

ANNAMACHARYA INSTITUTE OF TECHNOLOGY & SCIENCES::RAJAMPET
(AN AUTONOMOUS INSTITUTION)
DEPARTMENT OF CIVIL ENGINEERING
XII-BOS MINUTES: 2020-2021

Date: 20-01-2020

The minutes of BOS held at 10:00 AM on Monday 20-01-2020 in connection with Course structure syllabus formulation of I B.Tech civil engineering R20 regulations online by using MS Teams app at institute premises AITS, Rajampet.

Agenda:

- To FINALIZE the course structure of IV year B.Tech R20 Regulations for Civil engineering program.
- To FINALIZE the syllabi of I year B.Tech R20 Regulations for Civil engineering program
- Any other item with permission of chair.

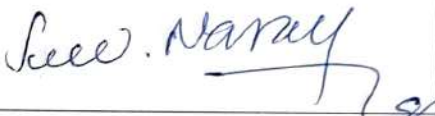



The following are the members of the committee:

1. Dr.K.Nagendra PrasadUniversity nominee
Professor
SVU, Tirupathi.
2. Dr.M.Sri MuraliOutside expert
Professor
SVU, Tirupathi.
3. Dr.G.Appa RaoSpecial Invitee
Professor
IIT, Madras
4. Dr.S.K SekharOutside expert
Professor
VIT, Vellore.
5. Dr.SMVNarayana-Member
Principal,
AITS, Rajampet, Kadapa Dt.
6. Dr.Y.SreeRamuluMember
Professor & HOD
AITS, Rajampet, Kadapa Dt.
7. Mr.T.Naresh Kumar -Member
Asst. Professor,
AITS, Rajampet, Kadapa Dt.
8. Mrs.N.R.Gowthami-Member
Assistant professor,
AITS, Rajampet, Kadapa Dt.

The committee went through the course structure of IV year programme and syllabi of I B.Tech Civil Engineering of R-20 Regulations is resolved as follows.

- Finalized the course structure for IV year B.Tech Civil Engineering programme as enclosed in **ANNEXURE-I**.
- Out of 4 open electives, 2 open electives must be offered by other departments, 1 open elective by self-department (MOOCS) and other 1 is Inter disciplinary (MOOCS). Also one of the inter disciplinary course will be OOPS through Java, to improve employability skills.
- Finalized to offer five professional electives irrespective of stream.
- Concluded that the open electives III & IV as MOOCS course in VII Semester.
- Concluded to apt FIVE skill courses to improve the employability skills and as recommended by APSCHE.
- Among Skill Courses, the various courses offered are Python programming and Lab, Computer Aided civil engineering Drawing Lab, Object Oriented programming, Professional Communication skills and Project Management Lab, in order to enhance the student skills and practical knowledge for better employment.
- Summer and Industry Internships are introduced in this regulation, to enable the student to face field exposure for experience and settlement.
- Basic Electronics and Electrical Engineering & Basic Mechanical Engineering courses are incorporated in this regulation, to have a basic knowledge on other branches.
- Almost all the recommendations made by APSCHE and AICTE are strictly considered.

Attestation:

| S.No | Name of the members | Signature of the members |
|------|--|--|
| 1. | Dr.K.Nagendra Prasad University nominee Professor SVU, Tirupathi. | |
| 2. | Dr.M.Sree Murali University Nominee Professor SVU, Tirupathi | |
| 3. | Dr.G.Apparao External Member Professor IIT, Madras | |
| 4. | Dr.S.K Sekhar External Member Professor VIT, Vellore | |
| 5. | Dr.SMVNarayana- Member Principal, AITS, Rajampet, Kadapa Dt. |  |
| 6. | Dr.Y.Sree Ramulu - Member Professor & HOD AITS, Rajampet, Kadapa Dt. |  |
| 7. | Mr.T.Naresh kumar-Member Asst. Professor, AITS, Rajampet, Kadapa Dt. |  |
| 8. | Mrs.N.R.Gowthami- Member Assistant professor, AITS, Rajampet, Kadapa Dt. |  |

ANNEXURE-I

BASIC COURSE STRUCTURE FOR IV YEAR B.Tech CIVIL ENGINEERING PROGRAM

Semester I (First year)

| Sl. No. | Category | Course Code | Course Title | Hours per week | | | Credits |
|---------------|----------|-------------|---------------------------------------|----------------|---|---|---------|
| | | | | L | T | P | C |
| 1 | BSC | 20AC11T | Algebra and Calculus | 3 | 0 | 0 | 3 |
| 2 | BSC | 20AC13T | Chemistry | 3 | 0 | 0 | 3 |
| 3 | HSC | 20AC15T | Communicative English | 3 | 0 | 0 | 3 |
| 4 | ESC | 20A312T | Engineering Drawing | 1 | 0 | 4 | 3 |
| 5 | ESC | 20A511T | Problem Solving through C programming | 3 | 0 | 0 | 3 |
| 6 | BSC | 20AC13L | Engineering Chemistry Lab | 0 | 0 | 3 | 1.5 |
| 7 | HSC | 20AC15L | Communicative English Lab | 0 | 0 | 3 | 1.5 |
| 8 | ESC | 20A511L | C Programming Lab | 0 | 0 | 3 | 1.5 |
| 9 | MC | 20AC16T | Environmental Science | 3 | 0 | 0 | 0 |
| Total credits | | | | | | | 19.5 |

| Category | Credits |
|--------------------------------|---------|
| Basic Science courses | 7.5 |
| Engineering Science courses | 7.5 |
| Humanities and Social Sciences | 4.5 |
| Total Credits | 19.5 |

Semester II (First year)

| Sl. No. | Category | Course Code | Course Title | Hours per week | | | Credits |
|---------|----------|-------------|--|----------------|---|---|---------|
| | | | | L | T | P | C |
| 1 | BSC | 20AC21T | Differential Equations and Vector Calculus | 3 | 0 | 0 | 3 |
| 2 | BSC | 20AC24T | Engineering Physics | 3 | 0 | 0 | 3 |
| 3 | ESC | 20A323T | Engineering Mechanics | 3 | 0 | 0 | 3 |
| 4 | ESC | 20A223T | Basic Electronics and Electrical Engineering | 3 | 0 | 0 | 3 |
| 5 | ESC | 20A326T | Basic Mechanical Engineering | 0 | 0 | 3 | 3 |
| 6 | ESC Lab | 20A223L | Basic Electronics and Electrical lab | 0 | 0 | 3 | 1.5 |

| | | | | | | | |
|---------------|---------|---------|---------------------------|---|---|---|------|
| 7 | ESC Lab | 20A325L | Engineering & IT Workshop | 0 | 0 | 3 | 1.5 |
| 8 | BSC LAB | 20AC24L | Engineering Physics Lab | 0 | 0 | 3 | 1.5 |
| Total credits | | | | | | | 19.5 |

| | |
|-----------------------------|---------|
| Category | Credits |
| Basic Science courses | 7.5 |
| Engineering Science courses | 12 |
| Total Credits | 19.5 |

Semester III (Second year)

| Sl. No. | Category | Course Code | Course Title | Hours per week | | | Credits |
|---------------|-----------|-------------|--|----------------|---|---|---------|
| | | | | L | T | P | C |
| 1 | BSC | 20AC31T | Partial Differential Equations and Numerical Methods | 3 | 0 | 0 | 3 |
| 2 | HSMC | 20AC35T | Managerial Economics and Financial Assistance | 3 | 0 | 0 | 3 |
| 3 | PCC | 20A131T | Surveying | 3 | 0 | 0 | 3 |
| 4 | PCC | 20A132T | Strength of materials | 3 | 0 | 0 | 3 |
| 5 | PCC | 20A133T | Fluid mechanics & Hydraulic Engineering | 3 | 0 | 0 | 3 |
| 6 | PCC (Lab) | 20A131L | Surveying Lab | 0 | 0 | 3 | 1.5 |
| 7 | PCC (Lab) | 20A132L | Strength of materials Lab | 0 | 0 | 3 | 1.5 |
| 8 | PCC (Lab) | 20A133L | Fluid mechanics Lab | 0 | 0 | 3 | 1.5 |
| 9 | SOC-1 | 20A535L | Python Programming | 1 | 0 | 2 | 2 |
| 10 | MC | 20AC34T | Life Sciences for Engineers | 0 | 0 | 0 | 0 |
| Total credits | | | | | | | 21.5 |

| Category | Credits |
|---------------------------|---------|
| Basic Science courses | 3 |
| Humanities | 3 |
| Professional core courses | 13.5 |
| Skill oriented course | 2 |
| Total Credits | 21.5 |

Semester IV (Second year)

| Sl. No. | Category | Course Code | Course Title | Hours per week | | | Credits |
|--|----------|-------------|--|----------------|---|---|---------|
| | | | | L | T | P | C |
| 1 | BSC | 20AC41T | Probability and Statistics | 3 | 0 | 0 | 3 |
| 2 | ESC | 20A141T | civil engineering Drawing | 3 | 0 | 0 | 3 |
| 3 | PCC | 20A142T | Materials testing and Evaluation | 3 | 0 | 0 | 3 |
| 4 | PCC | 20A143T | Engineering Geology | 3 | 0 | 0 | 3 |
| 5 | PCC | 20A144T | Structural Analysis | 3 | 0 | 0 | 3 |
| 6 | ESC Lab | 20A143L | Engineering Geology Lab | 0 | 0 | 3 | 1.5 |
| 7 | PCC Lab | 20A145L | Hydraulics Engineering lab | 0 | 0 | 3 | 1.5 |
| 8 | PCC Lab | 20A142L | Material Testing Lab | 0 | 0 | 3 | 1.5 |
| 9 | SOC-2 | 20A141L | Computer Aided civil engineering Drawing Lab | 1 | 0 | 2 | 2 |
| Total credits | | | | | | | 21.5 |
| Internship 2 Months (Mandatory) during summer vacation | | | | | | | |

| Category | Credits |
|-----------------------------|---------|
| Basic Science courses | 3 |
| Engineering Science courses | 4.5 |
| Professional core course | 12 |

| | |
|-----------------------|------|
| Skill oriented course | 2 |
| Total Credits | 21.5 |

Semester V (Third year)

| Sl. No. | Category | Course Code | Course Title | Hours per week | | | Credits |
|--|----------|-------------|---|----------------|---|---|---------|
| | | | | L | T | P | C |
| 1 | PCC | 20A151T | Basic Reinforced concrete Design | 3 | 0 | 0 | 3 |
| 2 | PCC | 20A152T | Environmental Engineering | 3 | 0 | 0 | 3 |
| 3 | PCC | 20A153T | Hydrology & Water Resource Engineering | 3 | 0 | 0 | 3 |
| 4 | OEC-1 | 20A15AT | Disaster Management | 3 | 0 | 0 | 3 |
| | | 20A15BT | Instrumentation and Sensor technologies | | | | |
| | | 20A15CT | Watershed Management | | | | |
| 5 | PEC-1 | 20A15DT | Sustainable Construction Methods | 3 | 0 | 0 | 3 |
| | | 20A15ET | Advanced Structural Analysis | | | | |
| | | 20A15FT | Remote Sensing and GIS | | | | |
| 6 | PCC Lab | 20A151L | Structural Analysis & Design lab | 0 | 0 | 3 | 1.5 |
| 7 | PCC Lab | 20A152L | Environmental Engineering lab | 0 | 0 | 3 | 1.5 |
| 8 | MC | 20AC53T | Essence of Indian Traditional Knowledge | 2 | 0 | 0 | 0 |
| 9 | SAC-3 | 20A555L | Object Oriented Programming | 1 | 0 | 2 | 2 |
| Summer Internship 2 Months (Mandatory) after second year (to be evaluated during V semester) | | | | 0 | 0 | 0 | 1.5 |
| Total credits | | | | | | | 21.5 |
| Internship 2 Months (Mandatory) during summer vacation | | | | | | | |

| Category | Credits |
|------------------------------|---------|
| Professional core course | 12 |
| Professional elective course | 3 |

| | |
|--|-------------|
| Open elective course/ Job oriented | 3 |
| Skill advanced course/ soft skill course | 2 |
| Summer Internship | 1.5 |
| Total Credits | 21.5 |

Semester VI (Third year)

| Sl. No. | Category | Course Code | Course Title | Hours per week | | | Credits |
|---|----------|-------------|--|----------------|---|---|-------------|
| | | | | L | T | P | C |
| 1 | PCC | 20A161T | Transportation Engineering | 3 | 0 | 0 | 3 |
| 2 | PCC | 20A162T | Engineering Estimation and costing | 3 | 0 | 0 | 3 |
| 3 | PCC | 20A163T | Soil Mechanics | 3 | 0 | 0 | 3 |
| 4 | PEC-2 | 20A16AT | Advanced RCC Design | 3 | 0 | 0 | 3 |
| | | 20A16BT | Construction project Management | | | | |
| | | 20A16CT | Advanced Environmental Engineering | | | | |
| 5 | OEC-2 | | Data Structures through Python | 2 | 0 | 2 | 3 |
| 6 | PCC Lab | 20A165L | Structural Analysis& Design lab (E-Tabs) | 0 | 0 | 3 | 1.5 |
| 7 | PCC Lab | 20A161L | Transportation Engineering lab | 0 | 0 | 3 | 1.5 |
| 8 | PCC Lab | 20A163L | Soil Mechanics lab | 0 | 0 | 3 | 1.5 |
| 9 | MC | 20AC62T | Constitution of India | 2 | 0 | 0 | 0 |
| 10 | SSC | 20AC61L | Professional Communication skills | 1 | 0 | 2 | 2 |
| Total credits | | | | | | | 21.5 |
| Industrial/Research Internship (Mandatory) 2 Months during summer vacation | | | | | | | |

| Category | Credits |
|---|-------------|
| Professional core course | 13.5 |
| Professional elective course | 3 |
| Open elective course | 3 |
| Skill advanced course/ soft skill course | 2 |
| Mandatory course | 0 |
| Industrial/Research Internship (Mandatory) 2 Months | - |
| Total Credits | 21.5 |

Semester VII (Fourth year)

| Sl. No. | Category | Course Code | Course Title | Hours per week | | | Credits |
|--|----------|-------------|---|----------------|---|----|---------|
| | | | | L | T | P | C |
| 1 | PEC-3 | 20A17AT | Design of Steel Structures | 3 | 0 | 0 | 3 |
| | | 20A17BT | Advanced Transportation Engineering | | | | |
| | | 20A17CT | Bridge Engineering | | | | |
| 2 | PEC-4 | 20A17DT | Foundation Engineering | 3 | 0 | 0 | 3 |
| | | 20A17ET | Finite Element methods | | | | |
| | | 20A17FT | Design and Drawing of Irrigation structures | | | | |
| 3 | PEC-5 | 20A17GT | Prestressed concrete | 3 | 0 | 0 | 3 |
| | | 20A17HT | Environmental Impact assessment & life cycle assessment | | | | |
| | | 20A17IT | Ground Improvement Techniques | | | | |
| 4 | OEC-3 | 20A17JT | MOOCS(self-discipline) | 2 | 0 | 2 | 3 |
| 5 | OEC-4 | 20A17KT | MOOCS (Inter disciplinary) | 2 | 0 | 2 | 3 |
| 6 | SAC | 20A17IT | Project Management Lab | 2 | 0 | 0 | 2 |
| 7 | HSMC | 20AC7IT | Universal Human Values | 3 | 0 | 0 | 3 |
| Industrial/Research Internship 2 Months (Mandatory) after third year (to be evaluated during VII semester) | | | | 0 | 0 | 0 | 3 |
| Total credits | | | | | | 23 | |
| Industrial/Research Internship (Mandatory) 2 Months during summer vacation | | | | | | | |

| Category | Credits |
|------------------------------------|---------|
| Professional elective course | 9 |
| Open elective course/ Job oriented | 6 |
| Humanities and Social Sciences | 3 |

| | |
|--|----|
| Skill advanced course/ soft skill course | 2 |
| Industrial/Research Internship | 3 |
| Total Credits | 23 |

Semester VIII (Fourth year)

| Sl. No. | Category | Course Code | Course Title | Hours per week | | | Credits |
|-----------------------|----------|-------------|--|----------------|---|---|---------|
| | | | | L | T | P | C |
| 1 | PROJ | 20A18P | Project work, seminar and internship in industry | 0 | 0 | 0 | 12 |
| Internship (6 months) | | | | | | | |
| Total credits | | | | | | | 12 |

COURSES, CATEGORY AND THEIR CREDIT DISTRIBUTION:

Basic sciences

| S.NO | Category | Course name | Credits |
|------|----------|--|---------|
| 1. | BS | Algebra and Calculus | 3 |
| 2. | BS | Differential Equations and Vector Calculus | 3 |
| 3. | BS | Partial Differential Equations and Numerical Methods | 3 |
| | BS | Probability and Statistics | 3 |
| 4. | BS | Life Sciences for Engineers | 0 |
| 5. | BS | Engineering Physics | 3 |
| 6. | BS | Engineering Physics Lab | 1.5 |
| 7. | BS | Engineering Chemistry | 3 |
| 8. | BS | Engineering Chemistry Lab | 1.5 |
| | | Total | 21 |

Engineering sciences

| S.NO | Category | Course name | Credits |
|------|----------|--|---------|
| 1. | ES | Problem Solving through C programming | 3 |
| 2. | ES | C Programming Lab | 1.5 |
| 3. | ES | Basic Mechanical Engineering | 3 |
| 4. | ES | Engineering Geology Lab | 1.5 |
| 5. | ES | Basic Electronics and Electrical Engineering | 3 |
| 6. | ES | Engineering Drawing | 3 |

| | | | |
|-----|----|--|-----|
| 7. | ES | Engineering Mechanics | 3 |
| 8. | ES | Engineering & IT Workshop | 1.5 |
| 9. | ES | Computer Aided civil Engineering drawing | 3 |
| 10. | ES | Basic electronics and electrical lab | 1.5 |
| | | Total | 24 |

Humanities and Social Sciences

| S.NO | Category | Course name | Credits |
|------|----------|---|---------|
| 1. | HS | Communicative English | 3 |
| 2. | HS | Communicative English Lab | 1.5 |
| 3. | HS | Managerial economics and financial assistance | 3 |
| 6. | HS | Universal Human Values-II | 3 |
| | | Total | 10.5 |

Mandatory courses

| S.NO | Category | Course name | Credits |
|------|----------|---|---------|
| 1. | MC | Environmental sciences | 0 |
| 2. | MC | Essence of Indian Traditional Knowledge | 0 |
| 3. | MC | Constitution of India | 0 |

Professional Electives

| S.NO | Category | Course name | Credits |
|------|----------|--------------------------|---------|
| 1. | PE | Professional Electives-1 | 3 |
| 2. | PE | Professional Elective-2 | 3 |
| 3. | PE | Professional Elective-3 | 3 |
| 4. | PE | Professional Elective-4 | 3 |
| 5. | PE | Professional Elective-5 | 3 |
| | | Total | 15 |

Open Electives

| S.NO | Category | Course name | Credits |
|------|----------|-----------------|---------|
| 1. | OE | Open Elective-1 | 3 |
| 2. | OE | Open Elective-2 | 3 |
| 3. | OE | Open Elective-3 | 3 |
| 4. | OE | Open Elective-4 | 3 |
| | | Total | 12 |

Professional Core

| S.NO | Category | Course name | Credits |
|------|----------|-------------|---------|
| 1. | PC | Surveying | 3 |

| | | | |
|-----|----|---|-----|
| 2. | PC | Strength of materials | 3 |
| 3. | PC | Fluid mechanics & Hydraulics Engineering | 3 |
| 4. | PC | Surveying Lab | 1.5 |
| 5. | PC | Strength of materials Lab | 1.5 |
| 6. | PC | Fluid mechanics Lab | 1.5 |
| 7. | PC | Materials testing and Evaluation | 3 |
| 8. | PC | Engineering Geology | 3 |
| 9. | PC | Structural Analysis | 3 |
| 10. | PC | Hydraulics Engineering lab | 1.5 |
| 12. | PC | Material Testing Lab | 1.5 |
| 13. | PC | Basic Reinforced concrete Design | 3 |
| 14. | PC | Environmental Engineering | 3 |
| 15. | PC | Hydrology & Water Resource Engineering | 3 |
| 16. | PC | Environmental Engineering lab | 1.5 |
| 17. | PC | Structural Analysis & Design lab (STAAD) | 1.5 |
| 18. | PC | Transportation Engineering | 3 |
| 19. | PC | Engineering Estimation and costing | 3 |
| 20. | PC | Soil Mechanics | 3 |
| 21. | PC | Soil Mechanics lab | 1.5 |
| 22. | PC | Transportation Engineering lab | 1.5 |
| 23. | PC | Structural Analysis & Design lab (E-Tabs) | 1.5 |
| | | Total | 51 |

Skill Courses

| S.NO | Category | Course name | Credits |
|------|----------|--|---------|
| 1. | SC | Python Programming | 2 |
| 2. | SC | Computer Aided civil engineering Drawing Lab | 2 |
| 3. | SC | Object Oriented Programming | 2 |
| 4. | SC | Professional Communication skills | 2 |
| 5. | SC | Project Management Lab | 2 |
| | | Total | 10 |

Internship and project work

| S.NO | Category | Course name | Credits |
|------|----------|--|---------|
| 1. | | Summer internship 2 months | 1.5 |
| 2. | | Industrial intern ship(mandatory) 2 months | 3 |
| 3. | | Project work, seminar and Internship in Industry | 12 |
| | | Total | 16.5 |

ANNAMACHARYA INSTITUTE OF TECHNOLOGY & SCIENCES::RAJAMPET
(AN AUTONOMOUS INSTITUTION)
DEPARTMENT OF CIVIL ENGINEERING
XI-BOS MINUTES: 2019-2020

Date: 05-10-2020

The minutes of BOS held at 10:00 AM on Sunday 05-10-2020 in connection with syllabus formulation of III & IV B.Tech civil engineering R19 regulations online by using MS Teams app at institute premises AITS, Rajampet.

Agenda:

- To FINALIZE the course structure and syllabus of III & IV B.Tech R19 Regulations for B.Tech Civil engineering program.
- Proposed to include Universal Human values in the curriculum.
- Any other item with permission of chair.

The following are the members of the committee:

1. Dr.K.Nagendra PrasadUniversity nominee
Professor
SVU, Tirupathi.
2. Dr.M.Sri MuraliOutside expert
Professor
SVU, Tirupathi.
3. Dr.G.Appa RaoSpecial Invitee
Professor
IIT,Madras
4. Dr.S.K SekharOutside expert
Professor
VIT,Vellore.
5. Dr.SMVNarayana-Member
Principal,
AITS, Rajampet, Kadapa Dt.
6. Dr.Y.SreeRamuluMember
Professor & HOD
AITS, Rajampet, Kadapa Dt.
7. Mr.T.Naresh Kumar -Member
Asst. Professor,
AITS, Rajampet, Kadapa Dt.





8. Mrs.N.R.Gowthami-
Assistant professor,
AITS, Rajampet, Kadapa Dt.

.....Member

The committee went through the course structure and syllabi for Civil Engineering Department in III & IV B.Tech Civil Engineering, of R-19 Regulations is resolved as follows.

- Finalized the course structure and syllabi for III & IV year B.Tech Civil Engineering programe as enclosed in ANNEXURE-I.
- Out of 4 open electives, 2 open electives must be offered by other departments, 1 open elective by self-department and other 1 is MOOCS(Inter disciplinary).
- Finalized to offer the professional electives stream wise.
- Concluded to add Universal Human Values course with 2 CREDITS in III B.Tech-I Sem in place of General Aptitude in to curriculum.
- Concluded that the open elective in III B.Tech I Semester as self-departmental offered elective. The courses offered are Finite Element methods, Instrumentation & Sensor Technologies for Civil Engineering Applications, Watershed Management and Disaster Management.
- The Open elective courses offered to other departments are Disaster Management, Water Resources and Conservation, Building Planning and Construction and Basic Civil Engineering.
- Concluded to add structural analysis and design lab-II with E-Tabs software tool. In order to enhance the student skillsfor better employment.

Attestation:

| S.No | Name of the members | Signature of the members |
|------|--|--|
| 1. | Dr.K.Nagendra Prasad University nominee Professor SVU, Tirupathi. | |
| 2. | Dr.M.Sree Murali University Nominee Professor SVU, Tirupathi | |
| 3. | Dr.G.Apparao External Member Professor IIT, Madras | |
| 4. | Dr.S.K Sekhar External Member Professor VIT, Vellore | |
| 5. | Dr.SMVNarayana- Member Principal, AITS, Rajampet, Kadapa Dt. |  |
| 6. | Dr.Y.Sree Ramulu - Member Professor & HOD AITS, Rajampet, Kadapa Dt. |  |
| 7. | Mr.T.Naresh kumar-Member Asst. Professor, AITS, Rajampet, Kadapa Dt. |  |
| 8. | Mrs.N.R.Gowthami- Member Assistant professor, AITS, Rajampet, Kadapa Dt. |  |

ANNEXURE-I

| III B.Tech – I Semester | | | | | | | |
|-------------------------|----------|-------------|--|----------------|---|---|---------|
| S. No. | Category | Course Code | Course Title | Hours per week | | | Credits |
| | | | | L | T | P | |
| 1 | PC | 19A151T | Basic Reinforced concrete Design | 3 | - | - | 3 |
| 2 | PC | 19A152T | Soil Mechanics | 3 | - | - | 3 |
| 3 | PC | 19A153T | Water Resource Engineering | 3 | - | - | 3 |
| 4 | PC | 19A154T | Structural Analysis | 3 | - | - | 3 |
| 5 | PE | 19A155AT | Advanced Structural Engineering | 3 | - | - | 3 |
| | | 19A155BT | Prestressed concrete | | | | |
| | | 19A155CT | Advanced RCC Design | | | | |
| 6 | OE | 19A155DT | Finite Element methods | 3 | - | - | 3 |
| | | 19A155ET | Instrumentation & Sensor Technologies for Civil Engineering Applications | | | | |
| | | 19A155FT | Watershed Management | | | | |
| | | 19A155GT | Disaster Management | | | | |
| 7 | | | Universal Human values | 2 | - | - | 2 |
| Lab Courses | | | | | | | |
| 8 | PC | 19A154L | Structural Analysis & Design lab(STAAD) | - | - | 2 | 1 |
| 9 | PC | 19A152L | Soil Mechanics lab | - | - | 2 | 1 |
| 10 | HS | 19AC51L | General Aptitude | - | - | 2 | 1 |
| | | | | 20 | | 6 | 23 |

| III B.Tech - II Semester | | | | | | | |
|--------------------------|----------|-------------|--|----------------|---|---|---------|
| S. No. | Category | Course Code | Course Title | Hours per week | | | Credits |
| | | | | L | T | P | |
| 1 | PC | 19A161T | Design of Steel Structures | 3 | - | - | 3 |
| 2 | PC | 19A162T | Engineering Geology | 2 | - | - | 2 |
| 3 | PC | 19A163T | Environmental Engineering | 3 | - | - | 3 |
| 4 | PE | 19A164AT | Engineering Hydrology | 3 | - | - | 3 |
| | | 19A164BT | Water Resources field methods | | | | |
| | | 19A164CT | Bridge Engineering | | | | |
| 5 | PE | 19A165DT | Ground Improvement Techniques | 3 | - | - | 3 |
| | | 19A165BT | Foundation Engineering | | | | |
| | | 19A165CT | Environmental Geo-Technology | | | | |
| 6 | OE | 19A26GT | Energy Management and Conservation | 3 | - | - | 3 |
| | | 19A26JT | Fuzzy Logic and Neural Networks | | | | |
| | | 19A36ET | Introduction to Mechatronics | | | | |
| | | 19A36FT | Fundamentals of Robotics | | | | |
| | | 19A46GT | Electronic Circuits and its Applications | | | | |
| | | 19A46HT | Basics of Communication Systems | | | | |
| Lab Courses | | | | | | | |
| 7 | PC | 19A162L | Engineering Geology lab | - | - | 2 | 1 |
| 8 | PC | 19A163L | Environmental Engineering lab | - | - | 3 | 1.5 |
| 9 | HS | 19AC62L | Professional Communication skills Lab | - | - | 3 | 1.5 |
| | | 19A164I | *Internship | - | - | - | 2 |
| | | | | 17 | | 8 | 23 |

- Internship grade will be awarded in IV-II marks memo

IV B.Tech - I Semester

| S. No. | Category | Course Code | Course Title | Hours per week | | | Credits |
|-------------|----------|-------------|---|----------------|---|---|---------|
| | | | | L | T | P | |
| 1 | PC | 19A171T | Transportation Engineering | 2 | - | - | 2 |
| 2 | PC | 19A172T | Estimation, costing and Valuation | 3 | - | - | 3 |
| 3 | PE | 19A173A | Sustainable Construction Methods | 3 | - | - | 3 |
| | | 19A173BT | Repairs & Rehabilitation of Structures | | | | |
| | | 19A173CT | Construction Project Planning & Systems | | | | |
| 4 | PE | 19A174AT | Sustainable Engineering & Technology | 3 | - | - | 3 |
| | | 19A174BT | Advanced Environmental Engineering | | | | |
| | | 19A174CT | Environmental Impact assessment & life cycle assessment | | | | |
| 5 | OE | 19A174DT | Open Elective-III(MOOC) Inter disciplinary | 3 | - | - | 3 |
| Lab Courses | | | | | | | |
| 5 | PC | 19A171L | Transportation Engineering lab | - | - | 2 | 1 |
| | | 19A175L | Structural Analysis and Design lab-II (E-TABS) | - | - | 2 | 1 |
| 7 | PW | 19A17P | Project Phase-1 | - | - | - | 2 |
| | | | | 15 | - | 2 | 18 |

IV B.Tech - II Semester

| S. No. | Category | Course Code | Course Title | Hours per week | | | Credits |
|-------------|----------|-------------|-------------------------------------|----------------|---|---|---------|
| | | | | L | T | P | |
| 1 | PE | 19A181AT | Advanced Transportation Engineering | 3 | - | - | 3 |
| | | 19A181BT | Advanced Surveying | | | | |
| | | 19A181CT | Remote Sensing and GIS | | | | |
| 2 | OE | 19A28DT | Battery Energy Storage Systems | 3 | - | - | 3 |
| | | 19A28ET | System Modelling and Simulation | | | | |
| | | 19A38FT | Optimization in Engineering | | | | |
| | | 19A38GT | Total Quality Management | | | | |
| | | 19A48DT | Introduction to Digital Design | | | | |
| | | 19A48ET | Industrial Electronics | | | | |
| | | 19A58ET | Internet of Things | | | | |
| | | 19A58FT | Web Programming | | | | |
| Lab Courses | | | | | | | |
| 2 | PW | 19A18P | Project Phase-2 | - | - | - | 8 |
| | | | | 6 | - | - | 14 |

Open Elective-1

| S.NO | Category | Course name | Credits |
|------|----------|------------------------------------|---------|
| 1. | 19A18ET | Building Planning and Construction | 3 |
| 2. | 19A16HT | Water Resources and Conservation | 3 |
| 3. | 19A16GT | Basic Civil Engineering | 3 |

| | | | |
|----|---------|---------------------|----|
| 4. | 19A18DT | Disaster Management | 3 |
| | | Total | 09 |

CREDIT DISTRIBUTION:

| Type of Courses | | Course Category | Code | Range of Credits | Credit Composition (%) | CE-AITS Credits | APSCHE | AICTE |
|----------------------|-----------------------|--|------------|------------------|------------------------|-----------------|------------|------------|
| Compulsory Courses | Foundation | Engineering Sciences | ES | 22 | 13.75 | 24 | 26 | 24 |
| | | Basic Sciences | BS | 24 | 15 | 23 | 28 | 25 |
| | | Humanities & Social Science and Management | HS | 12 | 7.5 | 12 | - | 12 |
| | Core | Professional Core | PC | 56-60 | 35 - 37.5 | 60 | 55 | 48 |
| | Project | Project | PW | 16 | 10 | 12 | 13 | 15 |
| Elective Courses | Professional Elective | PE | 18 | 11.25 | 18 | 23 | 18 | |
| | Open Elective | OE | 12 | 7.5 | 12 | 12 | 18 | |
| Mandatory Courses | Audit | AU | Non-Credit | | - | 0 | 0 | |
| | Mandatory | MN | | | | 0 | 0 | |
| Total Credits | | | | 160 | | 161 | 160 | 160 |
| MOOC | | Online | | | | | | |

COURSES AND THEIR CATEGORY:

Basic sciences

| S.NO | Category | Course name | Credits |
|------|----------|-----------------|-----------|
| 1. | BS | Mathematics I | 4 |
| 2. | BS | Mathematics II | 4 |
| 3. | BS | Mathematics III | 3 |
| 4. | BS | Mathematics IV | 3 |
| 5. | BS | Physics | 3 |
| 6. | BS | Physics Lab | 1.5 |
| 7. | BS | Chemistry | 3 |
| 8. | BS | Chemistry Lab | 1.5 |
| | | Total | 23 |

Engineering sciences

| S.NO | Category | Course name | Credits |
|------|----------|---|-----------|
| 1. | ES | Programming Language-1 | 3 |
| 2. | ES | Programming Language lab-1 | 1.5 |
| 3. | ES | Programming Language-2 | 3 |
| 4. | ES | Programming Language lab-2 | 1.5 |
| 5. | ES | Engineering Graphics-1 | 2 |
| 6. | ES | Engineering Graphics & Design | 3 |
| 7. | ES | Engineering and IT Workshop | 1.5 |
| 8. | ES | Basic electronics, electrical and mechanical Technology | 2 |
| 9. | ES | Computer Aided civil Engineering drawing | 3.5 |
| | | Total | 24 |

Humanities and management sciences

| S.NO | Category | Course name | Credits |
|------|----------|---|-----------|
| 1. | HS | English | 3 |
| 2. | HS | ELCS Lab | 2 |
| 3. | HS | English for Comp Exams | 1 |
| 4. | HS | Professional Communication skills Lab | 1 |
| 5. | HS | Managerial economics and financial assistance | 3 |
| 6. | HS | Universal Human Values | 2 |
| | | Total | 12 |

Mandatory courses

| S.NO | Category | Course name | Credits |
|------|----------|---------------------------------------|---------|
| 1. | MC | Constitution of India | 0 |
| 2. | MC | Environmental sciences | 0 |
| 3. | MC | Indian heritage culture and tradition | 0 |

Professional

Electives

| S.NO | Category | Course name | Credits |
|------|----------|--------------------------|-----------|
| 1. | PE | Professional Electives-1 | 3 |
| 2. | PE | Professional Elective-2 | 3 |
| 3. | PE | Professional Elective-3 | 3 |
| 4. | PE | Professional Elective-4 | 3 |
| 5. | PE | Professional Elective-5 | 3 |
| 6. | PE | Professional Elective-6 | 3 |
| | | Total | 18 |

Open Electives

| S.NO | Category | Course name | Credits |
|------|----------|-----------------|-----------|
| 1. | OE | Open Elective-1 | 3 |
| 2. | OE | Open Elective-2 | 3 |
| 3. | OE | Open Elective-3 | 3 |
| 4. | OE | Open Elective-4 | 3 |
| | | Total | 12 |

Professional Core

| S.NO | Category | Course name | Credits |
|------|----------|--|---------|
| 1. | PC | Strength of materials | 4 |
| 2. | PC | Fluid mechanics & Hydraulic machinery | 4 |
| 3. | PC | Building materials and construction | 2 |
| 4. | PC | Surveying | 3 |
| 5. | PC | Surveying Lab | 1.5 |
| 6. | PC | Strength of materials lab | 1.5 |
| 7. | PC | Fluid mechanics lab | 1.0 |
| 8. | PC | Concrete Technology | 4 |
| 9. | PC | Structural Analysis | 3 |
| 10. | PC | Hydraulics and hydraulic machinery lab | 1.5 |
| 12. | PC | Civil engineering work shop | 2 |
| 13. | PC | Design of Reinforced concrete structures | 3 |
| 14. | PC | Geotechnical Engineering | 3 |
| 15. | PC | Water Resource Engineering | 3 |
| 16. | PC | Estimation and quantity surveying | 3 |
| 17. | PC | Concrete Technology lab | 1.5 |
| 18. | PC | Geotechnical engineering lab | 1.5 |
| 19. | PC | Design of steel structures | 3 |
| 20. | PC | Engineering Geology | 3 |
| 21. | PC | Environmental Engineering | 3 |
| 22. | PC | Engineering Geology lab | 1.0 |
| 23. | PC | Environmental Engineering lab | 1.5 |

| | | | |
|-----|----|----------------------------------|----|
| 24. | PC | Transportation engineering | 3 |
| 25. | PC | Transportation engineering lab | 1 |
| 26. | PC | Structural Analysis & Design lab | 1 |
| | | Total | 60 |

Differences with APSCHE-5 credit variation

Additional subjects added - Building materials and construction+ HHM lab+ computer aided civil engineering drawing= $3+1+1+1=5$

Differences with AICTE-12 credits variation

Additional subjects added Engineering Graphics-1+ HHM LAB+SM LAB+ Advanced strength of materials+ Concrete Technology+ CT LAB= $2+1.5+1.5+3+3+1=12$

JUSTIFICATION

- Building materials and construction subject is included to improve basic knowledge on construction materials and construction practice in order to meet industry needs.
- Hydraulics and Hydraulic machinery lab is included to impart knowledge on hydraulic machinery such as pumps and turbines.
- Computer aided civil engineering drawing is included to enhance the students knowledge in planning and drawing of structures for entrepreneur ship development.
- Engineering Graphics to improve basic knowledge on drawing. As drawing is engineer's language.
- Strength of materials and strength of materials lab is included as it is a core basic course to observe the mechanism of structural members which is subjected to different types of forces.
- Concrete Technology and its lab is necessary for a civil engineering as it is hugely used construction materials all over the world