

Academic Regulations

M. Tech. Programme

Faculty of Engineering and Technology
M.S. Ramaiah University of Applied
Sciences

2019

University House, New BEL Road, MSR Nagar,
Bangalore – 560 054

www.msruas.ac.in

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Academic Regulations for M. Tech. Programme

(Applicable for 2014-15 Batches onwards)

P.1 Short Title and Commencement

- a) The regulations listed under this head are common for all post graduate programmes leading to M. Tech degree offered by the University
- b) The regulations hereunder are subject to amendments by the Academic Council of the University, from time to time, after obtaining approval of the Board of Management. Such amendments will be effective from such date and apply to such batches of candidates, including those already undergoing the programme, as may be determined by the Academic Council.

P.2 Definitions

- a) "Commission" means University Grants Commission (UGC);
- b) "University" means the M. S. Ramaiah University of Applied Sciences (MSRUAS);
- c) "Programme" means a set of modules a student is required to successfully complete to become eligible for the award of M. Tech. degree;
- d) "Department" means an academic unit, under the Faculty of Engineering and Technology, responsible for delivering a particular M.Tech. degree programme;
- e) "Faculty" means the Faculty of Engineering and Technology;
- f) "Full-Time students" means students who are spending their full time on campus for a programme;
- g) "Module" means a course, either theory or practical or both, listed under a programme;
- h) "Part-Time students" means students who are employed and are spending a part of their time on campus for a programme;
- i) "Programme" means Postgraduate programme in Engineering and Technology leading to M. Tech. degree;
- j) "Statute" means the MSRUAS Statutes;
- k) "Answer scripts" means test, assignment or examination answer sheet or booklet.

P.3 Academic Programmes

P.3.1 Nomenclature of the Programme

The nomenclature and the abbreviation given below shall be used for this Post Graduate Programme of the University:

(i) Master of Technology (M.Tech.)

In addition, the programme title shall be indicated, in brackets, after the abbreviation. For example, the Master of Technology Degree in Machine Learning and Intelligent Systems programme will be abbreviated as:

“ M.Tech. (Machine Learning and Intelligent Systems)”

P.3.2 Medium of Instruction

The medium of instruction for M.Tech. Programmes is English.

P.3.3 Programmes Offered

Please refer to **Annexure - 1**

P.3.4 Study Scheme – Modular Scheme

The programme is delivered in modular form and assessed on module basis. In this scheme, the modules are delivered and assessed sequentially in accordance with the Programme Time-table.

P.3.5 Academic Calendar

The Academic Calendar will be synchronized with admission notification and allotment of candidates by the Government of Karnataka in each academic year.

P.3.6 Programme Duration

P.3.6.1 Normal duration of the programme

The normal duration of the M.Tech. postgraduate programme is:

- a. Two years in the Full-Time Route
- b. Three years in the Part-Time Route

P.3.6.2 Maximum duration of the programme

The maximum period a student is allowed to complete the M.Tech. Programme shall be double the normal duration of the programme, i.e., Four Years for Full-Time students and Six years for Part-Time students.

P.3.7 Admission of students

P.3.7.1 Eligibility:

- a) Karnataka Government Quota (for 40% seats):
 - i. A candidate seeking admission to postgraduate programme must have passed BE, B. Tech. or an equivalent examination in the appropriate discipline and secured at least 50% marks in the aggregate or equivalent CGPA.
 - ii. A candidate belonging to SC/ST category will be entitled to a relaxation in the qualifying marks in accordance with the related government notification in this regard.
- b) University Quota (60% of the seats):

Students seeking admission under University quota must have passed BE, B. Tech. or an equivalent examination in the appropriate discipline and secured at least 50% marks in the aggregate or equivalent CGPA.

Entry level qualifications for the various programmes are indicated in **Annexure – 2**
- c) Foreign Student Admission Criterion:
 - i. Foreign students should have Association of Indian Universities recognized first degree qualification in the related discipline of equivalent
 - ii. Should have proof of proficiency in English.

P.3.7.2 Selection of Students

Selection of students for admission under Government of Karnataka will be based on Karnataka Government notified admission tests like PGCET.

Selection of students for admission to University quota of seats is based on admission policy of the University notified from time to time.

Selection of foreign students for admission to University quota of seats is based on the admission policy of the University notified from time to time.

P.3.7.3 Admission to Programme

Selected candidates shall complete the admission procedure within the prescribed date by paying the prescribed fees and completing all other admission formalities notified by the University. Failure to do so may lead to cancellation of the selection.

P.3.8 Annual Programme Fee

Details of the fees payable for each programme will be notified well in advance to the commencement of the programme.

The fees, once paid, will not be refunded under any circumstances.

The continuation of a student's registration in subsequent academic years is subject to payment of the prescribed programme and registration fees for each of those years.

P.3.8.1 Free-ship and scholarships

The Board of Management, in consultation with the Board of Governors, may consider offering free-ship / scholarship to deserving students who maintain a minimum level of academic performance on a yearly basis.

P.4 Credit Scheme and Credit Structure

P.4.1 Credit Definition

- a. For theory classes: one credit is equivalent to a total of 15 contact hours.
- b. For laboratory / field work / workshops / project work and allied activities: one credit is equivalent to a total of 30 contact hours.

A student is required to earn a total of 100 credits to become eligible for the award of the M. Tech. degree.

P.5 Curriculum

The curriculum includes the:

1. **Programme specifications** document where the programme aims, objectives, learning outcomes and detailed programme structure are described; and
2. **Module specifications** document which contains the module title, learning outcomes, syllabus, teaching and learning methods and the assessment methodology for each of the modules.

P.5.1 Development of Programme Curriculum

The Dean of the Faculty is required to establish a Board of Studies in a department that proposes to offer M. Tech., Degree programme. The Board of Studies (BoS) comprises a team of faculty members under the Chairmanship of a faculty member. The Chair and the members of BoS are nominated by the Dean of the Faculty. The BoS is responsible for formulating the curriculum of various modules for each M. Tech., Degree programme offered by that department. The BoS is also required to seek and obtain the opinion of external academic and industry

experts on the curriculum so formulated. The curriculum is then presented to the Academic Council for its approval before the programme is offered by the University.

The curriculum for every programme is reviewed by the BoS once in every 2 years i.e. after one complete delivery cycle, and approval of the Academic Council is sought again. The BoS is also required to review the module notes prepared by the members of the Faculty for every module, in every programme, before delivering the module. A member of the faculty who formulates the curriculum of a module, delivers and assesses students undergoing that module is known as “**Module Leader**”.

P.5.2 Curriculum Framework

The curriculum framework of the programme is given in **Annexure-3**.

P.6 Module Details

P.6.1 Module Delivery

Module delivery includes, but is not limited to, the following:

1. Face-to-Face Lectures using Audio-Visuals
2. Workshops, Group Discussions, Debates, Presentations
3. Demonstrations
4. Guest Lectures
5. Laboratory/Field work/Workshop
6. Industry Visit
7. Seminars
8. Group Exercises
9. Project Exhibitions
10. Technical Festivals

P.6.1.1 Elective and Mandatory Modules

An Elective module maybe any one of the following:

1. Industry Internship
2. Seminar
3. Training
4. Student Competition
5. Visit to Industries and Exhibition
6. Teaching and Training

Mandatory Modules

A mandatory module may be any one of the following:

1. Conference Publication
2. Journal Publication

P.6.2 Module Registration

Students shall register for the modules (i.e., department common, programme specialization, faculty common and elective module), group project and individual projects in accordance with the procedure prescribed in M.Tech. Academic Operations Manual. The student will earn the corresponding credit(s) upon successful completion of each module.

P.6.2.1 Module Delivery Structure

For students in the Full-Time route, the module is delivered from Monday to Friday of a week according to the following table:

| Week-1 | Week-2 | Week-3 | Week-4 | Week-5 |
|-----------------|-----------------|------------|-------------|--------------------------------------|
| Module Delivery | Module Delivery | Study Work | Study Work | Assignment submission & Presentation |
| | | | Examination | |

Prior to the commencement of a module a detailed Module Session Time-Table shall be issued to the students.

For students in the Part-time route the Module delivery structure will be on similar lines but the programme is spread over three years.

P.7 Student Project Details

A student should have earned 46 credits prior to registering for:

1. Group Project
2. Dissertation

P.8 Attendance Requirements

A student is required to have a minimum attendance of 85% to be eligible to write the examination and for assignment submission. Students who fail to achieve the minimum attendance will be declared as "FAIL". A failed student is required to re-register, attend the module and take up all the components of assessment at the next offering.

P.8.1 Condoning of shortfall in attendance

A shortfall in attendance, up to a maximum of 10%, may be condoned by the Dean of the relevant Faculty under special circumstances like medical emergencies, participation in sports, cultural activities, seminars, workshops and paper presentation etc. at the State, National or International level representing the University and with the prior permission of the concerned HOD.

P.8.2 Examination attendance

Students are compulsorily required to achieve the minimum attendance requirements for all the examination components in each module they have registered. There is no provision for a re-examination or any kind of re-consideration.

P.9 Assessment

The Faculty Dean constitutes a **Board of Examiners (BoE)** for the purpose of assessment of students' performance. The BoE, comprising Internal and External examiners, is headed by a Chairman. Normally, the Head of the Department, offering the programme, is the Chairman of BoE or any Professor of the Department nominated by the Dean. The Board of Examiners (BoE) is responsible for:

- Setting and review of question papers and evaluation of answer scripts
- Setting and review of Assignments and evaluation
- Laboratory/Workshop/Studio/Project/Internship assessment
- Supervision of Written Examinations and Conducting Laboratory Examinations

P.9.1 Module Assessment

Performance in every module will be assessed on the following two components:

Component - 1

Assignment (50% weight)

Component -2

Examination (50% weight)

The **Module Specifications (MS)** provide the details of Components-1 and 2.

A student is required to score a minimum of 40% in each of the components and 40% overall for successful completion of a module and for earning the corresponding credit(s).

P.9.1.1 Question Paper

The setting of question papers and assignments is the responsibility of the module teaching team. Question papers and assignments for each module shall be reviewed and approved by BoE.

P.9.1.2 Second Assessment and External Review

Each student's work is first assessed by the module teaching team. All the answer scripts of a given module are to be assessed by a second examiner. 10% of the evaluated scripts will be further reviewed by an examiner who is external to the University. An External examiner will have tenure of 2 years which can be renewed for a further period of 2 years. The first assessor or assessing team is required to fill in the evaluation data and write the Post Module Assessment Report (PMAR).

P.9.1.3 Feedback on Assessed work

The awarded marks and distribution pattern will be reviewed by the Dean of the Faculty before scheduling a face-to-face feedback session with the student. After completing assessment of the module, the module teaching team along with the concerned Head of the Department should provide face-to-face feedback to the student regarding his/her performance after handing over the assessed documents on a prescheduled day. After the feedback, the assessed documents are collected and deposited with the Examination and Assessment Unit of the Faculty.

P.9.2 Failure and Re-registration

A minimum of 40 % marks in the assignment and a minimum of 40% marks in the written examination are required for successful completion of a module. A student failing in any one of the components will be declared 'FAILED' in the module. A failed student who has fulfilled the attendance criterion is eligible to re-sit under the fast track scheme (refer P.9.3).

There is no provision for a re-examination or re-submission of any of the assessment components for a failed module.

A maximum of 3 attempts, including the first attempt, are permitted for successful completion of a module.

P.9.3 Fast Track Scheme**P.9.3.1 Background:**

The Fast Track Scheme has been devised to provide a re-sit opportunity for failed students who have met the attendance requirement.

P.9.3.2 Details of Fast Track Scheme:

The details of the scheme are as under:

- a. The scheme is available for those students who are carrying out their individual project work but have a backlog of module(s).
- b. A schedule for the Fast Track scheme will be notified, well in advance, by the Academic Registrar (Faculty).
- c. A student can register for a maximum of TWO modules excluding the following:
 - i. Elective module
 - ii. Group project
- d. A student who has failed need not attend the classes and lab sessions but will have to appear for all the components of the module assessment, viz., written test, assignment, laboratory/field work as the case may be.
- e. The assessment method is the same as that for regular modules. However, the marks awarded in any module that is attempted under the Fast Track scheme will be capped at 40% (pass class).

P.10 Programme Quality Monitoring**P.10.1 Staff Student Consultative Committee**

The Staff-Student Consultative Committee looks into the quality of the programmes delivered by each Faculty. The committee comprises the Dean, Academic Registrar (Faculty), Administrative Registrar (Faculty), HODs, Class Representatives and other member(s) invited by the Dean. Committee meetings are scheduled after delivery of 2nd and 7th Module.

During the committee meetings the following issues are discussed and suitable action plans are initiated:

- a. Student Academic issues
 - I. Curriculum
 - II. Programme Delivery
 - III. Module examination, Assignment and their Assessment
- b. Student Teaching and Learning Support
 - I. Programme Operations
 - II. Examination and Assignment

- III. Library
- IV. Information and Communication Technologies (ICT)
- V. Laboratories and Workshops
- c. Student Amenities
 - I. Hostel and Cafeteria
 - II. Sports and Recreation
- d. Any other matter with the permission of the Chair

P.10.2 Subject Assessment Board (SAB)

SAB meetings are chaired by the Dean of the concerned Faculty. The Heads of Departments, Internal and External Examiners and an Observer nominated by the Vice Chancellor are the other members of SAB. The Subject Assessment Board meets once in six months during the programme. The meetings will be scheduled by the Academic Registrar (Faculty). The Board objectively examines the module delivery, examination and evaluation processes to ensure academic standards based on data compiled for the six month period are met. The most important task is to review the standard of assessment and its comparability across modules. The Subject Assessment Board will confirm module marks after completing its review. Once the marks have been confirmed by SAB they must not subsequently be altered by any other Board, unless an error in transcription or an omission is discovered.

P.10.3 Programme Assessment Board (PAB)

PAB meetings are chaired by the Dean of the concerned Faculty. The Heads of Departments, Internal and External Examiners and an Observer nominated by the Vice Chancellor are the other members of PAB. The Programme Assessment Board meets at the end of the programme. The purpose of the Programme Assessment Board is to make decisions on progression and awards for all students registered for the named award for which the Board is responsible. In reaching a decision on progression or an award, the Board must consider the overall performance of the student. The overall performance of the student is made up of module marks which have been confirmed by the Subject Assessment Board.

P 10.4 Award of Grade and Grade Point Average (GPA)

The final award of student achievement on completion of the programme will be in the form of “Grade Card”. The Grade Card will include details of Module Code, Module Title, Credits Earned and Grade Awarded. The grade awarded will be based on the details depicted in the table shown below

| Class Interval, Grade Definition and Grade Point | | | |
|--|--------------|--------------------|------------------|
| Sl. No. | Marks Scored | Grading | GPA Grade Points |
| 1. | 90.1 – 100 | O (Outstanding) | 10 |
| 2. | 80.1 – 90 | A+ (Excellent) | 9 |
| 3. | 70.1 – 80 | A (Very Good) | 8 |
| 4. | 60.1 – 70 | B+ (Good) | 7 |
| 5. | 55.1 – 60 | B (Above Average) | 6 |
| 6. | 50.1 – 55 | C (Average) | 5 |
| 7. | 40 – 50 | P (Pass) | 4 |
| 8. | Below 40 | F/Ab (Fail/Absent) | 0 |

Formula for Computation of GPA

$$GPA = \sum_{i=1}^n \frac{\text{Grade Points scored in a given module} * \text{Number of Credits of that Module}}{\text{Total Number of Credits}}$$

or

$$GPA = \sum_{i=1}^n \frac{Mi * Ci}{C}$$

P 10.4.1 Announcement of Results

The office of the Academic Registrar (Faculty) will announce the results of the students on the Faculty notice board as well as on the University website.

P 10.4.2 Withholding of Results

Students' results may be withheld, if the student:

1. Has been subjected to disciplinary action and a decision is pending;
2. Is in debt to the University;
3. Has failed to meet the academic requirements

All pending results will be announced as soon as the issue in question is resolved to the satisfaction of the University.

P.11 Statement of Learning and Achievement (Transcript/Marks card)

Every student will be issued a Statement of Learning and Achievement (Transcript/Marks Card) at the end of the programme containing the module code, module title, marks scored, credits earned, grade awarded and result.

The Statement of Learning and Achievement will bear the signature (facsimile) of Academic Registrar (University). The facsimile will be in the custody of the Academic Registrar (University).

P.11.1 Degree Certificate

The degree certificate, issued under the University seal, will have the student's name, University roll number, name of the degree awarded, specialization and class.

The degree certificate will bear the signature (facsimile) of Vice-Chancellor.

P.11.2 Convocation

A Convocation ceremony will be held once every year. Students will be conferred their Degree by the Vice –Chancellor or his / her nominee (normally the Dean of the concerned Faculty) during the convocation ceremony. The degree will be awarded in the presence of the University's Mace.

Graduating students who are unable to attend the convocation, in person, can apply for award of the degree *in absentia* after paying the prescribed fee.

P.11.3 Awards and Honors for students**P.11.3.1 University Awards**

The University may recognize meritorious performance of students by conferring various awards. These awards will be presented to students during the Convocation.

P.11.3.2 Donor Awards

For the award of prizes and medals instituted by donors the conditions stipulated by the donors will be considered by the Board of Management.

P. 11.3.3 Corrections in Statement of Learning & Achievement Certificates

Students can apply for correction in any transcript/marks card and degree certificate issued by the University within six months from the date of issue.

P. 11.3.4 Duplicate Transcripts and Degree Certificate

In the event of a student losing the original transcripts or degree certificate, he/she can apply for the issue of re-printed documents. Re-printed transcripts will be issued against payment of the prescribed fee. The reprints will carry the caption "Duplicate".

P. 11.3.5 Inter-University transfer of students

Inter-University transfer of students is not permitted.

P.12 Other Academic Matters**P.12.1 Academic Calendar**

The Academic Calendar will notify the important dates to assist students and Faculty members. These include dates for registration of programmes/modules, deferral of a module or project(s) and last dates for withdrawal from programmes. This will enable students to be well prepared, minimize their chances of missing module assessment and project assessment schedules and allow them to take full advantage of the flexibility provided in the module based system.

P.12.2 Missing a module / failure to complete a module:

If a student is unable to complete a module due to any reason leading to non-assessment, the student is required to re-register for that module in the next offering.

P.12.3 Programme Change

A change of Programme, from one specialization to another, may be requested by a student.

However, a request for programme change may only be permitted, within the department, subject to availability of vacancies in the target programme and if the request was made prior to commencement of programme specific modules. Such requests can be made through an application to be submitted to the Academic Registrar (Faculty) at least two weeks in advance.

P.12.4 Withdrawal from Programme

A student undergoing the programme is allowed to withdraw at any point during the programme of study after submitting a request to the Academic Registrar (Faculty).

Permission to withdraw shall be given by the Academic Registrar (Faculty) after obtaining the approval of the Dean of the concerned Faculty.

Any fees and other charges collected for that academic year shall not be refundable.

At the student's request a Certificate will be issued for the modules successfully completed.

P.12.5 Termination from the programme

A student will be directed to discontinue the programme and leave the University on the following grounds:

- a. Failure to meet the standards of discipline as prescribed by the University from time to time;
- b. Failure to complete the programme within the prescribed maximum duration permitted by the University's regulations.

P.12.6 Conduct and Discipline

The provision relating to discipline and code of conduct that applies to every member of the University is as described in Chapter 8 of the MSRUAS Statutes.

P.12.7 Intellectual Property

The provision governing Intellectual Property that is generated by a member of the University is as described in Chapter 9 of the MSRUAS Statutes.



Any other issues not covered in this document will be referred to Academic Council. The decision of the Academic Council in such matters shall be final.

These Regulations may be amended from time to time by the Academic Council and approved by Board of Management.

Failure to read and understand the regulations is not an excuse.



Annexure – 1**List of M.Tech. Programmes offered from
academic year 2016-17 onwards**

| No. | Programmes | Department |
|-----|--|--|
| 1. | Automotive Engineering | Automotive and Aeronautical Engineering |
| 2. | Automotive Product Design | |
| 3. | Automotive Powertrain Design | |
| 4. | Turbomachinery Design | |
| 5. | Aircraft Design | |
| 6. | Advanced Machinery Design | Mechanical and Manufacturing Engineering |
| 7. | Advanced Manufacturing Technologies | |
| 8. | Engineering and Manufacturing Management | |
| 9. | Robotic Engineering | |
| 10. | Civil Structural Design | Civil Engineering |
| 11. | Construction Engineering and Management | |
| 12. | Transportation Engineering | |
| 13. | Sanitation Engineering and Waste Management | |
| 14. | Electrical Machinery Design | Electrical Engineering |
| 15. | Sensors and Control Systems Engineering | |
| 16. | Biomedical Engineering | Electronic and Communication Engineering |
| 17. | Electronic Systems Design Engineering | |
| 18. | Digital Signal and Image Processing | |
| 19. | Signal Processing and Communication Technologies | |
| 20. | VLSI System Design | |
| 21. | Automotive Electronics | Computer Science and Engineering |
| 22. | Computer Science and Networking | |
| 23. | Real Time Embedded Systems | |
| 24. | Machine Learning and Intelligent Systems | |

User-oriented Postgraduate Programmes (UoPC)

The Board of Management, after obtaining the consent of the Board of Governors, is empowered to formulate and offer exclusive programmes through the University's Faculties to cater to the specific needs of Industry, Businesses and Corporations.

The candidates sponsored by such businesses/corporations shall meet the eligibility requirements for the M.Tech., programme. These students will also follow the University's Academic Regulations, with such exceptions as may be approved by the Academic Council, for the Postgraduate Programme leading to M. Tech., degree.

Annexure – 2
Eligibility criteria for M.Tech. Programmes

| Sl. No | Programmes | Entry Level Qualification |
|--------|--|---|
| 1. | Automotive Engineering | B.E./B.Tech. or equivalent in, Automobile, Industrial Engineering, Industrial Production, Mechanical, Manufacturing, Marine, Mechatronics Engineering Or Allied disciplines related to Automotive Engineering |
| 2. | Automotive Product Design | B.E./B.Tech. or equivalent in, Automobile, Industrial Engineering, Industrial Production, Mechanical, Manufacturing, Marine, Mechatronics Engineering Or Allied disciplines related to Automotive Engineering and Industrial Art and Design |
| 3. | Automotive Powertrain Design | B.E./B.Tech. or equivalent in, Automobile, Industrial Production, Mechanical, Manufacturing, Marine, Mechatronics Engineering Or Allied disciplines related to Automotive Engineering |
| 4. | Turbo machinery Design | B.E./B.Tech. or equivalent in, Automobile, Aeronautical, Industrial Production, Mechanical, Manufacturing, Marine, Mechatronics Engineering Or Allied disciplines related to Aeronautical Engineering |
| 5. | Aircraft Design | B.E./B.Tech. or equivalent in, Automobile, Aeronautical, Industrial Production, Mechanical, Manufacturing, Marine, Mechatronics Engineering Or Allied disciplines related to Aeronautical Engineering |
| 6. | Advanced Machinery Design | B.E./B.Tech. or equivalent in, Automobile, Industrial Engineering, Industrial Production, Mechanical, Manufacturing, Marine, Mechatronics Engineering Or Allied disciplines related to Mechanical Engineering |
| 7. | Advanced Manufacturing Technologies | B.E./B.Tech. or equivalent in, Automobile, Industrial Engineering, Industrial Production, Mechanical, Manufacturing, Marine, Mechatronics, Metallurgy, Foundry and Forge technology, Plastic technology, Ceramic Technology Or Allied disciplines related to Mechanical Engineering |
| 8. | Engineering and Manufacturing Management | B.E./B.Tech. or equivalent in any discipline |
| 9. | Civil Structural Design | B.E./B.Tech. or equivalent in Civil, Architecture, Construction Technology, Mechanical, Aeronautical, Industrial Production Engineering Or Allied disciplines related to Civil Engineering |
| 10. | Construction Engineering and Management | B.E./B.Tech. or equivalent in Civil, Architecture, Construction Technology, Mechanical, Aeronautical, Industrial Production Engineering Or Allied disciplines related to Civil Engineering |
| 11. | Electrical Machinery Design | B.E./B.Tech. or equivalent in Electrical, Electronics, Power Systems, Mechanical, Instrumentation, Mechatronics Engineering Or Allied disciplines related to Electrical Engineering |

| | | |
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| 12. | Sensors and Control Systems Engineering | B.E./B.Tech. or equivalent in Biomedical, Communication, Computer Science, Electrical, Electronics, Information Science, Instrumentation, Chemical, Mechatronics, Telecommunication Engineering Or Allied disciplines related to Control Engineering Or M.Sc. in Physics, Electronics, Computer Science, Instrumentation |
| 13. | Biomedical Engineering | B.E./B.Tech. or equivalent in Biomedical, Biotechnology, Communication, Computer Science, Electrical, Electronics, Information Science, Instrumentation, Mechatronics, Telecommunication Engineering Or Allied disciplines related to Bio Medical Engineering Or M.Sc. in Physics, Electronics, Computer Science, Instrumentation |
| 14. | Electronic Systems Design Engineering | B.E./B.Tech. or equivalent in Biomedical, Communication, Computer Science, Electrical, Electronics, Information Science, Instrumentation, Mechatronics, Telecommunication Engineering Or Allied disciplines related to Electronics Engineering Or M.Sc. in Physics, Electronics, Computer Science, Instrumentation |
| 15. | Digital Signal and Image Processing | B.E./B.Tech. or equivalent in Biomedical, Communication, Computer Science, Electrical, Electronics, Information Science, Instrumentation, Mechatronics, Telecommunication Engineering Or Allied disciplines related to Electronics Engineering Or M.Sc. in Physics, Electronics, Computer Science, Instrumentation |
| 16. | Signal Processing and Communication Technologies | B.E./B.Tech. or equivalent in Biomedical, Communication, Computer Science, Electrical, Electronics, Information Science, Instrumentation, Mechatronics, Telecommunication Engineering Or Allied disciplines related to Electronics Engineering Or M.Sc. in Physics, Electronics, Computer Science, Instrumentation |
| 17. | VLSI-System Design | B.E./B.Tech. or equivalent in Communication, Computer Science, Electrical, Electronics, Information Science, Instrumentation, Mechatronics, Telecommunication Engineering Or Allied disciplines related to Electronics Engineering Or M.Sc. in Physics, Electronics, Computer Science, Instrumentation |
| 18. | Automotive Electronics | B.E./B.Tech. or equivalent in Communication, Computer Science, Electrical, Electronics, Information Science, Instrumentation, Mechatronics, Mechanical, Telecommunication Engineering Or Allied disciplines related to Electronics Engineering Or M.Sc. in Physics, Electronics, Computer Science, Instrumentation |

| | | |
|-----|---|--|
| 19. | Computer Science and Networking | B.E./B.Tech. or equivalent in Biomedical, Communication, Computer Science, Electrical, Electronics, Information Science, Instrumentation, Mechatronics, Telecommunication Engineering Or Allied disciplines related to Computer Engineering Or M.Sc. in Physics, Electronics, Computer Science, Instrumentation Or Master of Computer Applications (MCA) |
| 20. | Real time Embedded Systems | B.E./B.Tech. or equivalent in Biomedical, Communication, Computer Science, Electrical, Electronics, Information Science, Instrumentation, Mechatronics, Telecommunication Engineering Or Allied disciplines related to Electronics Engineering Or M.Sc. in Physics, Electronics, Computer Science, Instrumentation |
| 21 | Robotic Engineering | B.E./B.Tech. or equivalent in Communication, Computer Science, Electrical, Electronics, Information Science, Instrumentation, Mechatronics, Mechanical, Telecommunication Engineering Or Allied disciplines related to Electronics Engineering Or M.Sc. in Physics, Electronics, Computer Science, Instrumentation |
| 22 | Machine Learning and Intelligent Systems | B.E./B.Tech. or equivalent in Biomedical, Communication, Computer Science, Electrical, Electronics, Information Science, Instrumentation, Mechatronics, Telecommunication Engineering Or Allied disciplines related to Computer Engineering Or M.Sc. in Physics, Electronics, Computer Science, Instrumentation |
| 23 | Transportation Engineering | B.E./B.Tech. or equivalent in Civil, Architecture, Construction Technology, Mechanical, Aeronautical, Industrial Production Engineering Or Allied disciplines related to Civil Engineering |
| 24 | Sanitation Engineering and Waste Management | B.E./B.Tech. or equivalent in Civil, Architecture, Construction Technology, Mechanical, Aeronautical, Industrial Production Engineering Or Allied disciplines related to Civil Engineering |

Annexure 3
Curriculum Framework

| Modules | Credits | Duration (Weeks) |
|---|---------|------------------|
| Department- Common Modules | | |
| 1. | 5 | 5 |
| 2. | 5 | 5 |
| 3. | 5 | 5 |
| Programme - Specialization Modules | | |
| 1. | 5 | 5 |
| 2. | 5 | 5 |
| 3. | 5 | 5 |
| 4. | 5 | 5 |
| 5. | 5 | 5 |
| 6. | 5 | 5 |
| Faculty-Common Modules | | |
| 1. Principles of Management and Soft Skills Development | 3 | 3 |
| 2. Research Methodology | 3 | 3 |
| Elective Module (Any One of 6) | 5 | 5 |
| 1. Industry Internship | | |
| 2. Seminar | | |
| 3. Training | | |
| 4. Student Competition | | |
| 5. Visit to Industries and Exhibitions | | |
| 6. Teaching and Training | | |
| Group Work-Project | 10 | 10 |
| Dissertation | 30 | 26 |
| Mandatory Module (Any One) | | |
| 1. Conference Publication | 4 | 4 |
| 2. Journal Publication | | |
| | 100 | 96 |
| Note: | | |
| 1. Vacations and other activities shall be in accordance with the Time-Table for the corresponding batch. | | |