | | | | | | | |
| Evaluation | Continuous Assessment (20 %) and Assignments (10%) Semester End Examination (70%) | | | | | | | | |

| Course Outcomes | PO ₁ | PO ₂ | PO ₃ | PO ₄ | PO ₅ | PO ₆ | PO ₇ | PO ₈ | PO ₉ | PO ₁₀ | PO ₁₁ | PO12 | PSO ₁ | PSO ₂ |
|--------------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|------------------|------------------|------|------------------|------------------|
| CO1 | 3 | - | - | 3 | - | - | - | - | - | - | - | 3 | 3 | - |
| CO2 | 3 | 3 | - | | - | - | - | - | - | - | - | 3 | 3 | - |
| CO3 | 3 | - | 3 | 3 | 2 | - | - | - | - | - | - | 3 | 3 | - |
| CO4 | 3 | 3 | 3 | 3 | - | - | - | - | - | - | - | 3 | 3 | - |
| CO5 | 3 | 3 | 3 | 3 | 2 | - | - | - | - | - | 1 | 3 | 3 | - |

| ANNAMACHARYA INSTITUTE OF TECHNOLOGY & SCIENCES::RAJAMPET (AN AUTONOMOUS INSTITUTION) | | | | | | | | | | |
|---|---|---------------------------------|------------------------------------|----------------------------------|---|--|--|--|--|--|
| | IV Year B. Tech. II Semester | | | | | | | | | |
| Course Code: 5G484 | Course Name: SOFTWARE PROCESS AND PROJECT MANAGEMENT (PROFESSIONAL ELECTIVE - V) | Ho L 3 | urs/W T 1 | ⁷ eek P 0 | C 3 | | | | | |
| Course Prerequisites | Software Engineering, Software Design Methods | | | | | | | | | |
| • | Students are able: | | | | | | | | | |
| Course Objectives | To introduce software project management and to describe its distinctive characteristics. To discuss project planning and the planning process. To show how graphical schedule representations are used by project management. To discuss the notion of risks and the risk management process. | | | | | | | | | |
| | After completion of the course, student will | l be a | able to |): | | | | | | |
| Expected Outcomes | Describe software process maturity framework. Explain conventional software management and software economics. Discuss software projects and project planning. Analyze project tracking and control. | | | | | | | | | |
| | UNIT 1 | 5 | | 14 | 4 Hours | | | | | |
| CONVENTIONAL S software Management p EVOLUTION OF SO cost estimation. IMPROVING SOFTV software processes, imp quality, peer inspection | OFTWARE MANAGEMENT: The waterf performance. FTWARE ECONOMICS: Software Econor WARE ECONOMICS: Reducing Software proving team effectiveness, improving automa s. | all n nics, prod tion, | nodel, pragr uct si Achie | conv natic ze, in eving | ventional software nproving required | | | | | |
| | UNIT 2 | | | 13 | 3 Hours | | | | | |
| LIFE CYCLE PHASES: Engineering and production stages, inception, Elaboration, construction, transition phases. ARTIFACTS OF THE PROCESS: The artifact sets, Management artifacts, Engineering artifacts, programmatic artifacts. MODEL BASED SOFTWARE ARCHITECTURES: A Management perspective and technical perspective. Work Flows of the process: Software process workflows, Iteration workflows. | | | | | | | | | | |
| | UNIT 3 | | | 12 | 2 Hours | | | | | |
| CHECKPOINTS OF status assessments. ITERATIVE PROCE | THE PROCESS: Major mile stones, Min CSS PLANNING: Work breakdown structur | or M | filesto Mannii | ones, 1g gu | Periodic idelines, | | | | | |

| cost and schedule estimating, Iteration planning process, Pragmatic planning. | | | | | | | | | | | | |
|---|--|--------------|--|--|--|--|--|--|--|--|--|--|
| | 13 Hours | | | | | | | | | | | |
| PROJECT ORC | GANIZATIONS AND RESPONSIBILITIES: Line | -of-Business | | | | | | | | | | |
| Organizations, Project Organizations, Evolution of Organizations. | | | | | | | | | | | | |
| PROCESS AUTOMATION: Automation Building blocks, The Project Environment. | | | | | | | | | | | | |
| UNIT 5 14 Hours | | | | | | | | | | | | |
| PROJECT CONTROL AND PROCESS INSTRUMENTATION The seven core Metrics, Management indicators, quality indicators, life cycle expectations, pragmatic Software Metrics, Metrics automation. FUTURE SOFTWARE PROJECT MANAGEMENT: Modern Project Profiles, Next generation Software economics, modern process transitions. | | | | | | | | | | | | |
| Text Books | 1. Walker Royce, Software Project Managemer Education, 2005. | nt. Pearson | | | | | | | | | | |
| | Bob Hughes and Mike Cotterell, Software Project N Tata McGraw-Hill Edition. | /lanagement, | | | | | | | | | | |
| Reference Books | 2. Joel Henry, Software Project Management, Pearson E | Education. | | | | | | | | | | |
| | Pankaj Jalote, Software Project Management in practice, Pearson Education, 2005. | | | | | | | | | | | |
| Evaluation | Continuous Assessment (20%) and Assignments (10%) | | | | | | | | | | | |
| | Semester End Examination (70%) | | | | | | | | | | | |

| Course Outcomes | PO ₁ | PO ₂ | PO ₃ | PO ₄ | PO ₅ | PO ₆ | PO ₇ | PO ₈ | PO ₉ | PO ₁₀ | PO ₁₁ | PO12 | PSO ₁ | PSO ₂ |
|--------------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|------------------|------------------|------|------------------|------------------|
| CO1 | 3 | | 3 | | | 3 | | 3 | | 2 | 1 | 1 | 2 | 2 |
| CO2 | 2 | 2 | | 2 | | | | | | | | | | |
| CO3 | 2 | | | | 2 | | | | 3 | | | 2 | | 2 |
| CO4 | | | 3 | | 2 | | 1 | 2 | | | 3 | | 2 | 3 |
| CO5 | 2 | 2 | 3 | | 2 | | 2 | | 3 | | | | 3 | 2 |

| ANNAMACHARYA | A INSTITUTE OF TECHNOLOGY & SCIE | ENCE | ES::R | AJAI | МРЕТ | | | | | | | | |
|--|--|--|---|---|---|--|--|--|--|--|--|--|--|
| (AN AUTONOMOUS INSTITUTION) IV Year B. Tech. II Semester | | | | | | | | | | | | | |
| | IV Year B. Tech. II Semester | | | | | | | | | | | | |
| Course Code: | Course Name: | eek | | | | | | | | | | | |
| 5G679 | DISASTER MANAGEMENT | | | | | | | | | | | | |
| | (OPEN ELECTIVE) | Ρ | С | | | | | | | | | | |
| | | 3 | 1 | 0 | 3 | | | | | | | | |
| Course Prerequisites | | | | | | | | | | | | | |
| | Students are able to: | | | | | | | | | | | | |
| Course Objectives | To make the students convergent with various disasters and its impacts, risk reduction methods. | | | | | | | | | | | | |
| | After completion of the course, student will | l be a | ble to | 0: | | | | | | | | | |
| Expected Outcomes | The students will learn basic concepts of various disasters. The students must learn various classification of disasters hazard and vulnerability profile of India. The students will learn impacts, global and national disaster trends. | | | | | | | | | | | | |
| | The students will learn disaster management cycle and its phases and DRR programmes in India and activities of national disaster management academy. The students should be able to analyze factors affecting vulnerability of developmental projects and environmental modifications for systemeticable development. | | | | | | | | | | | | |
| | UNIT 1 | | | 14 | 4 Hours | | | | | | | | |
| INTRODUCTION - C | Concepts and definitions: disaster, hazard, vultigation). | nerab | ility, | risk, o | capacity, | | | | | | | | |
| ,,,,,,, | LINIT 2 | | | 1 | 3 Hours | | | | | | | | |
| | stans classifications noticeal dispotence (floo | | duarra | 1.4 o | | | | | | | | | |
| volcanoes, earthquakes manmade disasters (ind chemical spills etc); he ecological fragility. | sters classification; natural disasters (noo , tsunami, landslides, coastal erosion, soil er dustrial pollution, artificial flooding in urban azard and vulnerability profile of India, mou | osior areas ntain | n, for , nuc and | est fir lear ra coast | es etc.); adiation, al areas, | | | | | | | | |
| | UNIT 3 | | | 1 | 2 Hours | | | | | | | | |
| DISASTER IMPACT economical, political, o special needs); hazard l disasters. | \mathbf{S} - Disaster impacts (environmental, physetc.); health, psycho-social issues; demograph ocations; global and national disaster trends; c | ical, ic as limat | socia pects e-cha | al, ec (geno nge an | ological, ler, age, nd urban | | | | | | | | |
| | UNIT 4 | | | 13 | Hours | | | | | | | | |
| DISASTER RISK R prevention, mitigation measures; risk analysis disaster environmental control); Roles and res other stakeholders: Pol- | EDUCTION (DRR) - Disaster manageme , preparedness, relief and recovery; struct , vulnerability and capacity assessment; early response (water, sanitation, food safety, was ponsibilities of government, community, local icies and legislation for disaster risk reduction | nt cy ural warr ste m l inst | ycle and ning s anage itution | – its non-s systen ement ns, No | phases; tructural ns, Post- , disease GOs and in India | | | | | | | | |

| and the activities of | National Disaster Management Authority. | | | | | | | | | |
|---|---|--|--|--|--|--|--|--|--|--|
| | UNIT 5 | 14 Hours | | | | | | | | |
| DISASTERS, ENVIRONMENT AND DEVELOPMENT - Factors affecting vulnerability such as impact of developmental projects and environmental modifications (including of dams, land-use changes, urbanization etc.), sustainable and environmental-friendly recovery; reconstruction and development methods. | | | | | | | | | | |
| Text Books | Pradeep Sahni, 2004, Disaster Risk Reduction in Prentice Hall. Singh B.K., 2008, Handbook of Disaster M techniques & Guidelines, Rajat Publication. Ghosh G.K., 2006, Disaster Management, APH Corporation. | South Asia, Ianagement: Publishing | | | | | | | | |
| Reference Books | http://ndma.gov.in/ (Home page of National Disaster M Authority). http://www.ndmindia.nic.in/ (National Disaster manageme Ministry of Home Affairs). | Management nt in India, | | | | | | | | |
| Evaluation | Continuous Assessment (20%) and Assignments (10%) Semester End Examination (70%) | | | | | | | | | |
| | Somester Line Like mathemation (7070) | | | | | | | | | |

| Course Outcomes | PO ₁ | PO ₂ | PO ₃ | PO ₄ | PO ₅ | PO ₆ | PO ₇ | PO ₈ | PO ₉ | PO ₁₀ | PO ₁₁ | PO12 | PSO ₁ | PSO ₂ |
|--------------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|------------------|------------------|------|------------------|------------------|
| CO1 | | | | | 2 | 1 | | 2 | 2 | 2 | | | | |
| CO2 | 1 | | | | | | | 2 | 3 | 3 | | 2 | | |
| CO3 | 1 | | | | | 3 | | 3 | 2 | 2 | | | | |
| CO4 | | | | | | | | 3 | 3 | 3 | | 2 | | |
| CO5 | 1 | | | | | | 2 | 3 | | | | 3 | | |

| ANNAMACHARYA | A INSTITUTE OF TECHNOLOGY & SCIE | ENCI | ES::R | AJAI | МРЕТ | | | | | | | |
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| (AN AUTONOMOUS INSTITUTION) | | | | | | | | | | | | |
| IV Year B. Tech. II Semester | | | | | | | | | | | | |
| Course Code: | Course Name: | Но | urs/W | 'eek | | | | | | | | |
| 5G27C | SYSTEM MODELLING AND SIMULATION | Р | с | | | | | | | | | |
| | (OPEN ELECTIVE) | 3 | 1 | 0 | 3 | | | | | | | |
| Course Prerequisites | | | | | | | | | | | | |
| | Students are able: | | | | | | | | | | | |
| Course Objectives | To understand the basic system concepts and definitions of system. Techniques to model and to simulate various systems. To analyze a system and to make use of the information to improve the performance. | | | | | | | | | | | |
| After completion of the course, student will be able to: | | | | | | | | | | | | |
| Expected Outcomes | Define basic concepts in Modeling and Simulation. Understand the fundamental logic, structure, components and management of simulation modeling& demonstrate knowledge of how to use arena. Classify various simulation models and give practical | | | | | | | | | | | |
| | Generate and test random number var develop simulation models. Analyze output data produced by a m the model. | riates odel | and and | apply est va | them to llidity of | | | | | | | |
| | Perform statistical analysis of ou simulation. | itput | fron | n ter | minating | | | | | | | |
| | UNIT 1 | | | 14 | 4 Hours | | | | | | | |
| Basic Simulation Mod Simulation of Single S approach to Modeling a | leling, Systems, Models and Simulation, Dis Server Queuing System, Simulation of Invent and Simulation. | crete ory S | Evei Systei | nt Sin n, Alt | nulation, ternative | | | | | | | |
| | UNIT 2 | | | 1 | 3 Hours | | | | | | | |
| SIMULATION SOFTWARE: Comparison of Simulation Packages with Programming Languages, Classification of Software, Desirable Software Features, General Purpose Simulation Packages – Arena, Extend and Others, Object Oriented Simulation, Examples of Application Oriented Simulation Packages. | | | | | | | | | | | | |
| | UNIT 3 | | | 1 | 2 Hours | | | | | | | |
| BUILDING SIMULA Techniques for Increasi MODELING TIME | TION MODELS: Guidelines for Determining ing Model Validity and Credibility DRIVEN SYSTEMS: Modeling Input St | Lev | els of s, De | Mode | el Detail, System | | | | | | | |
| Integration, Linear Systems, Motion Control Models, Numerical Experimentation. | | | | | | | | | | | | |
| | UNIT 4 | | | 13 | Hours | | | | | | | |
| EXOGENOUS SIGNA | ALS AND EVENTS: Disturbance Signals, St | ate N | Iachi | nes, P | etri Nets | | | | | | | |

& Analysis, System Encapsulation,

MARKOV PROCESS: Probabilistic Systems, Discrete Time Markov Processes, Random Walks, Poisson Processes, the Exponential Distribution, Simulating a Poison Process, Continuous-Time Markov Processes.

UNIT 5

14 Hours

EVENT DRIVEN MODELS AND SYSTEM OPTIMIZATION: Simulation Diagrams, Queuing Theory, Simulating Queuing Systems, Types of Queues, Multiple Servers, System Identification, Searches, Alpha/Beta Trackers, Multidimensional Optimization, Modeling and Simulation Mythology.

| Text Books | System Modeling & Simulation, an Introduction – Frank L. Severance, John Wiley & Sons, 2001. Simulation Modeling and Analysis – Averill M. Law, W. David Kelton, TMH, 3rdEdition, 2003. |
|-----------------|---|
| Reference Books | 1. Systems Simulation – Geoffrey Gordon, PHI, 1978. |
| Evaluation | Continuous Assessment (20%) and Assignments (10%) Semester End Examination (70%) |

| Course Outcomes | PO ₁ | PO ₂ | PO ₃ | PO ₄ | PO ₅ | PO ₆ | PO ₇ | PO ₈ | PO ₉ | PO ₁₀ | PO ₁₁ | PO12 | PSO ₁ | PSO ₂ |
|--------------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|------------------|------------------|------|------------------|------------------|
| CO1 | 3 | - | 3 | - | - | - | - | - | - | - | - | - | | |
| CO2 | 3 | - | 3 | 2 | 2 | - | - | - | - | - | - | - | | |
| CO3 | 3 | 2 | 2 | - | 2 | - | - | - | - | 2 | - | - | | |
| CO4 | | | | | | | | | | | | | | |
| CO5 | | | | | | | | | | | | | | |

| ANNAMACHARYA INSTITUTE OF TECHNOLOGY & SCIENCES::RAJAMPET (AN AUTONOMOUS INSTITUTION) | | | | | | | | | | | | | |
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| (AN AUTONOMOUS INSTITUTION) IV Year B. Tech. II Semester | | | | | | | | | | | | | |
| | TV Tear D. Tech. II Semester | | | | | | | | | | | | |
| Course Code: | Course Name: | eek | | | | | | | | | | | |
| 5G57D | TOTAL QUALITY MANAGEMENT | | | | | | | | | | | | |
| | (OPEN ELECTIVE) | L | Т | Ρ | С | | | | | | | | |
| | | 3 | 1 | 0 | 3 | | | | | | | | |
| Course Prerequisites | | | | | | | | | | | | | |
| | Students are able: | | | | | | | | | | | | |
| | • To demonstrate knowledge of quality | man | agem | ent pr | rinciples, | | | | | | | | |
| | To apply statistical process control te | chnia | mes f | o imn | rove the | | | | | | | | |
| Course Objectives | quality. | | 1 | r | | | | | | | | | |
| | • To demonstrate knowledge of TQM tools for industries. | | | | | | | | | | | | |
| | To apply appropriate techniques for reliability assessment. To demonstrate knowledge of advanced techniques for | | | | | | | | | | | | |
| reliability engineering. | | | | | | | | | | | | | |
| | After completion of the course, student wil | l be a | able t | 0: | | | | | | | | | |
| | • Understand the concept of quality techniques and philosophies. | mana | agem | ent pi | rinciples, | | | | | | | | |
| Expected Outcomes | • Understand how to apply statistical pr | oces | s cont | rol te | chniques | | | | | | | | |
| • | to improve the quality. | ne c | f TO | M t | ools for | | | | | | | | |
| | industries. | ge c | / 1 | 2111 0 | 0013 101 | | | | | | | | |
| | Able to apply appropriate tech assessment. | nniqu | es f | or r | eliability | | | | | | | | |
| | • Understand the concept of advanced engineering. | techn | iques | for r | eliability | | | | | | | | |
| | UNIT 1 | | | 12 | 2 Hours | | | | | | | | |
| INTRODUCTION: D – Concepts, Role of Philosophy, Continuous | efinition of Quality, Historical Review, Princip Senior Management, Quality Council, Stra s Process Improvement – Juran Trilogy, PDSA | oles c tegic Cycl | of TQ Plan le, 5S | M, Le ning, , Kaiz | adership Deming en. | | | | | | | | |
| | UNIT 2 | | | 1 | 4 Hours | | | | | | | | |
| STATISTICAL PRO Fundamentals, Populat attributes, Process capa | CESS CONTROL (SPC): The seven tool tion and Sample, Normal Curve, Control C bility, Concept of six sigma, New seven Mana | ls of Charts geme | qual for nt too | ity, S varial ols. | tatistical bles and | | | | | | | | |
| | UNIT 3 | | | 1 | 3 Hours | | | | | | | | |
| TQM TOOLS AND (of Quality, QFD Pro Maintenance (TPM) – Systems, ISO 9000:20 Quality Auditing. | QUALITY SYSTEMS: Quality Function Dep ocess, Benefits, Taguchi Quality Loss Fun Concept, Improvement Needs, Need for ISO 00 Quality System – Elements, Implementa | loym ction 9000 tion | ent (, Tot) and of Q | QFD) al Pr Other ality | – House oductive Quality System, | | | | | | | | |
| | UNIT 4 | | | 14 | Hours | | | | | | | | |
| INTRODUCTION T | O RELIABILITY: Importance of reliability | , pei | form | ance | cost and | | | | | | | | |

reliability, quality and safety, system configuration with examples, stochastic processes, bathtub concept, MTBF, MTTR, hazard rate, failure rate, probability and sampling, cumulative probability distribution function, data and distributions.

| | UNIT 5 | 13 Hours | | | | | | | | |
|--|--|------------------------|--|--|--|--|--|--|--|--|
| RELIABILITY IN DESIGN AND LIFE CYCLE COSTING: Survival rate, bath-tub curve analysis of characteristics of failure regimes, design synthesis, reliability effort function, safety margin, allocation of reliabilities by AGREE, ARINC, proportional distribution of unreliability, heuristic method, mean and median methods. | | | | | | | | | | |
| Text Books | Joel E. Rose, <i>Total Quality Management</i>, 3rd Edition, Kogar Page Ltd., USA 1999. | | | | | | | | | |
| | 2. Srinath, L. S., <i>Reliability Engineering</i> , Affiliated East West Press, New Delhi 2005. | | | | | | | | | |
| Reference Books | James R.Evans& William M.Lidsay, "The Manag Control of Quality", (5th Edition), South-Western Learning), 2002 (ISBN 0-324-06680-5). | gement and (Thomson | | | | | | | | |
| | 2. Feigenbaum.A.V. "Total Quality Management", Me 1991. | cGraw Hill, | | | | | | | | |
| | 3. Zeiri. "Total Quality Management for Engineers", " Publishers, 1991. | Wood Head | | | | | | | | |
| | 4. E. E. Lewis, "Introduction to Reliability Enginee Wiley and Sons. | ring", John | | | | | | | | |
| Evaluation | Continuous Assessment (20%) and Assignments (10%) | | | | | | | | | |
| | Semester End Examination (70%) | | | | | | | | | |

| Course Outcomes | PO ₁ | PO ₂ | PO ₃ | PO ₄ | PO ₅ | PO ₆ | PO ₇ | PO ₈ | PO ₉ | PO ₁₀ | PO ₁₁ | PO12 | PSO ₁ | PSO ₂ |
|--------------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|------------------|------------------|------|------------------|------------------|
| CO1 | 3 | | | | | | | 3 | | | 3 | 3 | | |
| CO2 | 3 | 3 | | | | | | 3 | | | 3 | 3 | | |
| CO3 | 3 | 3 | | | | | | 3 | | | 3 | 3 | | |
| CO4 | 3 | 3 | | | | | | 3 | | | 3 | 3 | | |
| CO5 | 3 | | | | | | | 3 | | | 3 | 3 | | |

| ANNAMACHARYA INSTITUTE OF TECHNOLOGY & SCIENCES::RAJAMPET | | | | | | | | | | | | |
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| | (AN AUTONOMOUS INSTITUTION) | | | | | | | | | | | |
| | IV Year B. Tech. II Semester | | | | | | | | | | | |
| Course Code: | Course Name: | Но | urs/W | /eek | | | | | | | | |
| 5G57E | INTEGRATED PRODUCT DEVELOPMENT | Т | Р | с | | | | | | | | |
| | (OPEN ELECTIVE) | 3 | 1 | 0 | 3 | | | | | | | |
| Course Prerequisites | | | | | | | | | | | | |
| | Students are able: | | | | | | | | | | | |
| Course Objectives | To know the concepts of tools and tec Product Development area of the industry. To relate the engineering topics into applications. | hniqu En real | ies in ginee worl | the In ring ld eng | tegrated Services ineering | | | | | | | |
| | After completion of the course, student will | l be a | able t | 0: | | | | | | | | |
| Expected Outcomes | • Students able to summarize the various trends affecting product decision. | | | | | | | | | | | |
| | • Students able to identify the requirements to create new product | | | | | | | | | | | |
| | Students able to compare different techniques involved in | | | | | | | | | | | |
| | design creation and design testing. | e of | mode | 1 araa | tion and | | | | | | | |
| | • Students able to replicase the method integration between software and hard | ware | nioue | i ciea | | | | | | | | |
| | • Students able to illustrate the need of e | end o | f life | and pa | atenting. | | | | | | | |
| | UNIT 1 | | | 13 | 3 Hours | | | | | | | |
| FUNDAMENTALS O Product decision: Typ Technical Trends- Eco PESTLE Analysis. Intr Overview of Products Development methodo Management. | F PRODUCT DEVELOPMENT Global To bes of various trends affecting product deconomical Trends- Environmental Trends- P roduction to Product Development Methodol and Services- Types of Product Development logies - Product Life Cycle - Product Development | rends cision olitic ogies t- O relopn | s A a - S al/ P and vervionment | nalys ocial olicy Mana ew of Plann | is and Trends- Trends- gement: Product ing and | | | | | | | |
| | UNIT 2 | | | 1: | 1 Hours | | | | | | | |
| REQUIREMENTS AND SYSTEM DESIGN Requirement Engineering: Types of Requirements - Requirement Engineering- Analysis - Traceability Matrix and Analysis- Requirement Management. System Design & Modeling: Introduction to System Modeling- introduction to System Optimization- System Specification-Sub-System Design- Interface Design. | | | | | | | | | | | | |
| | UNIT 3 | | | 12 | 2 Hours | | | | | | | |
| DEIGN AND TESTI Introduction to Concep Design- S/W Archite Component Design and - S/W Testing-Hardwar | NG Conceptualization - Industrial Design and t Generation Techniques - Concept Screening cture- Hardware Schematics and Simulatic Verification - High Level Design/Low Level I re Schematic- Component design - Layout and | l Use & Ev on - Desig Hard | er Inte valuat Det gn of s ware | erface ion - ailed S/W P Testir | Design- Concept Design: rograms ag. | | | | | | | |

Department of Information Technology

| | UNIT 4 | 12 Hours | | | | | | |
|---|--|------------------------------|--|--|--|--|--|--|
| IMPLEMENTATION & INTEGRATION Prototyping: Types of Prototypes - Introduction to Rapid Prototyping and Rapid Manufacturing. System Integration – Testing - Certification and Documentation: Introduction to Manufacturing /Purchase and Assembly of Systems- Integration of Mechanical, Embedded and S/W systems - Introduction to Product verification and validation processes - Product Testing standards, Certification and Documentation. | | | | | | | | |
| | UNIT 5 | 13 Hours | | | | | | |
| SUSTENANCE ENGINEERING AND BUSINESS DYNAMICS Sustenance - Maintenance and Repair - Enhancements Product End of Life (EoL): Obsolescence Management - Configuration Management - EoL Disposal. | | | | | | | | |
| The Industry - Engineering Services Industry overview - Product development in Industry versus Academia The IPD Essentials - Introduction to vertical specific product development processes - Product Development Trade-offs - Intellectual Property Rights and Confidentiality - Security and configuration management. | | | | | | | | |
| Text Books | NASSCOM student Handbook "Foundation Skills in Integrated Product Development". Anita Goyal, Karl T Ulrich, Steven D Eppinger, "Product Design and Development", 4th Edition, 2009, Tata McGraw-Hill Education ISBN 10-007-14670-0 | | | | | | | |
| | George E.Dieter, Linda C.Schmidt, "Engineerir McGraw-Hill International Edition, 4th Edition, 2009 007-127189-9 | ng Design'', 9, ISBN 978- | | | | | | |
| | Kevin Otto, Kristin Wood, "Product Design", Inc 2004, Pearson Education, ISBN. 9788177588217 | lian Reprint | | | | | | |
| | Yousef Haik, T. M. M. Shahin, "Engineering Designation Content and Content an | gn Process", 0495668141 | | | | | | |
| Reference Books | Clive L.Dym, Patrick Little, "Engineering Design: based Introduction", 3rd Edition, John Wiley & ISBN 978-0-470-22596-7. | A Project- Sons, 2009, | | | | | | |
| Evaluation | Continuous Assessment (20 %) and Assignments (10%) Semester End Examination (70%) | | | | | | | |

| Course Outcomes | PO ₁ | PO ₂ | PO ₃ | PO ₄ | PO ₅ | PO ₆ | PO ₇ | PO ₈ | PO ₉ | PO ₁₀ | PO ₁₁ | PO12 | PSO ₁ | PSO ₂ |
|--------------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|------------------|------------------|------|------------------|------------------|
| CO1 | 1 | 1 | 1 | 2 | | 3 | | | 2 | | | | | |
| CO2 | 2 | 3 | 2 | 1 | | | | | | | | | | |
| CO3 | 1 | | 2 | 2 | 1 | | | | | | | | | |
| CO4 | 1 | | | | 2 | | | | | | | | | |
| CO5 | 1 | | | | | 1 | | | 1 | | 1 | | | |

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| (AN AUTONOMOUS INSTITUTION) | | | | | | | | | | |
| IV Year B. Tech. II Semester | | | | | | | | | | |
| Course Code: | Course Name: | Но | | | | | | | | |
| 5G377 | NANO TECHNOLOGY AND APPLICATIONS | L | Т | Р | с | | | | | |
| | (OPEN ELECTIVE) | 3 | 1 | 0 | 3 | | | | | |
| Course Prerequisites | | 1 | | | I | | | | | |
| | Students are able: | | | | | | | | | |
| Course Objectives | To learn the fundamentals of Nano ma To understand the applications an Technology. | ateria nd li | ls anc mitat | l techn ion c | nology. of Nano | | | | | |
| | After completion of the course, student wil | l be a | ble t | 0: | | | | | | |
| | Learn the basics of Nano Materials an Knows the fundamentals of Quantum | d Na Mec | no Sc hanic | ale s. | | | | | | |
| Expected Outcomes | • Understands the basics of different N | ano N | Aater | ials. | | | | | | |
| | UNIT 1 | | | 14 | 4 Hours | | | | | |
| INTRODUCTION: Introduction to nanotechnology and materials, Nano materials, Introduction to nano-sizes and properties comparison with the bulk materials, Different shapes and sizes and morphology. FABRICATION OF NANO MATERIALS: Top Down Approach Grinding, Planetory milling and Comparison of particles, Bottom Up Approach, Wet Chemical Synthesis Methods, Micro emulsion Approach, Colloidal Nano particles Production, Sol Gel Methods, Sono chemical Approach, Microwave and Atomization, Gas phase Production Methods : | | | | | | | | | | |
| | UNIT 2 | | | 1 | 3 Hours | | | | | |
| KINETICS AT NANOSCALE: Nucleation and growth of particles, Issues of Aggregation of Particles, Oswald Ripening, Stearic hindrance, Layers of surface charges, Zeta Potential and pH. CARBON NANO MATERIALS: Synthesis of carbon bucky-balls, List of stable carbon allotropes extended, fullerenes, metallo fullerenes, solid C60, bucky onions, nano tubes, nano cones | | | | | | | | | | |
| | UNIT 3 | | | 1 | 2 Hours | | | | | |
| QUANTUM MECHA Schrödinger's equation, of quantum dots, Synth | NICS : Quantum dots and its Importance, P Application of quantum Dots: quantum well, esis of quantum dots Semi-conductor quantum | auli (wire, dots | exclus dot, | sion p charao | principle, cteristics | | | | | |
| | UNIT 4 | | | 13 | Hours | | | | | |
| NANOMATERIALS CHARACTERIZATION : Fractionation principles of Particle size measurements, Particle size and its distribution, XRD, Zeta potential, Electronic band structure Electron statistics Application. | | | | | | | | | | |
| UNIT 5 14 Hours | | | | | | | | | | |

NANOBIOLOGY: Biological synthesis of nano particles and applications in drug delivery, Nano containers and Responsive Release of active agents, Layer by Layer assembly for nano spheres, Safety and health Issues of nano materials, Environmental Impacts, Case Study for Environmental and Societal Impacts.

| | 1. Kulkarni Sulabha K, Nanotechnology: Principles and Practices, | | | | | | | | | |
|------------------|--|--|--|--|--|--|--|--|--|--|
| Text Books | Capital Publishing Company, 2007 | | | | | | | | | |
| I CAL DOORS | 2. Stuart M. Lindsay, Introduction to Nanoscience, Oxford | | | | | | | | | |
| | University Press, 2009. | | | | | | | | | |
| | 3. Robert Kelsall, Ian Hamley, Mark Geoghegan, Nanoscale | | | | | | | | | |
| | Science and Technology, John Wiley & Sons, 2005. | | | | | | | | | |
| | 1. Gabor L. Hornyak, H.F. Tibbals, Joydeep Dutta, John J. Moore | | | | | | | | | |
| Reference Books | Introduction to Nanoscience and Nanotechnology CRC Press | | | | | | | | | |
| Reference Doords | 2. Davies, J.H. 'The Physics of Low Dimensional Semiconductors: | | | | | | | | | |
| | An Introduction', Cambridge University Press, 1998. | | | | | | | | | |
| Evaluation | Continuous Assessment (20%) and Assignments (10%) | | | | | | | | | |
| L'uluution | | | | | | | | | | |
| | Semester End Examination (70%) | | | | | | | | | |

| Course Outcomes | PO ₁ | PO ₂ | PO ₃ | PO ₄ | PO ₅ | PO ₆ | PO ₇ | PO ₈ | PO ₉ | PO ₁₀ | PO ₁₁ | PO12 | PSO ₁ | PSO ₂ |
|--------------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|------------------|------------------|------|------------------|------------------|
| CO1 | 1 | 1 | 2 | 2 | 3 | 2 | 2 | 2 | 2 | 3 | 3 | 2 | | |
| CO2 | 2 | 2 | 3 | 2 | 3 | 2 | 2 | 2 | 2 | 3 | 2 | 2 | | |
| CO3 | 1 | 2 | 3 | 3 | 3 | 2 | 2 | 2 | 2 | 1 | 3 | 2 | | |
| CO4 | | | | | | | | | | | | | | |
| CO5 | | | | | | | | | | | | | | |

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| (AN AUTONOMOUS INSTITUTION) | | | | | | | | | | |
| IV Year B. Tech. II Semester | | | | | | | | | | |
| | | | | | | | | | | |
| Course Code: | Course Name: | Ho | urs/ V | /eek | | | | | | |
| 5G378 | MEDICAL INSTRUMENTATION | | T | _ | 6 | | | | | |
| | (OPEN ELECTIVE) | L | 1 | Р | Ľ | | | | | |
| | | 3 | 1 | 0 | 3 | | | | | |
| Course Prerequisites | | | | | | | | | | |
| | Students are able: | | | | | | | | | |
| | • To learn the fundamentals of Electr Pressure. | o neu | ırogra | am an | d Blood | | | | | |
| Course Objectives | • To understand the applications of B and Pulse Oximeter. | lood | flow | meas | surement | | | | | |
| | After completion of the course, student wil | l be a | able t | 0: | | | | | | |
| | • Learn the basics of Human Being Bio potentials. | | | | | | | | | |
| | • Know the fundamentals of Blood flow and volume | | | | | | | | | |
| Expected Outcomes | Expected Outcomes measurement. | | | | | | | | | |
| UNIT 1 | | | | | | | | | | |
| GENERAL INTRODUCTION : The cell, body fluids, Musculoskeletal system, respiratory system, gastrointestinal system, Nervous system, endocrine system and circulatory system. Origin of Bio potentials: electrical activity of Excitable cells: the resting state, the active state, Volume conductor fields, Functional organization of the peripheral nervous system: Paflar are & Europianal transmission | | | | | | | | | | |
| | UNIT 2 | | | 1 | 3 Hours | | | | | |
| THE ELECTRONEUROGRAM (ENG) : The H-Reflex, The Electromyogram (EMG), The Electrocardiogram (ECG), heart and the circulatory system, Electro conduction system of the heart and heart problems, ECG waveform and Physical significance of its wave features, Electrical behavior of cardiac cells, The standard lead system, The ECG preamplifier, DC ECG Amplier, Defibrillator protection circuit, Electro surgery Unit filtering, Functional blocks of ECG system, Multichannel physiological monitoring system, Common problems | | | | | | | | | | |
| | UNIT 3 | | | 1 | 2 Hours | | | | | |
| BLOOD PRESSURE : indirect measurement of blood pressure, korotkoff sounds, auscultatory method using sphygmo manometer, Oscillometric and ultrasonic noninvasive pressure measurement, Direct measurement of blood pressure H2O manometers, electronic manometry, Pressure transducers,. Pressure amplifier designs, Systolic, diastolic mean detector circuits. | | | | | | | | | | |
| | UNIT 4 | | | 13 | Hours | | | | | |
| BLOOD FLOW ANI time flow meter, DC fl Quadrature suppression meter, Electric im | UNIT 413 HoursBLOOD FLOW AND VOLUME MEASUREMENT: indicator dilution methods, Transit time flow meter, DC flow meter, Electromagnetic flow meter AC electromagnetic flow meter, Quadrature suppression flow meter, Ultrasonic flow meter, Continuous-wave Doppler flow meter Electric impedance plethysmography chamber plethysmography Photo | | | | | | | | | |

| plethysmography. | | | | | | | | |
|---|--|---------------------|--|--|--|--|--|--|
| | UNIT 5 14 Hours | | | | | | | |
| PULSE OXIMETR : Principles of Operation, Absorption Spectrum, Sensor design, Pulse oximeter, Therapeutic and Prosthetic Devices. Cardiac Pacemakers: Lead wires and electrodes, Synchronous Pacemakers, rate responsive pacemaking, Defibrillators, cardioverters, Electrosurgical-unit, Therapeutic applications of laser, Lithotripsy Haemodialysis. | | | | | | | | |
| Text Books | 1. John G Webster, Medical Instrumentation: Appl Design, John Wiley,3rd Ed. 2012. | ication and | | | | | | |
| Reference Books | 1. Joseph J. Carr & John M. Brown, Introduction to Equipment Technology, 4 th Ed., Prentice Hall India, 2 | biomedical 2001. | | | | | | |
| Evaluation | Continuous Assessment (20 %) and Assignments (10%) Semester End Examination (70%) | | | | | | | |

| Course Outcomes | PO ₁ | PO ₂ | PO ₃ | PO ₄ | PO ₅ | PO ₆ | PO ₇ | PO ₈ | PO ₉ | PO ₁₀ | PO ₁₁ | PO12 | PSO ₁ | PSO ₂ |
|--------------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|------------------|------------------|------|------------------|------------------|
| CO1 | 2 | 2 | 2 | 2 | 3 | 2 | | | | | | 2 | | |
| CO2 | 2 | 2 | 2 | 2 | 3 | 2 | | | | | | 2 | | |
| CO3 | | | | | | | | | | | | | | |
| CO4 | | | | | | | | | | | | | | |
| CO5 | | | | | | | | | | | | | | |

| ANNAMACHARYA INSTITUTE OF TECHNOLOGY & SCIENCES::RAJAMPET | | | | | | | | | | | | |
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| IV Year B. Tech. II Semester | | | | | | | | | | | | |
| | | | (| | | | | | | | | |
| Course Code: | Course Name: | Но | urs/W | eek | | | | | | | | |
| 5G178 | .NET TECHNOLOGIES | Ŧ | т | _ | 6 | | | | | | | |
| | (OPEN ELECTIVE) | L | 1 | Р | L | | | | | | | |
| | | 0 | 3 | | | | | | | | | |
| Course Prerequisites | Basics of Computers Programming | | | | | | | | | | | |
| | Students are able to: | | | | | | | | | | | |
| Course Objectives | Develop programs using C# programming language and develop data driven applications using ADO.NET, data providers. Data base programming using SQL server 2005 programming. Learn ASP.NET fundamentals, state management, master pages, web parts, security, Web Services. Develop Windows Applications using Windows Forms, Control Library, Advanced UI Programming, Data Binding concepts. | | | | | | | | | | | |
| | Learn Smart Clients, Click Once technology, Enterprise Services, Remoting. | | | | | | | | | | | |
| After completion of the course. student will be able to: | | | | | | | | | | | | |
| Expected Outcomes | Develop programs using C# programming language and create fully functional data driven applications using ADO.Net Build secure web applications using ASP.Net. Create dynamic Web applications that interact with a database prime result. | | | | | | | | | | | |
| | Develop Windows Forms Applications using various controls. | tions | and | data | driven | | | | | | | |
| | • Develop Enterprise Services and Remo | ote A | pplic | ations | | | | | | | | |
| | UNIT 1 | | | 14 | Hours | | | | | | | |
| INRODUCTION TO .NET FRAMEWORK: .NET Overview- Behind Microsoft .NET- The .NET PlatformNET Framework Design GoalsNET Framework- Common Language Runtime –CLR Environments and Executables-Metadata-JIT Compilation-Automatic Memory Management-Assemblies and Manifests-Intermediate Language(IL)- CTS and CLS- CLR Execution. | | | | | | | | | | | | |
| | UNIT 2 | | | 13 | 3 Hours | | | | | | | |
| INTRODUCTION TO C# .NET PROGRAMMING: A Demonstration of Visual C#- Common Elements in Visual C- C# Core Language Features- Types- Classes- Structures- Enumeration- Inheritance- Interfaces- Polymorphism- Arrays and Collections- Generics- Operator Overloading- Delegates and Events- Introduction to LINQ Programming- Exception Handling- MSIL Programming. | | | | | | | | | | | | |
| | UNIT 3 | | | 12 | 2 Hours | | | | | | | |

| APPLICATION | DEVELOF | PMENT | USING | ADO | .NET: | Features | of ADO | .NET- |
|-------------------|--------------|----------|----------|-----------|-----------|------------|------------|---------|
| Architecture of A | DO .NET- A | ADO .NI | ET Provi | ders- Ac | cessing I | Database u | using ADO | .NET- |
| Connection Openi | ing and Clos | sing- Co | mmand | Object-] | Data Ada | pter- Data | aset- Data | Tables- |
| Controlling table | views with | Data ' | Views a | nd Data | Relation | Objects- | Data-bine | ding in |
| Windows Forms a | nd Web Forr | ns. | | | | | | |

| UNIT 4 | 13 Hours |
|--|---------------|
| INTRODUCTION TO ASP.NET: Introduction- Working in ASP.NET Control | rols- Session |
| and Cookies- Caching- Authentication and Authorization-Web User Controls- W | Vorking with |
| Web Config file- Implementing Security- Crystal Reports-Creating Setup and Dep | oloyment. |
| | |

| | UNIT 5 | 14 Hours | | | | | | |
|---|--|--------------------------|--|--|--|--|--|--|
| WEB SERVICES: Introduction to Web Services- Web Services Protocol and Standards-WSDL-Overview of UDDI- Calling a Web Service from a Browser- Calling a Web Service by using a proxy- Creating a Simple Web Service-AJAX. | | | | | | | | |
| | 1. Thuan L. Thai, .NET Framework Essentials, O'Reill Ed. | y, 2003, 3 rd | | | | | | |
| | 2. Donis Marshall, Programming Microsoft Visual Microsoft Press 2008. | C# 2008, | | | | | | |

| Fext Books | Francesco Balena, Programming Microsoft Visual Basic .NET, Microsoft Press 2006. |
|-------------------|--|
| | 1. Rebecca M. Riordan, Microsoft ADO.NET Step by Step, Microsoft Press 2002. |
| | 2. Kogent, ASP.NET 3.5 Black Book, Dream Tech Publications, 2010. |

| Reference Books | Andy Wigley, Peter Roxburgh. Building Microsoft ASP.NET Applications for Mobile Devices. Microsoft Press 2003, 2nd Ed. |
|------------------------|---|
| Evaluation | Continuous Assessment (20%) and Assignments (10%) |
| | Semester End Examination (70%) |

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| Course Outcomes | PO ₁ | PO ₂ | PO ₃ | PO ₄ | PO ₅ | PO ₆ | PO ₇ | PO ₈ | PO ₉ | PO ₁₀ | PO ₁₁ | PO12 | PSO ₁ | PSO ₂ |
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| CO1 | 3 | - | - | - | 3 | 1 | - | - | 3 | - | 3 | 3 | | |
| CO2 | 3 | 3 | 3 | 1 | 3 | - | - | - | 3 | 3 | 3 | 3 | | |
| CO3 | 3 | - | 3 | - | 3 | 1 | - | - | 3 | 3 | - | 3 | | |
| CO4 | 3 | - | 3 | - | 3 | - | - | - | - | 3 | 3 | 3 | | |
| CO5 | 3 | - | - | - | 3 | 1 | - | - | 3 | - | 3 | 3 | | |

| ANNAMACHARY | A INSTITUTE OF TECHNOLOGY & SCIE | NCE | S::R | AJAN | IPET | | | | | | | |
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| | (AN AUTONOMOUS INSTITUTION) IV Year B. Tech. II Semester | | | | | | | | | | | |
| Course Code: 5G473 | Course Name: CYBER LAWS (OPEN ELECTIVE) | Ho L | urs/W T | /eek P | с | | | | | | | |
| | | 3 | 1 | 0 | 3 | | | | | | | |
| Course Prerequisites | Object Oriented Programming Concepts, Java, | Scrip | ting La | anguag | ges | | | | | | | |
| Course Objectives | Students are able to: To explain the basic information on cyber security. To understand the issues those are specific to amendment rights. To have knowledge on copy right issues of software's. To understand procedural issues of electronic contracts and digital signatures. To understand ethical laws of computer for different countries. | | | | | | | | | | | |
| Expected Outcomes | After completion of the course, student will be able to: • Critically evaluate ongoing developments in law relating to information technologies • Display an understanding of how these developments relate to one another. • Examine areas of doctrinal and political debate surrounding rules and theories; • Evaluate those rules and theories in terms of internal coherence and practical outcomes; • Draw on the analysis and evaluation contained in primary and secondary sources. UNIT 1 | | | | | | | | | | | |
| FUNDAMENTALS O Intervention Strategies: | FCYBER SECURITY: Introduction - Cyber S Redundancy, Diversity and Autarchy. | Secur | ity an | d its P | roblem - | | | | | | | |
| | UNIT 2 | | | 1 | 3 Hours | | | | | | | |
| ISSUES IN CYBER S global Cyber security, postings, criminal liabil | SECURITY: Private ordering solutions, Regula Copy Right - source of risks, Pirates, Internet ity, First Amendments, Data Loss. | ation Infr | and J ingen | urisdi nent, H | ction for Fair Use, | | | | | | | |
| | UNIT 3 | | | 1 | 2 Hours | | | | | | | |
| INTELLECTUAL PH Infringement, Fair Us Trademarks, Defamation Anonymity, Technology | ROPERTY RIGHTS: Copy Right-Source of se, postings, Criminal Liability, First Ame on, Privacy-Common Law Privacy, Constitution y expanding privacy rights. | f risk endme nal la | cs, Pi ents, w, Fe | rates, Losin deral | Internet g Data, Statutes, | | | | | | | |
| | UNIT 4 | | | 13 | Hours | | | | | | | |
| PROCEDURAL ISSU Contracts & Digital Sig | JES: Duty of Care, Criminal Liability, Proc natures, Misappropriation of information, Civil | edura Right | l issu s, Ta | ies, E x, Evic | lectronic lence. | | | | | | | |
| | UNIT 5 | | | 1 | 4 Hours | | | | | | | |

LEGAL ASPECTS OF CYBER SECURITY: Ethics, Legal Developments, Late 1990 to 2000, Cyber security in Society, Security in cyber laws case. studies, General law and Cyber Law-a Swift Analysis.

| Text Books | 7. Jonathan Rosenoer, "Cyber Law: The law of the Internet", Springer-Verlag, 1997. |
|------------------------|--|
| Reference Books | Mark F Grady, Fransesco Parisi, "The Law and Economics of Cyber Security", Cambridge University Press, 2006. |
| Evaluation | Continuous Assessment (20 %) and Assignments (10%), Semester End Examination (70%) |

| Course Outcomes | PO ₁ | PO ₂ | PO ₃ | PO ₄ | PO ₅ | PO ₆ | PO ₇ | PO ₈ | PO ₉ | PO ₁₀ | PO ₁₁ | PO12 | PSO ₁ | PSO ₂ |
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| CO1 | 3 | 3 | | 3 | | 3 | | 3 | | | | 3 | 3 | |
| CO2 | 3 | | | | | 3 | | 3 | | | | 3 | 3 | |
| CO3 | 3 | 3 | | 3 | | 3 | 2 | 3 | | 2 | | 3 | 3 | |
| CO4 | 3 | 3 | | 3 | | 3 | 2 | 3 | | 2 | | 3 | 3 | |
| CO5 | 3 | 3 | | 3 | | 3 | | 3 | | | | 3 | 3 | |

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| | (AN AUTONOMOUS INSTITUTION) | | | | | | | | | | | | |
| | IV Year B. Tech. II Semester | | | | | | | | | | | | |
| Course Code: | Course Name: | Но | urs/W | /eek | | | | | | | | | |
| 5GA71 | INTELLECTUAL PROPERTY RIGHTS | | | | | | | | | | | | |
| | (OPEN ELECTIVE) | L | Т | Р | С | | | | | | | | |
| | | 3 | 1 | 0 | 3 | | | | | | | | |
| Course Prerequisites | | | | | | | | | | | | | |
| | Students are able to: | | | | | | | | | | | | |
| Course Objectives | This course is aimed at familiarizing students with the nuances of Intellectual Property Rights (IPR) so as to help them integrate the IPR process in their academic, research (project) activities and to facilitate the students to explore career options in IPR. To make the technological students familiar with basics of IPR and their implications in research, development and commercialization. | | | | | | | | | | | | |
| | After completion of the course, student will be able to: | | | | | | | | | | | | |
| Expected Outcomes | The students will able to understar intellectual properties. The knowledg on copyrights, trademarks, patents, useful to focus on new i commercialization. | nd th e gai desi nven | e issund ned b igns, tions | ues re y the etc. and | elated to students shall be l their | | | | | | | | |
| | UNIT 1 | | | 14 | 4 Hours | | | | | | | | |
| CONCEPT OF PRO Immovable property; ' Public property. Posses | DPERTY: Meaning of Property, Kinds of Tangible and Intangible property; Intellectuation sion and ownership. | prop al pro | erty: operty | Mova y; Priv | able and vate and | | | | | | | | |
| | UNIT 2 | | | 13 | 3 Hours | | | | | | | | |
| INTELLECTUAL P Property Rights (IPR) Property- Copyright, 7 Franchise and Forms of the protection of Intelle | ROPERTY RIGHTS: Introduction and th , IPR in India – Genesis and Developmen Frademarks, Patents, Designs, Geographical 1 of Unfair Competition. Competing rationales ctual Property. | e ne nt, Fo Indica of th | ed fo orms ators, e leg | or Int of Int Merc al reg | ellectual ellectual chandise, imes for | | | | | | | | |
| | UNIT 3 | | | 12 | 2 Hours | | | | | | | | |
| COPYRIGHTS & TRADEMARKS: Copy Right: Meaning of Copyright, Copyright in literary, dramatic, musical work and cinematograph films Ownership, Assignment, Author's special rights, Importation and infringement, Fair use provisions. Trademarks: Definition; conception of trademarks, Registration, Distinction between trademark and property mark, Standards of proof in passing off action. | | | | | | | | | | | | | |
| | UNIT 4 | | | 13 | Hours | | | | | | | | |
| PATENTS, DESIGN Patentable Inventions, and sealing of patents: | S & GEOGRAPHICAL INDICATORS: Process of obtaining a Patent: application, Rights and obligations of a Patentee. Internati | Con exan onal | ceptio ninati Paten | on of on, op ts, Tra | Patent, position | | | | | | | | |

technology, know-how and problems of self-reliant development. Basic provisions related to Designs, Geographical Indicators.

| | UNIT 5 | 14 Hours | | | | | | | | | |
|---|--|---|--|--|--|--|--|--|--|--|--|
| INTERNATIONAL INSTRUMENTS CONCERNING INTELLECTUAL PROPERTY RIGHTS: The Berne Convention, Universal Copyright Convention, The Paris Union, The World Intellectual Property Rights Organization (WIPO), UNESCO, TRIPS, TRIMS, and WTO. | | | | | | | | | | | |
| Text Books | Intellectual Property Rights: Basic Concepts, M Atlantic, 2009. Intellectual Property Rights, Pandey, Neera Khushdeep. Intellectual Property Rights in India: General Implications, Dr. Prankrishna Pal, Regal Series. | MMS Karki, j, Dharani, Isuues and | | | | | | | | | |
| Reference Books | Intellectual Property, W.R. Cornish, Sweet & London, 2012. Principles of Intellectual Property, N.S. Gopala T.G. Agitha, Eastern Book Company, Lucknow, 2 | & Maxwell, akrishnan & 2009. | | | | | | | | | |
| Evaluation | Continuous Assessment (20 %) and Assignments (10%) | | | | | | | | | | |
| | Semester End Examination (70%) | | | | | | | | | | |

| Course Outcomes | PO ₁ | PO ₂ | PO ₃ | PO ₄ | PO ₅ | PO ₆ | PO ₇ | PO ₈ | PO ₉ | PO ₁₀ | PO ₁₁ | PO12 | PSO ₁ | PSO ₂ |
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| CO1 | 3 | | 3 | | | 3 | 3 | | | 3 | 3 | 3 | | |
| CO2 | | | | | | | | | | | | | | |
| CO3 | | | | | | | | | | | | | | |
| CO4 | | | | | | | | | | | | | | |
| CO5 | | | | | | | | | | | | | | |

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| (AN AUTONOMOUS INSTITUTION) | | | | | | | | | | | | | |
| | IV Year B. Tech. II Semester | r | | | | | | | | | | | |
| Course Code: | Course Name: | Ho | urs/W | /eek | | | | | | | | | |
| 5GA72 | HUMAN RESOURCE MANAGEMENT | | | | | | | | | | | | |
| | (OPEN ELECTIVE) | L | Т | Р | C | | | | | | | | |
| | | 3 | 1 | 0 | 3 | | | | | | | | |
| Course Prerequisites | | | | | | | | | | | | | |
| Students are able to: | | | | | | | | | | | | | |
| The course is designed broadly to promote understanding of procurement, development, maintenance, evaluation and overall effective utilization of manpower. | | | | | | | | | | | | | |
| After completion of the course, student will be able to: | | | | | | | | | | | | | |
| Expected Outcomes Understand all functions of human resource management. | | | | | | | | | | | | | |
| | UNIT 1 | | | 14 | 4 Hours | | | | | | | | |
| Nature of HRM, Scope of HRM, Functions of HRM - Managerial Functions, Operative Functions, Role of HRM. Personnel Management and HRM, Competitive Challenges influencing HRM, Ethical Aspects of HRM. | | | | | | | | | | | | | |
| UNIT 2 13 Hours | | | | | | | | | | | | | |
| HUMAN RESOURC Nature of HRP, Need a Process, Barriers to Hu JOB ANALYSIS AN Collecting Job Analysi Job Design. | E PLANNING: Introduction to Human Real and Importance of HRP in Organizations, Factor man HRP. Human Resource Information Syste D JOB DESIGN – Definition, Steps in Job is Data, Job Description, Job Specification, Job | sourc ors A em. o Ana ob D | e Pla ffecti alysis esign | nning ng HF , Met - Me | (HRP), RP, HRP hods for thods of | | | | | | | | |
| | UNIT 3 | | | 12 | 2 Hours | | | | | | | | |
| PROCUREMENT OF Recruitment, Factor Aff SELECTION – Int Placement and Orientat | F MANPOWER: Recruitment - Meaning an fecting Recruitment, Sources of Recruitment, I roduction, Selection Procedure, Selection ion. | d De Methe De | finition ods o cisio | on, Pr f Recr n Ou | ocess of uitment. utcomes. | | | | | | | | |
| | UNIT 4 | | | 13 | Hours | | | | | | | | |
| DEVELOPMENT OF Training, Process of E disadvantages. EXECUTIVE DEVE Development, Process Development. | DEVELOPMENT OF MANPOWER: Employee Training – Concept, Need for Employee Training, Process of Employee Training, Methods of Employee Training, Advantages and disadvantages. EXECUTIVE DEVELOPMENT –Objectives, Importance, Factors Influencing Executive Development, Process, Methods of Executive Development, Career Planning and Development, Process, Methods of Executive Development, Career Planning and Development, Process, Methods of Executive Development, Career Planning and Development, Process, Methods of Executive Development, Career Planning and Development, Process, Methods of Executive Development, Career Planning and Development, Process, Methods of Executive Development, Career Planning and Development, Process, Methods of Executive Development, Career Planning and Development, Process, Methods of Executive Development, Career Planning and Development, Process, Methods of Executive Development, Career Planning and Development, Process, Planning Plannin | | | | | | | | | | | | |
| - | UNIT 5 | | | 14 | 4 Hours | | | | | | | | |
| COMPENSATING, COMPENSATION - | MAINTAINING AND EVALUATING Objectives, components of pay structure in | THI Ind | E M ia, W | ANP age P | OWER: olicy in | | | | | | | | |

 India - Minimum Wage, Fair Wage and Living Wage. DISCIPLINE AND GRIEVANCE

 PROCEDURES - Disciplinary Procedure, Grievance Handling Procedure, importance and approaches of Industrial Relations. Collective Bargaining Process.

 PERFORMANCE APPRAISAL - Definition, Purpose of appraisal, Procedures and Techniques including 360-degree Performance Appraisal, Job Evaluation.

 Text Books
 1. Noe A.Raymond John Hollenbeck, Barry Gerhart and Patrick Wright - Human Resource Management, (Tata McGraw Hill.).

 2. Ian Beardwell & Len Holden - Human Resource Management, (Macmillan India Ltd.).
 3. Aswathappa K - Human Resource and Personnel Management (Tata McGraw Hill, 5th Ed.).

 4. Rao VSP – Human Resource Management, Text and Cases (Excel Books, 2nd Ed.).
 1.

| | (Excel Books, 2nd Ed.). |
|-----------------|---|
| Reference Books | 1. Ivansevich – Human Resource Management (Tata McGraw Hill, 10th Ed.). |
| | 2. Dessler – Human Resource Management (Prentice Hall, 10th Ed.). |
| | 3. Bernardi – Human Resource Management (Tata McGraw Hill, 4th Ed.). |
| | Human Resource Management, T.N Chhabra, Dhanpat Rai & Sons Pvt Ltd. |
| Evaluation | Continuous Assessment (20%) and Assignments (10%) |
| | Semester End Examination (70%) |

| Course Outcomes | PO ₁ | PO ₂ | PO ₃ | PO ₄ | PO ₅ | PO ₆ | PO ₇ | PO ₈ | PO ₉ | PO ₁₀ | PO ₁₁ | PO12 | PSO ₁ | PSO ₂ |
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| CO1 | 1 | | 3 | | 1 | 3 | | 1 | 2 | 1 | | 2 | | |
| CO2 | | | | | | | | | | | | | | |
| CO3 | | | | | | | | | | | | | | |
| CO4 | | | | | | | | | | | | | | |
| CO5 | | | | | | | | | | | | | | |