

**Regulations for
PG Programs in Engineering (R18PG)
(Effective from 2018-19)**



**KandulaSrinivasa Reddy Memorial College of Engineering
(Autonomous)**

Kadapa 516003 AP

**(Approved by AICTE, Affiliated to JNTUA, Ananthapuramu, Accredited by NAAC)
(An ISO 9001-2008 Certified Institution)**

KSRM College of Engineering, Kadapa-516003, AP

Regulations for PG Programs in Engineering (R18PG)
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Regulations for PG Programs in Engineering (R18PG)

1.0 Nomenclature

- 1.1 *Academic Year*: Academic Term of, approximately, one year duration that usually starts in June/July and ends in April/May next
- 1.2 *Semester*: Either of two Academic Terms that make up an Academic Year
- 1.3 *Major*: A specific field of study
- 1.4 *Minor*: An area outside of, or complementary to, a Major
- 1.5 *Subject*: An area of knowledge that is studied as part of a Course
- 1.6 *Core*: A subject that is mandatory for a Major course of study
- 1.7 *Elective*: A subject that is selected for study to suit one's individual needs
- 1.8 *Audit Subject*: A subject that is studied to meet certain requirements but has no credits assigned to it
- 1.9 *Humanities subjects*: Subjects that describe and interpret human achievements, problems and historical changes at individual and societal levels covering the disciplines of literature, history, and philosophy
- 1.10 *Social Sciences subjects*: Subjects that describe the mental and behavioural activities of individuals, groups, organizations, institutions, and nations covering the disciplines of anthropology, economics, linguistics, political science, and psychology
- 1.11 *Exam*: A test to measure one's progress, knowledge, or ability in a subject
- 1.12 *Credit*: A numerical weight given to a subject
- 1.13 *Grade*: A numerical or alphabetic designation measuring the level of achievement in an exam
- 1.14 *Attendance*: Physical presence of oneself in a classroom/laboratory for purpose of a scheduled academic instruction
- 1.15 *Course*: A series of subjects that constitute a Major field of study
- 1.16 *Branch*: Same as Course
- 1.17 *Program*: Same as Course
- 1.18 *Specialization*: Same as branch
- 1.19 *Degree*: An academic title conferred to honour distinguished achievement

2.0 Short Title and Application

- 2.1 These rules and regulations may be called as R18 PG and come into force from Academic Year 2018-19 and exist until superseded by new regulations
- 2.2 These rules and regulations are applicable to all post graduate courses in engineering and technology leading to Master's Degree in Technology (M. Tech)
- 2.3 The Specializations offered, at present, are:
 - 2.3.1 Geotechnical Engineering
 - 2.3.2 Power Systems
 - 2.3.3 CAD & CAM

- 2.3.4 Digital Electronics and Communication Systems
- 2.3.5 Computer Science and Engineering
- 2.4 The Institute may offer new Specializations in future to which these rules and regulations will be applicable

3.0 Suspension and Amendment of Rules

- 3.1 Academic Council has the authority to suspend a rule temporarily
- 3.2 Academic Council has the authority to amend a rule
- 3.3 For affirmative action on any suspension or amendment of a rule, an affirmative vote of three-fifths of the members present and voting shall be required in Academic Council

4.0 Requirements for Admission

- 4.1 At present, admissions into first semester of various Specializations are governed by Government and the Affiliating University. The eligibility criteria and procedure for admission are prescribed by Government and Affiliating University
- 4.2 A student is not allowed change of Specialization after admission
- 4.3 A student must fulfil medical standards required for admission
- 4.4 The selected students are admitted into first semester after payment of the prescribed fees

5.0 Structure of the M. Tech course

- 5.1 *Duration:* The duration of M. Tech degree course is four semesters
- 5.2 *Working Days:* Calendar for any semester shall be announced at least four weeks before its commencement. Minimum number of working days is 90 per semester
- 5.3 *Curriculum:* Each Specialization shall have core, elective and audit subjects. The curriculum for each Specialization shall be approved by its corresponding Board of Studies and then by the Academic Council
- 5.4 *Credits:* All subjects that are assessed for marks have credits assigned to them. The credits assigned to subjects shall be given in curriculum. The total number of credits for entire course is 68 for all Specializations. The distribution of total credits semester-wise is given in Table 1

Table 1 Semester-wise Total Credits

| Semester | Total Credits |
|--------------------------------|---------------|
| First Semester | 18 |
| Second Semester | 18 |
| Third Semester | 16 |
| Fourth Semester | 16 |
| Total for entire course | 68 |

- 5.5 The curriculum and syllabus is given in Annexure-1 and Annexure-2 respectively
- 5.6 Responsibility and Advising: It is the responsibility of the student to understand and know the regulations and requirements to earn the degree. Each student admitted in to the degree programs is assigned to a Faculty Advisor who assists the student in designing an effective program of study. Students should consult their Faculty Advisors for selection of electives and for general advice on academic program

6.0 Registration and Enrolment

- 6.1 Prior to opening of each semester, every student shall register for all the credit-bearing and audit subjects listed in curriculum of the semester. Excepting first semester, the registration for a semester shall be done during a specified week after end examinations of previous semester. In first semester, the registration shall be done within six working days from date of opening. Recommendation of Faculty Advisor is needed for registration
- 6.2 Late registration will be permitted with a fine, decided from time to time, up to six working days from the last date specified for registration
- 6.3 A student will be eligible for registration for a semester if she or he i) is promoted to that semester, ii) has cleared all fees to the Institute, library and hostel of previous semester, and iii) is not disqualified for registration by a disciplinary action of the Institute
- 6.4 A student will be enrolled and allowed to attend the classes on successful registration and payment of necessary fees to Institution, library, and hostel
- 6.5 Registration and enrolment will be controlled by the Office of the Controller of Examinations

7.0 Assessment Procedure – Internal Tests and End Examinations

- 7.1 Performance of students in all subjects is assessed continuously through internal assessment tests and an End examination
- 7.2 Allocation of internal assessment and End examination marks
 - 7.2.1 For theory subjects, the allocation is 40 marks for internal assessment and 60 marks for End examination totalling 100 marks
 - 7.2.2 For laboratory/project work subjects, the allocation is 50 marks for internal assessment and 50 marks for End examination totalling 100 marks
 - 7.2.3 For mini-project/mini-project with seminar total 100 marks are allocated for internal assessment. There shall be no end examination for this mini-project
 - 7.2.4 For all audit subjects the allocation is 40 marks for internal assessment and no allocation for End examination
- 7.3 Internal Assessment Examinations

- 7.3.1 Internal assessment means performance evaluation of students by faculty members who teach the subjects
- 7.3.2 For theory subjects, including audit subjects, the internal assessment shall be done by midterm tests. For each subject, two midterm tests will be conducted for 40 marks each and the internal assessment mark is the better of two marks. If any student abstains for any midterm test, she or he will be awarded zero marks for that midterm test. There shall be no choice of questions in midterm tests
- 7.3.3 For laboratory/practical subjects, the internal assessment will be based on regular laboratory work over full semester. The assessment will be done by the faculty concerned. The students shall be informed sufficiently early of the procedure to be followed for internal assessment
- 7.3.4 For subjects like seminar, project-work, industrial training, and comprehensive viva-voce, the internal assessment will be done by a concerned Department Committee consisting of two senior faculty members and faculty guide of concerned student. The assessment procedure will be informed sufficiently early to the students
- 7.4 End examinations
 - 7.4.1 End examinations shall be conducted after completion of coursework in each semester
 - 7.4.2 The question papers for theory subjects shall be set by faculty members outside of the Institute. The external faculty members for question paper setting will be selected by the Principal
 - 7.4.3 Evaluation of answer scripts shall be done by faculty members from outside of the Institute selected by the Principal
 - 7.4.4 For laboratory subjects, end examination shall be conducted by a committee consisting of two internal examiners. One examiner shall be recommended by Head of Department of concerned Major, and the other examiner shall be appointed by the Principal
 - 7.4.5 For project work viva-voce, End examination shall be conducted by a committee consisting of one internal examiner, one external examiner, and the concerned guide of the student. Internal examiner shall be appointed by Head of Department of concerned Major, and the external examiner shall be appointed by the Principal
 - 7.4.6 If a student abstains from End examination of any subject, for any reason, she or he shall be awarded zero marks in that subject
 - 7.4.7 There is no end examination for audit subjects

8.0 Method of Assigning Letter Grades and Grade Points

- 8.1 For all credit-bearing subjects, performance of a student in a subject is indicated by a letter grade that corresponds to absolute marks earned in that

subject. Each letter grade is assigned a numeric Grade Point that is used to compute Grade Point Average on a scale of 0 to 10

- 8.2 Performance of a student in both internal assessment and End examination will be considered for awarding grades for credit bearing subjects. Total marks earned in a subject is the sum of marks obtained in internal and End examinations in that subject
- 8.3 Pass grade A+ to D+ is assigned to a subject based on total marks earned in that subject provided that a student earns at least i) 35% of marks in End examination marks and ii) 50% of marks in internal and End examination marks put together; otherwise fail grade F will be assigned to that subject
- 8.4 Grade I will be assigned to a subject if a disciplinary action is pending and is not resolved before publication of results. Office of Controller of Examinations shall resolve the pending disciplinary action within six working days from the date of publication of results and change the grade to any of A+ to D+ or F
- 8.5 Grade X will be assigned to a subject if a student abstains for End examination of that subject
- 8.6 The absolute marks and corresponding letter grade and grade points are given in Table2

Table 2 Letter Grades and Grade Points

| Absolute Marks | Letter Grade | Grade Points | Remark |
|----------------|--------------|--------------|---------------------|
| 95-100 | A+ | 10.0 | Pass |
| 90-94 | A | 9.5 | Pass |
| 85-89 | A- | 9.0 | Pass |
| 80-84 | B+ | 8.5 | Pass |
| 75-79 | B | 8.0 | Pass |
| 70-74 | B- | 7.5 | Pass |
| 65-69 | C+ | 7.0 | Pass |
| 60-64 | C | 6.5 | Pass |
| 55-59 | C- | 6.0 | Pass |
| 50-54 | D+ | 5.5 | Pass |
| 0-49 | F | 0.0 | Fail |
| - | I | 0.0 | Result Withheld |
| - | X | 0.0 | Absent for End Exam |

- 8.7 *SGPA*: Semester Grade Point Average indicates the performance of a student in all credit-bearing subjects of a semester. *SGPA* is calculated as the weighted average of Grade Points of all subjects of the semester with

corresponding credits of subjects as weights. Audit subjects are not considered for SGPA calculation

- 8.8 *CGPA*: Cumulative Grade Point Average indicates the performance of a student in all terms up to and including the current semester under consideration. CGPA is calculated as the weighted average of SGPAs with total credits in each semester as the weights
- 8.9 *Grade Card*: All students shall be issued Grade Cards after the publication of results of a semester. Grade Card is a statement of performance of a student in a semester. It contains information about each registered subject: type of subject, allocated credits, and letter grade earned. SGPA and CGPA will also be indicated

9.0 Requirements for Completing Subjects

- 9.1 A student shall complete all credit-bearing and audit subjects successfully to be eligible for award of degree
- 9.2 *Credit-bearing subjects*: A student is considered to have completed a credit-bearing subject successfully and earned credits if she or he obtains a pass grade from A+ to D+ in that subject. If a student receives fail grade F or X in any subject, she or he must register for supplementary End examination for that subject as and when opportunity arises and improve grade to pass grade
- 9.3 *Audit subjects*: A student is considered to have successfully completed an audit subject if she or he earns at least 40% of marks in internal assessment marks.
- Supplementary exam for audit subjects*: If a student fails in audit subject, she or he shall register for supplementary examination in that subject as and when the opportunity arises and pass that subject. The supplementary exam will be conducted for 40 marks covering the entire syllabus and student is deemed to have passed in the subject if she or he earns 16 marks (40% marks) in the supplementary exam, disregard of her or his performance in internal tests

10.0 Requirements for taking End Examinations

- 10.1 A student is eligible to take regular End Examinations of current semester if she or he full fills the attendance requirement
- 10.2 A student shall be promoted from current semester to succeeding semester on satisfying the attendance requirement
- 10.3 A student shall complete all credit-bearing and audit subjects successfully before taking End examination for project viva-voce
- 10.4 Attendance Requirement
- 10.4.1 Attendance of students shall be recorded for credit-bearing and audit subjects as per the workload indicated in curriculum
- 10.4.2 Total class-periods conducted shall be reckoned from beginning to end of a semester as published in academic calendar

- 10.4.3 Aggregate Percentage of Attendance is calculated using total number of class-periods attended as numerator and total number of class-periods conducted for the concerned subject as the denominator
- 10.4.4 A minimum aggregate attendance of 75% is required for promotion to succeeding semester
- 10.4.5 A student can appeal to the Principal for condoning deficiency in aggregate attendance if she or he gets 65% or more aggregate attendance presenting a valid reason for deficiency. Such a student will be granted promotion if the Principal pardons the deficiency. Principal has the right to reject the appeal if it is not satisfied with the performance of the student or the reason cited for deficiency of the attendance
- 10.4.6 A student earning less than 75% aggregate attendance will be denied promotion. A student who is not promoted on basis of attendance shall be removed from the rolls and shall register for the same semester when opportunity arises. The current semester record of the student is cancelled automatically

11.0 Revaluation of End Examination Scripts

- 11.1 Revaluation of End Examination scripts is allowed for theory subjects only by paying requisite fee
- 11.2 A Procedure for Revaluation: The script will be revaluated by an examiner appointed by the Principal. The maximum of revaluation and regular end examination marks will be awarded for that subject
- 11.3 A student can apply for revaluation in a subject only once

12.0 Supplementary End Examinations

- 12.1 Students are eligible to take Supplementary examinations in subjects with fail grade F or X only
- 12.2 Supplementary examinations for even semester subjects will be conducted with regular examinations of odd semester subjects and vice versa
- 12.3 A student will be allowed to improve grade in any theory subject provided she or he has completed coursework of all semesters but before award of provisional/final degree

13.0 Requirements for Award of M. Tech degree

- 13.1 Time Limit for completion of requirements for award of degree is four calendar years from the date of admission. A student who could not complete all the requirements in this time limit shall forego admission and will be removed from the rolls of the Institute
- 13.2 A student shall be eligible for award of degree provided she or he has:
- 13.2.1 Registered and successfully completed all required credit-bearing and audit subjects with a total of 68 credits

- 13.2.2 Secured a CGPA of 5.5 or more
 - 13.2.3 Cleared all dues to the Institute, library and hostel
 - 13.2.4 No disciplinary action is pending against her or him
 - 13.2.5 Satisfied any other stipulation of the affiliating University
- 13.3 Award of Class: Each student will be given class in degree based on CGPA as given in Table 3

Table 3 Class of Degree

| Class of Degree | Range of CGPA |
|------------------------------|------------------------|
| Second Class | ≥ 5.5 but < 6.5 |
| First Class | ≥ 6.5 but < 7.5 |
| First Class with Distinction | ≥ 7.5 |

- 13.4 Consolidated Grade Card and Degree will issued under the seal of affiliating University

14.0 Transitory Regulations

- 14.1 A student who initially joins the Institute in a previous Regulation and has to re-join in any semester of the present Regulations, due to any reason, shall be bound by the rules of the current Regulations. Board of Studies of the concerned Major will specify, extra or otherwise, academic coursework to be undertaken by such students who re-join the current Regulations

**Annexure-1 Curriculum
For M. Tech (Geo-Technical Engineering)**

First Semester

| S.No. | Core/Elective | Course Name | L | T | P | IM | EM | CR |
|-------|------------------|---|----|---|---|-----|-----|----|
| 1 | Core 1 | Advanced Soil Mechanics | 3 | 0 | 0 | 40 | 60 | 3 |
| 2 | Core 2 | Advanced Foundation Engineering | 3 | 0 | 0 | 40 | 60 | 3 |
| 3 | PE 1 | 1. Soil Structure Interaction 2. Ground Improvement Techniques 3. Pavement Analysis and Design | 3 | 0 | 0 | 40 | 60 | 3 |
| 4 | PE 2 | 1. FEM in Geo-Mechanics 2. Environmental Geo-Technology 3. Critical Soil Mechanics | 3 | 0 | 0 | 40 | 60 | 3 |
| 5 | | Research Methodology & IPR | 2 | 0 | 0 | 40 | 60 | 2 |
| 6 | Audit Course - I | 1. English for Research paper writing 2. Disaster Management 3. Sanskrit for Technical Knowledge 4. Value Education 5. Constitution of India 6. Pedagogy Studies 7. Stress Management by Yoga 8. Personality Development through Life Enlightenment skills | | | | | | |
| 7 | Lab 1 | Soil Mechanics – 1 Laboratory | 0 | 0 | 4 | 50 | 50 | 2 |
| 8 | Lab 2 | Soil Mechanics – 2 Laboratory | 0 | 0 | 4 | 50 | 50 | 2 |
| | | Total | 14 | 0 | 8 | 300 | 400 | 18 |

Second Semester

| S.No. | Core/Elective | Course Name | L | T | P | IM | EM | CR |
|-------|-------------------|---|----|---|----|-----|-----|----|
| 1 | Core 3 | Dynamics of Soil and Foundations | 3 | 0 | 0 | 40 | 60 | 3 |
| 2 | Core 4 | Subsurface Investigations and Instrumentation | 3 | 0 | 0 | 40 | 60 | 3 |
| 3 | PE 3 | 1. Offshore Geo-Technical Engineering 2. Computational Geo-Mechanics 3. Engineering Rock Mechanics | 3 | 0 | 0 | 40 | 60 | 3 |
| 4 | PE 4 | 1. Earth Retaining Structures 2. Design of underground Excavations 3. Physical and Constitutive Modeling on Geo-Mechanics | 3 | 0 | 0 | 40 | 60 | 3 |
| 5 | | Mini Project with Seminar | 0 | 0 | 4 | 50 | 50 | 2 |
| 6 | Audit Course - II | 1. English for Research paper writing 2. Disaster Management 3. Sanskrit for Technical Knowledge 4. Value Education 5. Constitution of India 6. Pedagogy Studies 7. Stress Management by Yoga 8. Personality Development through Life Enlightenment skills | | | | | | |
| 7 | Lab 3 | Sub Soil Exploration Laboratory | 0 | 0 | 4 | 50 | 50 | 2 |
| 8 | Lab 4 | Geo-Technical Engineering Modeling Laboratory | 0 | 0 | 4 | 50 | 50 | 2 |
| | | Total | 12 | 0 | 12 | 310 | 390 | 18 |

Third Semester

| S.No. | Core/Elective | Course Name | L | T | P | IM | EM | CR |
|-------|---------------|---|---|---|----|-----|-----|----|
| 1 | PE 5 | 1. Stability Analysis of Slopes 2. Foundation on Weak Rocks 3. Geo-Technical Earthquake Engineering | 3 | 0 | 0 | 40 | 60 | 3 |
| 2 | OE | 1. Business Analytics 2. Industrial Safety 3. Operations Research 4. Cost Management of Engineering Projects 5. Composite Materials 6. Waste to Energy | 3 | 0 | 0 | 40 | 60 | 3 |
| 3 | Major Project | Dissertation Stage – 1 (to be continued next semester) | 0 | 0 | 20 | 50 | 50 | 10 |
| 4. | Seminar | Audit course | 0 | 0 | 0 | 50 | 0 | 0 |
| | | Total | 6 | 0 | 20 | 180 | 170 | 16 |

Fourth Semester

| S.No. | Core/Elective | Course Name | L | T | P | IM | EM | CR |
|-------|---------------|--|---|---|----|----|----|----|
| 1 | Major Project | Dissertation Final Stage (continued from 3 rd semester) | 0 | 0 | 32 | 50 | 50 | 16 |
| | | Total | 0 | 0 | 32 | 50 | 50 | 16 |

For M. Tech (Power Systems)

First Semester

| S.No. | Core/Elective | Course Name | L | T | P | IM | EM | CR |
|-------|------------------|---|----|---|---|-----|-----|----|
| 1 | Core 1 | Power System Analysis | 3 | 0 | 0 | 40 | 60 | 3 |
| 2 | Core 2 | Power System Dynamics - I | 3 | 0 | 0 | 40 | 60 | 3 |
| 3 | PE 1 | Renewable Energy System/ Smartgrids/High Power Converters /Wind and Solar Systems | 3 | 0 | 0 | 40 | 60 | 3 |
| 4 | PE 2 | Electrical Power Distribution System/ Mathematical Methods for Power Engineering/ Pulse Width Modulation for PE Converters/ Electric and Hybrid Vehicles | 3 | 0 | 0 | 40 | 60 | 3 |
| 5 | | Research Methodology & IPR | 2 | 0 | 0 | 40 | 60 | 2 |
| 6 | Audit Course - I | 1. English for Research paper writing 2. Disaster Management 3. Sanskrit for Technical Knowledge 4. Value Education 5. Constitution of India 6. Pedagogy Studies 7. Stress Management by Yoga 8. Personality Development through Life Enlightenment skills | | | | | | |
| 7 | Lab 1 | Power Systems Lab-I | 0 | 0 | 4 | 50 | 50 | 2 |
| 8 | Lab 2 | Power Systems Simulation Lab-I | 0 | 0 | 4 | 50 | 50 | 2 |
| | | Total | 14 | 0 | 8 | 300 | 400 | 18 |

Second Semester

| S.No. | Core/Elective | Course Name | L | T | P | IM | EM | CR |
|-------|-------------------|---|----|---|----|-----|-----|----|
| 1 | Core 3 | Digital Protection of Power System | 3 | 0 | 0 | 40 | 60 | 3 |
| 2 | Core 4 | Power System Dynamics -II | 3 | 0 | 0 | 40 | 60 | 3 |
| 3 | PE 3 | Restructured Power Systems / Energy Auditing & Management / Dynamics of Electrical Machines / Power Apparatus Design | 3 | 0 | 0 | 40 | 60 | 3 |
| 4 | PE 4 | Advanced Micro-controller Based Systems/ SCADA System and Applications / Power Quality / AI Techniques | 3 | 0 | 0 | 40 | 60 | 3 |
| 5 | | Mini Project with Seminar | 0 | 0 | 4 | 50 | 50 | 2 |
| 6 | Audit Course - II | 1. English for Research paper writing 2. Disaster Management 3. Sanskrit for Technical Knowledge 4. Value Education 5. Constitution of India 6. Pedagogy Studies 7. Stress Management by Yoga 8. Personality Development through Life Enlightenment skills | | | | | | |
| 7 | Lab 3 | Power Systems Lab-II | 0 | 0 | 4 | 50 | 50 | 2 |
| 8 | Lab 4 | Power Systems Simulation Lab-II | 0 | 0 | 4 | 50 | 50 | 2 |
| | | Total | 12 | 0 | 12 | 310 | 390 | 18 |

Third Semester

| S.No. | Core/Elective | Course Name | L | T | P | IM | EM | CR |
|-------|---------------|---|---|---|----|-----|-----|----|
| 1 | PE 5 | Power System Transients/ FACTS and custom Power Devices / Industrial Load Modelling and Control / Dynamics of Linear Systems | 3 | 0 | 0 | 40 | 60 | 3 |
| 2 | OE | 1. Business Analytics 2. Industrial Safety 3. Operations Research 4. Cost Management of Engineering Projects 5. Composite Materials 6. Waste of Energy | 3 | 0 | 0 | 40 | 60 | 3 |
| 3 | Major Project | Phase - I Dissertation | 0 | 0 | 20 | 50 | 50 | 10 |
| 4. | Seminar | Audit course | 0 | 0 | 0 | 50 | 0 | 0 |
| | | Total | 6 | 0 | 20 | 180 | 170 | 16 |

Fourth Semester

| S.No. | Core/Elective | Course Name | L | T | P | IM | EM | CR |
|-------|---------------|-------------------------|---|---|----|----|----|----|
| 1 | Major Project | Phase - II Dissertation | 0 | 0 | 32 | 50 | 50 | 16 |
| | | Total | 0 | 0 | 32 | 50 | 50 | 16 |

For M. Tech (CAD / CAM)

First Semester

| S.No. | Core/Elective | Course Name | L | T | P | IM | EM | CR |
|-------|------------------|---|----|---|---|-----|-----|----|
| 1 | Core 1 | Geometric Modelling | 3 | 0 | 0 | 40 | 60 | 3 |
| 2 | Core 2 | Computer Integrated Manufacturing | 3 | 0 | 0 | 40 | 60 | 3 |
| 3 | PE 1 | 1.Computer Aided Process Planning 2.Concurrent Engineering 3.Quality Engineering & Manufacturing | 3 | 0 | 0 | 40 | 60 | 3 |
| 4 | PE 2 | 1.Advanced Optimization techniques 2.Design For Manufacturing 3.Mechatronics | 3 | 0 | 0 | 40 | 60 | 3 |
| 5 | | Research Methodology & IPR | 2 | 0 | 0 | 40 | 60 | 2 |
| 6 | Audit Course - I | 1. English for Research paper writing 2. Disaster Management 3. Sanskrit for Technical Knowledge 4. Value Education 5. Constitution of India 6. Pedagogy Studies 7. Stress Management by Yoga 8. Personality Development through Life Enlightenment skills | | | | | | |
| 7 | Lab 1 | Lab-I (Computer Graphics Lab) | 0 | 0 | 4 | 50 | 50 | 2 |
| 8 | Lab 2 | Lab-II (CAD Lab) | 0 | 0 | 4 | 50 | 50 | 2 |
| | | Total | 14 | 0 | 8 | 300 | 400 | 18 |

Second Semester

| S.No. | Core/Elective | Course Name | L | T | P | IM | EM | CR |
|-------|-------------------|---|----|---|----|-----|-----|----|
| 1 | Core 3 | Finite Element Methods | 3 | 0 | 0 | 40 | 60 | 3 |
| 2 | Core 4 | Robotics | 3 | 0 | 0 | 40 | 60 | 3 |
| 3 | PE 3 | 1.Advances in Manufacturing Technology 2.Artificial Intelligence & Expert Systems 3.Advances Stress Analysis | 3 | 0 | 0 | 40 | 60 | 3 |
| 4 | PE 4 | 1.Flexible manufacturing Systems 2.Computer Graphics 3.CNC Technology and Programming | 3 | 0 | 0 | 40 | 60 | 3 |
| 5 | | Mini Project with Seminar | 0 | 0 | 4 | 50 | 50 | 2 |
| 6 | Audit Course - II | 1. English for Research paper writing 2. Disaster Management 3. Sanskrit for Technical Knowledge 4. Value Education 5. Constitution of India 6. Pedagogy Studies 7. Stress Management by Yoga 8. Personality Development through Life Enlightenment skills | | | | | | |
| 7 | Lab 3 | Lab-III (CAE Lab) | 0 | 0 | 4 | 50 | 50 | 2 |
| 8 | Lab 4 | Lab-IV (CAM Lab) | 0 | 0 | 4 | 50 | 50 | 2 |
| | | Total | 12 | 0 | 12 | 310 | 390 | 18 |

Third Semester

| S.No. | Core/Elective | Course Name | L | T | P | IM | EM | CR |
|-------|---------------|---|---|---|----|-----|-----|----|
| 1 | PE 5 | 1.Rapid Prototyping 2.Automation in Manufacturing | 3 | 0 | 0 | 40 | 60 | 3 |
| 2 | OE | 1.Business Analytics 2.Industrial Safety 3.Operations Research 4.Cost Management of Engineering Projects 5.Composite Materials 6.Waste to energy | 3 | 0 | 0 | 40 | 60 | 3 |
| 3 | Major Project | Dissertation Phase-I | 0 | 0 | 20 | 50 | 50 | 10 |
| 4. | Seminar | Audit course | 0 | 0 | 0 | 50 | 0 | 0 |
| | | Total | 6 | 0 | 20 | 180 | 170 | 16 |

Fourth Semester

| S.No. | Core/Elective | Course Name | L | T | P | IM | EM | CR |
|-------|---------------|-----------------------|---|---|----|----|----|----|
| 1 | Major Project | Dissertation Phase-II | 0 | 0 | 32 | 50 | 50 | 16 |
| | | Total | 0 | 0 | 32 | 50 | 50 | 16 |

For M. Tech (Digital Electronics & Communication Systems)

First Semester

| S.No. | Core/Elective | Course Name | L | T | P | IM | EM | CR |
|-------|------------------|---|----|---|---|-----|-----|----|
| 1 | Core 1 | Digital System Design | 3 | 0 | 0 | 40 | 60 | 3 |
| 2 | Core 2 | Digital Communication Techniques | 3 | 0 | 0 | 40 | 60 | 3 |
| 3 | PE 1 | 1. Analog & Digital CMOS VLSI Design 2. Low power VLSI 3. SoC Design | 3 | 0 | 0 | 40 | 60 | 3 |
| 4 | PE 2 | 1. Digital Image & Video Processing 2. Wireless & Mobile Communications 3. Advanced Communication Networks | 3 | 0 | 0 | 40 | 60 | 3 |
| 5 | | Research Methodology & IPR | 2 | 0 | 0 | 40 | 60 | 2 |
| 6 | Audit Course - I | 1. English for Research paper writing 2. Disaster Management 3. Sanskrit for Technical Knowledge 4. Value Education 5. Constitution of India 6. Pedagogy Studies 7. Stress Management by Yoga 8. Personality Development through Life Enlightenment skills | | | | | | |
| 7 | Lab 1 | DSD Lab | 0 | 0 | 4 | 50 | 50 | 2 |
| 8 | Lab 2 | DCT Lab | 0 | 0 | 4 | 50 | 50 | 2 |
| | | Total | 14 | 0 | 8 | 300 | 400 | 18 |

Second Semester

| S.No. | Core/Elective | Course Name | L | T | P | IM | EM | CR |
|-------|-------------------|---|----|---|----|-----|-----|----|
| 1 | Core 3 | Microcontrollers & Programmable DSP Processors | 3 | 0 | 0 | 40 | 60 | 3 |
| 2 | Core 4 | Advanced DSP | 3 | 0 | 0 | 40 | 60 | 3 |
| 3 | PE 3 | 1. Advanced Computer Architecture 2. IOT & Applications 3. VLSI Signal Processing | 3 | 0 | 0 | 40 | 60 | 3 |
| 4 | PE 4 | 1. Detection & Estimation Theory 2. Optical Networks 3. Biomedical Signal Processing | 3 | 0 | 0 | 40 | 60 | 3 |
| 5 | | Mini Project with Seminar | 0 | 0 | 4 | 50 | 50 | 2 |
| 6 | Audit Course - II | 1. English for Research paper writing 2. Disaster Management 3. Sanskrit for Technical Knowledge 4. Value Education 5. Constitution of India 6. Pedagogy Studies 7. Stress Management by Yoga 8. Personality Development through Life Enlightenment skills | | | | | | |
| 7 | Lab 3 | Microcontrollers and Programmable DSP Processors Lab | 0 | 0 | 4 | 50 | 50 | 2 |
| 8 | Lab 4 | Advanced DSP Lab | 0 | 0 | 4 | 50 | 50 | 2 |
| | | Total | 12 | 0 | 12 | 310 | 390 | 18 |

Third Semester

| S.No. | Core/Elective | Course Name | L | T | P | IM | EM | CR |
|-------|---------------|---|---|---|----|-----|-----|----|
| 1 | PE 5 | 1. Microcomputer System Design 2. Joint Time Frequency Analysis & MRA 3. Pattern recognition & Machine learning | 3 | 0 | 0 | 40 | 60 | 3 |
| 2 | OE | 1. Business Analytics 2. Industrial Safety 3. Operations Research 4. Cost Management of Engineering Projects 5. Composite Materials 6. Waste to Energy | 3 | 0 | 0 | 40 | 60 | 3 |
| 3 | Major Project | Dissertation Phase I | 0 | 0 | 20 | 50 | 50 | 10 |
| 4. | Seminar | Audit course | 0 | 0 | 0 | 50 | 0 | 0 |
| | | Total | 6 | 0 | 20 | 180 | 170 | 16 |

Fourth Semester

| S.No. | Core/Elective | Course Name | L | T | P | IM | EM | CR |
|-------|---------------|-----------------------|---|---|----|----|----|----|
| 1 | Major Project | Dissertation Phase II | 0 | 0 | 32 | 50 | 50 | 16 |
| | | Total | 0 | 0 | 32 | 50 | 50 | 16 |

For M. Tech (Computer Science and Engineering)

First Semester

| S.No. | Core/Elective | Course Name | L | T | P | IM | EM | CR |
|-------|------------------|---|----|---|---|-----|-----|----|
| 1 | Core 1 | Mathematical foundations of Computer Science | 3 | 0 | 0 | 40 | 60 | 3 |
| 2 | Core 2 | Advanced Data Structures | 3 | 0 | 0 | 40 | 60 | 3 |
| 3 | PE 1 | 1. Machine Learning 2. Wireless Sensor Networks 3. Introduction to Intelligent Systems | 3 | 0 | 0 | 40 | 60 | 3 |
| 4 | PE 2 | 1. Data Science 2. Distributed Systems 3. Advanced Wireless and Mobile Networks | 3 | 0 | 0 | 40 | 60 | 3 |
| 5 | | Research Methodology & IPR | 2 | 0 | 0 | 40 | 60 | 2 |
| 6 | Audit Course - I | 1. English for Research paper writing 2. Disaster Management 3. Sanskrit for Technical Knowledge 4. Value Education 5. Constitution of India 6. Pedagogy Studies 7. Stress Management by Yoga 8. Personality Development through Life Enlightenment skills | | | | | | |
| 7 | Lab 1 | Advanced Data Structures | 0 | 0 | 4 | 50 | 50 | 2 |
| 8 | Lab 2 | Software Lab-I | 0 | 0 | 4 | 50 | 50 | 2 |
| | | Total | 14 | 0 | 8 | 300 | 400 | 18 |

Second Semester

| S.No. | Core/Elective | Course Name | L | T | P | IM | EM | CR |
|-------|-------------------|---|----|---|----|-----|-----|----|
| 1 | Core 3 | Advanced Algorithms | 3 | 0 | 0 | 40 | 60 | 3 |
| 2 | Core 4 | Soft Computing | 3 | 0 | 0 | 40 | 60 | 3 |
| 3 | PE 3 | 1. Cyber Security 2. IOT 3. Computer Vision | 3 | 0 | 0 | 40 | 60 | 3 |
| 4 | PE 4 | 1. Cloud Computing 2. Human Computer Interaction 3. Digital Forensics | 3 | 0 | 0 | 40 | 60 | 3 |
| 5 | | Mini Project with Seminar | 0 | 0 | 4 | 50 | 50 | 2 |
| 6 | Audit Course - II | 1. English for Research paper writing 2. Disaster Management 3. Sanskrit for Technical Knowledge 4. Value Education 5. Constitution of India 6. Pedagogy Studies 7. Stress Management by Yoga 8. Personality Development through Life Enlightenment skills | | | | | | |
| 7 | Lab 3 | Advanced Algorithms Lab | 0 | 0 | 4 | 50 | 50 | 2 |
| 8 | Lab 4 | Software Lab-II | 0 | 0 | 4 | 50 | 50 | 2 |
| | | Total | 12 | 0 | 12 | 310 | 390 | 18 |

Third Semester

| S.No. | Core/Elective | Course Name | L | T | P | IM | EM | CR |
|-------|---------------|---|---|---|----|-----|-----|----|
| 1 | PE 5 | 1. Mobile Applications and Services 2. Compiler for High Performance Computing 3. Big Data Analytics | 3 | 0 | 0 | 40 | 60 | 3 |
| 2 | OE | 1. Business Analytics 2. Industrial Safety 3. Operations Research 4. Cost Management of Engineering Projects 5. Composite Materials 6. Waste of Energy | 3 | 0 | 0 | 40 | 60 | 3 |
| 3 | Major Project | Dissertation-I | 0 | 0 | 20 | 50 | 50 | 10 |
| 4. | Seminar | Audit course | 0 | 0 | 0 | 50 | 0 | 0 |
| | | Total | 6 | 0 | 20 | 180 | 170 | 16 |

Fourth Semester

| S.No. | Core/Elective | Course Name | L | T | P | IM | EM | CR |
|-------|---------------|-----------------|---|---|----|----|----|----|
| 1 | Major Project | Dissertation-II | 0 | 0 | 32 | 50 | 50 | 16 |
| | | Total | 0 | 0 | 32 | 50 | 50 | 16 |