

ACADEMIC REGULATIONS (R25)

COURSE STRUCTURE

AND

DETAILED SYLLABUS

For

M.Tech Two Year Programme

(Applicable for the batches admitted from the A.Y. 2025-26)



UNIVERSITY COLLEGE OF ENGINEERING KAKINADA (A)
JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY KAKINADA
KAKINADA – 533003, ANDHRA PRADESH, INDIA

UNIVERSITY COLLEGE OF ENGINEERING KAKINADA (A)
JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY KAKINADA

(Established by Andhra Pradesh Act No.30 of 2008)

Kakinada – 533 003, Andhra Pradesh (India)

ACADEMIC REGULATIONS R25 FOR M. Tech (REGULAR) PG DEGREE COURSE

Applicable for the students **admitted to** M. Tech (Regular) Course from the Academic Year **2025-26 and** onwards. The M. Tech Degree of Jawaharlal Nehru Technological University Kakinada shall be conferred on candidates who are admitted to the program and who fulfil all the requirements for the award of the Degree.

1.0 ELIGIBILITY FOR ADMISSIONS

Admission to the above program shall be made subject to eligibility, qualification and specialization as prescribed by the University/**affiliating bodies** from time to time.

Admissions shall be made on the basis of merit/rank obtained by the candidates at the qualifying Entrance Test conducted by the **State Govt./University** or on the basis of any other order of merit as approved by the **State Govt./University**, subject to reservations as laid down by the Govt. from time to time.

2.0 AWARD OF M. Tech DEGREE

2.1 A student shall be declared eligible for the award of the M. Tech Degree, if he pursues a course of study in not less than two and not more than four academic years. **Under any circumstances, permission shall not be given to complete the course work beyond four years. University is at discretion to accord permission to register for the backlog subjects beyond maximum duration.**

2.2 **The student shall register for all 80 credits and secure all the 80 credits.**

2.3 The minimum instruction days in each semester are 90.

3.0 PROGRAMMES OF STUDY

The following specializations are offered at present for the M. Tech Programme of study.

| S.No. | Department | Programme |
|-------|--|---|
| 1 | Civil Engineering | 1. M.Tech- Structural Engineering 2. M. Tech- Soil Mechanics and Foundation Engineering 3. M.Tech-Water Resource Engineering 4. Environmental Engineering & Management |
| 2 | Electrical and Electronics Engineering | 1. M.Tech- High Voltage Engineering 2. M.Tech- Advanced Electrical Power System 3. M.Tech- Power Electronics and Drives |
| 3 | Mechanical | 1. M.Tech- CAD/CAM |

| | | |
|---|---|--|
| | Engineering | 2. M.Tech- Machine Design 3. M.Tech- Mechanical Engineering (Thermal Engineering) |
| 4 | Electronics and Communication Engineering | 1. M.Tech- Computer and Communication 2. M.Tech- VLSI and Embedded Systems 3. M.Tech- Communication Engineering and Signal Processing |
| 5 | Computer Science and Engineering | 1. M.Tech- Computer Science and Engineering 2. M.Tech- Computer Science and Engineering (Artificial Intelligence and Machine Learning) 3. M.Tech- Cyber Security |
| 6 | Food Engineering | 1. M.Tech - Food Processing and Technology |

4.0 ATTENDANCE

4.1 Attendance is calculated separately for each course. Attendance in all classes (Lectures/Laboratories) is compulsory. The minimum required attendance in each course is 75%. A student shall not be permitted to appear for the Semester End Examinations (SEE), if his/**her** attendance is less than 75%.

4.2 Condoning of shortage of attendance (between 65% and 75%) up to a maximum of 10% (*considering the days of attendance in sports, games, NSS activities and medical exigencies*) in each course (Theory/Lab/**Seminar**) is condoned on production of valid Certificates/documents in the stipulated time mentioned here with:

4.2.1 Students who are admitted as in patients for treatment are only eligible to claim condonation of attendance. Such students under medical exigencies need to Produce (a) Doctor Medical Prescription, (ii) Medical bills duly signed by Doctor/Hospital authorities, (c) Diagnosis reports, if any, (d) Discharge summary issued at the time of discharge and any other supporting documents within one/two week(s) from the date of discharge to the respective institution.

4.2.2 Students participation in Sports/Games and NSS activities shall also be permitted for condonation of attendance. In such cases, they need to produce (a) invitation letter from the organising institute/agency, (ii) participation certificate and any supporting documents within one/two week(s) from the date of participation to the respective institution

4.3 A prescribed fee per course shall be payable for condoning shortage of attendance after getting the approval of College Academic Committee for the same. The College Academic Committee shall maintain all the relevant documents along with the request from the students, whose attendance is condoned.

4.4 Shortage of Attendance below 65% in any course shall in no case be condoned.

4.5 A Student, whose shortage of attendance is not condoned in any course(s) (Theory/Lab/Mini Project with Seminar) in any Semester, is considered as '**Detained in that course(s)**', and is not eligible to write Semester End Examination(s) of such Course(s), (in case of Mini Project with Seminar, his/her Mini Project with Seminar Report or Presentation are not eligible for evaluation) in that Semester; and he/she has to seek re-registration for those course(s) in subsequent Semesters, and attend the same as and when offered.

4.6 A student shall put in a minimum required attendance in at least FOUR courses in I semester for promotion to II Semester; and at least FOUR courses in II semester for promotion to III Semester.

Re-admission / Re-registration

4.7 A student shall not be permitted to appear for the Semester End Examination (SEE) in a course unless they meet the prescribed attendance requirements for that course. Such students may take readmission for the course in the subsequent semester when it is offered by paying the prescribed fee, *at least 30 days before the commencement of classwork*. The college must obtain permission from the University by submitting the list of students eligible/applied for readmission before the commencement of classwork

4.8 Students who fail due to **less internal marks (less than 50%)** may be extended re-registration and may be permitted during maximum permissible course duration.

4.9 In such a case, the candidate must re-register for the course(s) and secure the required minimum attendance. The candidate's attendance in the re-registered course(s) shall be calculated separately to decide upon eligibility for writing the end examination in those course(s).

4.10 In a semester, students are permitted to re-register maximum of FOUR courses.

4.11 Upon re-registration, the student's previous performance in the respective course(s) will be nullified. Re-registration must be completed by paying the prescribed fee (Rs.XXX/-) at least 30 days prior to the commencement of classwork. The college is required to obtain approval from the University by submitting a list of eligible and interested students before the start of commencement of classwork.

5.0 EVALUATION

The performance of the candidate in each semester shall be evaluated **course-wise**, with a maximum of 100 marks for theory and 100 marks for practical, on the basis of Internal Evaluation and End Semester Examination.

5.1 For the theory courses **60** marks shall be awarded based on the performance in the End Semester Examination and **40** marks shall be awarded based on the Internal Evaluation. The **continuous** / internal evaluation shall be made based on the **average** of the marks secured in the two CIE/Mid Term-Examinations conducted-one in the middle of the Semester and the other immediately after the completion of instruction. Each CIE/midterm examination shall be conducted for a total duration of 120 minutes with 4 questions (without choice) each question for 10 marks. End semester examination is conducted for **60** marks for all FIVE (5) questions (one question from one unit) to be answered (either or).

5.2 For practical courses, **60** marks shall be awarded based on the performance in the End Semester Examinations and **40** marks shall be awarded based on the day-to-day performance as Internal Marks. The internal evaluation based on the day to day work-**10** marks, record- **10** marks and the remaining **20** marks to be awarded by

conducting an internal laboratory test. The end examination shall be conducted by the examiners, with breakup marks of Procedure-15, Experimentation- 25, Results-10, Viva-voce-10.

5.3 For Seminar, a student under the supervision of a faculty member, shall collect the literature on a topic and critically review the literature and submit it to the department in a report form and shall make an oral presentation before the Project Review Committee consisting of Head of the Department, supervisor/mentor and two other senior faculty members of the department. For Seminar, there will be only internal evaluation of 100 marks. A candidate has to secure a minimum of 50% of marks to be declared successful. Out of 100 marks, supervisor awards 60% marks and remaining 40% marks are awarded by the project review committee.

5.4 A candidate shall be deemed to have secured the minimum academic requirement in a course if he secures a minimum of 40% of marks in the End semester Examination and a minimum aggregate of 50% of the total marks in the End Semester Examination and Internal Evaluation taken together.

5.7 Laboratory examination for M. Tech. courses must be conducted with two Examiners, one of them being the Laboratory Class Teacher or teacher of the respective college and the second examiner shall be appointed by the Principal from the panel of examiners submitted by the respective HoD.

5.8 Students shall undergo mandatory summer internship / industrial training (2 credits) for a minimum of **eight weeks duration** at the end of second semester of the Programme/Summer Break. A student will be required to submit a summer internship/industrial training report to the concerned department and appear for an oral presentation before the committee. The Committee comprises of a HoD / Professor of the department and two faculty. The report and the oral presentation shall carry 40% and 60% weightages respectively. For summer internship / industrial training, there will be only internal evaluation of 100 marks. A candidate has to secure a minimum of 50% of marks to be declared successful.

5.9 The objective of comprehensive viva-voce is to assess the overall knowledge of the student in the relevant field of Engineering/Specialization in the PG program. Viva will be conducted in 3rd semester. The examination committee will be constituted by the HoD and consist of Professor of the department and two faculty. For comprehensive viva-voce, there will be only internal evaluation of 100 marks. A candidate has to secure a minimum of 50% of marks to be declared successful.

6.0 EVALUATION OF SEMINAR/INTERNSHIP/DISSERTATION WORK

All the students admitted under these regulations have to mandatorily comply the requirements of (i) Seminar-I, (ii) Seminar-II, (iii) Comprehensive Viva, (iv) Dissertation Part-A and (v) Dissertation Part-B. Out of these, (i) to (iv) are evaluated by internally by Project Review Committee (PRC) and (v) External Evaluation.

6.1 A Project Review Committee (PRC) shall be constituted with Head of the Department and Two other senior faculty members in the department.

- 6.2 Students are required to appear for Seminar-I and Seminar-II in First and Second respectively. They shall present before PRC on the topic of their choice/interest preferably on the courses listed in respective semesters. PRC shall advise the students in advance to select topics which strengthen their Dissertation Part-A and Dissertation Part-B.
- 6.3 Students shall undergo mandatory summer internship / industrial training (2 credits) for a minimum of eight weeks duration at the end of second semester of the Programme/Summer Break. A student will be required to submit a summer internship/industrial training report to the concerned department and appear for an oral presentation before PRC. The report and the oral presentation shall carry 40% and 60% weightages respectively. For summer internship / industrial training, there will be only internal evaluation of 100 marks. A candidate has to secure a minimum of 50% of marks to be declared successful.
- 6.4 The objective of comprehensive viva-voce is to assess the overall knowledge of the student in the relevant field of Engineering/Specialization in the PG program. Viva will be conducted in 3rd semester. For comprehensive viva-voce, there will be only internal evaluation of 100 marks. A candidate has to secure a minimum of 50% of marks to be declared successful.
- 6.5 Registration of Dissertation/Project Work: A candidate is permitted to register for the project work after satisfying the attendance requirement of all the courses, both theory and practical and duly approved by PRC.
- 6.6 After satisfying 6.5, student has to submit, in consultation with his project supervisor, the title, objective and plan of action of his project work for approval
- 6.7 If a candidate wishes to change his/her supervisor or topic of the project, he/she can do so with the approval of PRC. However, the PRC shall examine whether or not the change of topic/supervisor leads to a major change of his initial plans of project proposal. If yes, his date of registration for the project work starts from the date of change of Supervisor or topic as the case may be.
- 6.8 Continuous assessment of Dissertation-Part A and Dissertation-Part B during the Semester(s) will be monitored by PRC. *Dissertation-Part A* will be only internal evaluation by PRC for 100 marks. A candidate has to secure a minimum of 50% of marks to be declared successful.
- 6.9 The candidate shall submit a status report to the PRC in two stages, each accompanied by an oral presentation, with a minimum interval of three months between the two.
- 6.10 The work on the project shall be initiated at the beginning of the III Sem and the duration of the project is two semesters. A candidate is permitted to submit Project Thesis (*Dissertation – Part A & Part B*) only with the approval of PRC not earlier than 40 weeks from the date of registration of the project work. **The candidate may be allowed to submit the project report if the project work is published or accepted in a reputable national or international journal or conference.**
- 6.11 Three copies of the Project Thesis certified by the supervisor shall be submitted to the College/School/Institute **along with plagiarism report (<40%).**

- 6.10 The thesis shall be adjudicated by one examiner selected by the University. For this, the Principal of the College shall submit a panel of 5 examiners, eminent in that field, with the help of the guide concerned and head of the department.
- 6.11 If the report of the examiner is *not favourable*, the candidate shall revise and resubmit the Thesis, in the time frame as decided by the PRC. If the report of the examiner is *not favourable* again, the thesis shall be summarily rejected. The candidate has to reregister for the project and complete the project within the stipulated time after taking the approval from the University.
- 6.12 If the report of the examiner is favourable, Viva-Voce examination shall be conducted by a board consisting of the Supervisor, Head of the Department and the examiner who adjudicated the Thesis. The Head of the Department shall coordinate and make arrangements for the conduct of Viva-Voce examination. The Board shall jointly report the candidate's work for a maximum of 100 marks. **Corresponding grade will be awarded by the board.**
- 6.13 If the report of the Viva-Voce is unsatisfactory (i.e., < 50 marks), the candidate shall retake the Viva-Voce examination only after three months. If he fails to get a satisfactory report at the second Viva-Voce examination, the candidate has to re-register for the project and complete the project within the stipulated time after taking the approval from the University.

7.0 Cumulative Grade Point Average (CGPA)

| Marks Range Theory/ Laboratory (Max – 100) | Marks Range Mini Project/ Project Work for Dissertation (Max – 100) | Letter Grade | Level | Grade Point |
|--|---|-----------------|-------------|----------------|
| ≥ 90 | ≥ 90 | S | Outstanding | 10 |
| ≥80 to <90 | ≥80 to <90 | A | Excellent | 9 |
| ≥70 to <80 | ≥70 to <80 | B | Very Good | 8 |
| ≥60 to <70 | ≥60 to <70 | C | Good | 7 |
| ≥50 to <60 | ≥50 to <60 | D | Fair | 6 |
| <50 | <50 | F | Fail | 3 |
| | | | Absent | 0 |

Computation of SGPA

- The following procedure is to be adopted to compute the Semester Grade Point Average(SGPA) and Cumulative Grade Point Average(CGPA):
- The **SGPA** is the ratio of sum of the product of the number of credits with the grade points scored by a student in all the courses taken by a student and the sum of the number of credits of all the courses undergone by a student, i.e

$$SGPA (S_i) = \frac{\sum (C_i \times G_i)}{\sum C_i}$$

- Where C_i is the number of credits of the i th course and G_i is the grade point scored by the student in the i th course.

Computation of CGPA

- The **CGPA** is also calculated in the same manner taking into account all the courses undergone by a student over all the semester of a Programme, i.e.

$$CGPA = \sum (C_i \times S_i) / \sum C_i$$

- Where S_i is the SGPA of the i^{th} semester and C_i is the total number of credits in that semester.
- The SGPA and CGPA shall be rounded off to 2 decimal points and reported in the transcripts.
- Equivalent Percentage = $(CGPA - 0.5) \times 10$

8.0 AWARD OF DEGREE AND CLASS

After a student has satisfied the requirements prescribed for the completion of the program and is eligible for the award of M. Tech. Degree he shall be placed in one of the following four classes:

| Class Awarded | CGPA to be secured | |
|---------------------------------|--|---------------------------------------|
| First Division with Distinction | ≥ 7.5 (without supplementary History) | From the CGPA secured from 80 credits |
| First Class | ≥ 6.5 | |
| Second Class | ≥ 6.0 to < 6.5 | |

The secured grade, grade points, status and credits obtained will be shown separately in the memorandum of marks.

If a student wants to leave the program / exit after successful completion of first two semesters, he/she will be awarded Post Graduate Diploma in the specialization concerned.

9.0 WITHHOLDING OF RESULTS

If the student is involved in indiscipline/malpractices/court cases, the result of the student will be withheld.

10.0 GENERAL

10.1 Wherever the words “he”, “him”, “his”, occur in the regulations, they include “she”, “her”, “hers”.

10.2 The academic regulation should be read as a whole for the purpose of any interpretation.

10.3 In the case of any doubt or ambiguity in the interpretation of the above rules, the decision of the Vice-Chancellor is final.

10.4 The University may change or amend the academic regulations or syllabi at any time and the changes or amendments made shall be applicable to all the students with effect from the dates notified by the University.

MALPRACTICES RULES (FOLLOWING WILL BE UPDATED)

DISCIPLINARY ACTION FOR / IMPROPER CONDUCT IN EXAMINATIONS

| | Nature of Malpractices/Improper conduct | Punishment |
|--------|--|---|
| | <i>If the candidate:</i> | |
| 1. (a) | Possesses or keeps accessible in examination hall, any paper, note book, programmable calculators, Cell phones, pager, palm computers or any other form of material concerned with or related to the subject of the examination (theory or practical) in which he is appearing but has not made use of (material shall include any marks on the body of the candidate which can be used as an aid in the subject of the examination) | Expulsion from the examination hall and cancellation of the performance in that subject only. |
| (b) | Gives assistance or guidance or receives it from any other candidate orally or by any other body language methods or communicates through cell phones with any candidate or persons in or outside the exam hall in respect of any matter. | Expulsion from the examination hall and cancellation of the performance in that subject only of all the candidates involved. In case of an outsider, he will be handed over to the police and a case is registered against him. |
| 2. | Has copied in the examination hall from any paper, book, programmable calculators, palm computers or any other form of material relevant to the subject of the examination (theory or practical) in which the candidate is appearing. | Expulsion from the examination hall and cancellation of the performance in that subject and all other subjects the candidate has already appeared including practical examinations and project work and shall not be permitted to appear for the remaining examinations of the subjects of that Semester/year. The Hall Ticket of the candidate is to be cancelled and sent to the University. |

| | | |
|----|---|---|
| 3. | Impersonates any other candidate in connection with the examination. | The candidate who has impersonated shall be expelled from examination hall. The candidate is also debarred and forfeits the seat. The performance of the original candidate who has been impersonated, shall be cancelled in all the subjects of the examination (including practicals and project work) already appeared and shall not be allowed to appear for examinations of the remaining subjects of that semester/year. The candidate is also debarred for two consecutive semesters from class work and all University examinations. The continuation of the course by the candidate is subject to the academic regulations in connection with forfeiture of seat. If the imposter is an outsider, he will be handed over to the police and a case is registered against him. |
| 4. | Smuggles in the Answer book or additional sheet or takes out or arranges to send out the question paper during the examination or answer book or additional sheet, during or after the examination. | Expulsion from the examination hall and cancellation of performance in that subject and all the other subjects the candidate has already appeared including practical examinations and project work and shall not be permitted for the remaining examinations of the subjects of that semester/year. The candidate is also debarred for two consecutive semesters from class work and all University examinations. The continuation of the course by the candidate is subject to the academic regulations in connection with forfeiture of seat. |
| 5. | Uses objectionable, abusive or offensive language in the answer paper or in letters to the examiners or writes to the examiner requesting him to award pass marks. | Cancellation of the performance in that subject. |

| | | |
|----|--|--|
| 6. | <p>Refuses to obey the orders of the Chief Superintendent/Assistant – Superintendent / any officer on duty or misbehaves or creates disturbance of any kind in and around the examination hall or organizes a walk out or instigates others to walk out, or threatens the officer-in charge or any person on duty in or outside the examination hall of any injury to his person or to any of his relations whether by words, either spoken or written or by signs or by visible representation, assaults the officer in-charge, or any person on duty in or outside the examination hall or any of his relations, or indulges in any other act of misconduct or mischief which result in damage to or destruction of property in the examination hall or any part of the College campus or engages in any other act which in the opinion of the officer on duty amounts to use of unfair means or misconduct or has the tendency to disrupt the orderly conduct of the examination.</p> | <p>In case of students of the college, they shall be expelled from examination halls and cancellation of their performance in that subject and all other subjects the candidate(s) has (have) already appeared and shall not be permitted to appear for the remaining examinations of the subjects of that semester/year. The candidates also are debarred and forfeit their seats. In case of outsiders, they will be handed over to the police and a police case is registered against them.</p> |
| 7. | <p>Leaves the exam hall taking away answer script or intentionally tears of the script or any part thereof inside or outside the examination hall.</p> | <p>Expulsion from the examination hall and cancellation of performance in that subject and all the other subjects the candidate has already appeared including practical examinations and project work and shall not be permitted for the remaining examinations of the subjects of that semester/year. The candidate is also debarred for two consecutive semesters from class work and all University examinations. The continuation of the course by the candidate is subject to the academic regulations in connection with forfeiture of seat</p> |

| | | |
|-----|---|---|
| 8. | Possess any lethal weapon or firearm in the examination hall. | Expulsion from the examination hall and cancellation of the performance in that subject and all other subjects the candidate has already appeared including practical examinations and project work and shall not be permitted for the remaining examinations of the subjects of that semester/year. The candidate is also debarred and forfeits the seat. |
| 9. | If student of the college, who is not a candidate for the particular examination or any person not connected with the college indulges in any malpractice or improper conduct mentioned in clause 6 to 8. | <p>Student of the colleges expulsion from the examination hall and cancellation of the performance in that subject and all other subjects the candidate has already appeared including practical examinations and project work and shall not be permitted for the remaining examinations of the subjects of that semester/year. The candidate is also debarred and forfeits the seat.</p> <p>Person(s) who do not belong to the College will be handed over to police and, a police case will be registered against them.</p> |
| 10. | Comes in a drunken condition to the examination hall. | Expulsion from the examination hall and cancellation of the performance in that subject and all other subjects the candidate has already appeared including practical examinations and project work and shall not be permitted for the remaining examinations of the subjects of that semester/year. |
| 11. | Copying detected on the basis of internal evidence, such as, during valuation or during special scrutiny. | Cancellation of the performance in that subject and all other subjects the candidate has appeared including practical examinations and project work of that semester/year examinations. |
| 12. | If any malpractice is detected which is not covered in the above clauses 1 to 11 shall be reported to the University for further action to award suitable punishment. | |

Malpractices identified by squad or special invigilators:

1. Punishments to the candidates as per the above guidelines.
2. Punishment for institutions: (if the squad reports that the college is also involved in encouraging malpractices)
 - (i) A show cause notice shall be issued to the college.
 - (ii) Impose a suitable fine on the college.
 - (iii) Shifting the examination centre from the college to another college for a specific period of not less than one year.

Programme Structure
R25 MTech (XXXX) Structure
MTech (XXXX) I – Semester

| S. No. | Course Code | Course Title | L | T | P | C |
|--------|-------------|-----------------------|-----------|----------|----------|-----------|
| 1 | | Program Core – 1 | 3 | 1 | 0 | 4 |
| 2 | | Program Core – 2 | 3 | 1 | 0 | 4 |
| 3 | | Program Core – 3 | 3 | 1 | 0 | 4 |
| 4 | | Program Elective – I | 3 | 0 | 0 | 3 |
| 5 | | Program Elective – II | 3 | 0 | 0 | 3 |
| 6 | | Laboratory – 1 | 0 | 1 | 2 | 2 |
| 7 | | Laboratory – 2 | 0 | 1 | 2 | 2 |
| 8 | | Seminar-I | 0 | 0 | 2 | 1 |
| | | TOTAL | 15 | 5 | 6 | 23 |

List of Professional Elective Courses in I Semester (Electives – I & II)

| S.No. | Course Code | Course Title |
|-------|-------------|--------------|
| 1 | | |
| 2 | | |
| 3 | | |
| 4 | | |
| 5 | | |
| 6 | | |
| 7 | | |
| 8 | | |

@ Minimum 2/3 themes per elective

MTech (XXXX) II – Semester

| Sl. No. | Course Code | Course Title | L | T | P | C |
|----------------|--------------------|------------------------|-----------|----------|----------|-----------|
| 1 | | Program Core – 4 | 3 | 1 | 0 | 4 |
| 2 | | Program Core – 5 | 3 | 1 | 0 | 4 |
| 3 | | Program Core – 6 | 3 | 1 | 0 | 4 |
| 4 | | Program Elective – III | 3 | 0 | 0 | 3 |
| 5 | | Program Elective - IV | 3 | 0 | 0 | 3 |
| 6 | | Laboratory – 3 | 0 | 1 | 2 | 2 |
| 7 | | Laboratory – 4 | 0 | 1 | 2 | 2 |
| 8 | | Seminar – II | 0 | 0 | 2 | 1 |
| | | TOTAL | 15 | 5 | 6 | 23 |

List of Professional Elective Courses in II Semester (Electives III & IV)

| S.No. | Course Code | Course Title |
|--------------|--------------------|---------------------|
| 1 | | |
| 2 | | |
| 3 | | |
| 4 | | |
| 5 | | |
| 6 | | |
| 7 | | |
| 8 | | |

@ Minimum 2/3 themes per elective

MTech (XXXX) - III Semester

| Sl. No. | Course Code | Course Title | L | T | P | C |
|---------|-------------|--|----------|----------|-----------|-----------|
| 1 | | Research Methodology and IPR / <i>Swayam 12 week MOOC course – RM&IPR</i> | 3 | 0 | 0 | 3 |
| 2 | | Summer Internship/ Industrial Training (8-10 weeks)* | - | - | - | 3 |
| 3 | | Comprehensive Viva [#] | - | - | - | 2 |
| 4 | | Dissertation Part – A ^{\$} | - | - | 20 | 10 |
| | | TOTAL | 3 | - | 20 | 18 |

* Student attended during summer / year break and assessment will be done in 3rd Sem.

Comprehensive viva can be conducted courses completed upto second sem.

\$ Dissertation – Part A, internal assessment

MTech. (XXXX) – IV Semester

| Sl. No. | Course Code | Course Title | L | T | P | C |
|---------|-------------|------------------------------------|----------|----------|-----------|-----------|
| 1 | | Dissertation Part – B [%] | - | - | 32 | 16 |
| | | TOTAL | - | - | 32 | 16 |

% External Assessment

Revised Bloom's Taxonomy Action Verbs

| Definitions | I. Remembering | II. Understanding | III. Applying | IV. Analyzing | V. Evaluating | VI. Creating |
|---------------------------|--|--|--|---|---|--|
| Bloom's Definition | Exhibit memory of previously learned material by recalling facts, terms, basic concepts, and answers. | Demonstrate understanding of facts and ideas by organizing, comparing, translating, interpreting, giving descriptions, and stating main ideas. | Solve problems to new situations by applying acquired knowledge, facts, techniques and rules in a different way. | Examine and break information into parts by identifying motives or causes. Make inferences and find evidence to support generalizations. | Present and defend opinions by making judgments about information, validity of ideas, or quality of work based on a set of criteria. | Compile information together in a different way by combining elements in a new pattern or proposing alternative solutions. |
| Verbs | <ul style="list-style-type: none"> • Choose • Define • Find • How • Label • List • Match • Name • Omit • Recall • Relate • Select • Show • Spell • Tell • What • When • Where • Which • Who • Why | <ul style="list-style-type: none"> • Classify • Compare • Contrast • Demonstrate • Explain • Extend • Illustrate • Infer • Interpret • Outline • Relate • Rephrase • Show • Summarize • Translate | <ul style="list-style-type: none"> • Apply • Build • Choose • Construct • Develop • Experiment with • Identify • Interview • Make use of • Model • Organize • Plan • Select • Solve • Utilize | <ul style="list-style-type: none"> • Analyze • Assume • Categorize • Classify • Compare • Conclusion • Contrast • Discover • Dissect • Distinguish • Divide • Examine • Function • Inference • Inspect • List • Motive • Relationships • Simplify • Survey • Take part in • Test for • Theme | <ul style="list-style-type: none"> • Agree • Appraise • Assess • Award • Choose • Compare • Conclude • Criteria • Criticize • Decide • Deduct • Defend • Determine • Disprove • Estimate • Evaluate • Explain • Importance • Influence • Interpret • Judge • Justify • Mark • Measure • Opinion • Perceive • Prioritize • Prove • Rate • Recommend • Rule on • Select • Support • Value | <ul style="list-style-type: none"> • Adapt • Build • Change • Choose • Combine • Compile • Compose • Construct • Create • Delete • Design • Develop • Discuss • Elaborate • Estimate • Formulate • Happen • Imagine • Improve • Invent • Make up • Maximize • Minimize • Modify • Original • Originate • Plan • Predict • Propose • Solution • Solve • Suppose • Test • Theory |