

**Regulations and Scheme**  
**for**  
**M. Tech. Degree Programme**  
**2013 Scheme**

**University of Kerala**

# Regulations for the M. Tech. Degree Programme 2013

## 1.0 General

The duration of M.Tech degree course is two academic years comprising of four semesters. The duration is counted from the date of commencement of the first semester of the course. Credit system is adopted for the course. A minimum of 69 credits have to be secured by the student for eligible to be awarded with the degree.

## 2.0 Eligibility

1. The candidate should have B.Tech. Degree in the appropriate branch ( as specified in the annexure to this document) of Kerala University or B.Tech Degree of another University approved and recognized as equivalent by the Kerala University.
2. The candidate should have a minimum CGPA of 6.0 in a 10 point scale. If the candidate obtained the B.Tech degree from a University where credit system was not followed, he /she should have a minimum of 60 % aggregate marks and where the credit system was followed, absolute marks will not be considered for selection.
3. Candidates who have passed AMIE/AMIETE examination and satisfying the following conditions are also eligible for admission to M. Tech courses in Institutions under University of Kerala .
  - a. They must have a valid GATE score.
  - b. A minimum mark of 55% for section B in AMIE/AMIETE examinations.
  - c. Minimum 3 years of professional experience in the field of specialization after acquiring the qualification.
4. The list of relevant branch(es) of B.Tech degree to be considered as the qualifying degree for each specialisation in the M.Tech program will be as in Annexure A to this document.

## 3.0 Structure of the M. Tech Programme

3.1 The programme will span four semesters, each semester with a minimum of 75 working days. The academic programme in each semester will consist of course work and/or thesis work as specified for each specialisation. The total contact hours is normally about 30 hours per week including departmental assistance.

3.2 The programme of instruction for each stream of specialization will consist of

- i. Core courses
  - ii. Elective courses
  - iii. Seminars
  - iv. Laboratory work
  - v. Thesis work
- 3.3 The academic programme in each semester will consist of course work and/or thesis work as specified for each specialisation. Every stream of specialization in the programme will have a scheme and syllabus for the courses. The scheme shall be so drawn up that the minimum number of credits for successful completion of the M Tech programme of any stream is 69.
- 3.4 The first and second semester lecture based theory subjects will have common end semester examinations conducted by the University, whereas the theory subjects for the third semester will have end of semester examinations conducted by the individual institutions. The Laboratory, Seminar, Thesis-Preliminary Part I, Thesis-Preliminary Part II and course on Research Methodology will only have internal examinations.
- 3.5 Credits will be assigned to the courses based on the following general pattern as given in the Table 1.

**Table 1: Distribution of credits for various coursework**

<b>Course work</b>	<b>Weekly hours</b>	<b>Credits allotted</b>
Theory subject	3	3
Seminar	2	2
Laboratory	2	1
Thesis - Preliminary –Part I	2	2
Thesis - Preliminary – Part II	15	5
Thesis	21	12

- 3.6 A student will have to register in all the **core courses** listed in the scheme and syllabus of his / her selected area of specialisation and successfully complete all of them. He/she has to register for the **Elective courses** from the list of courses offered by the Department in that particular semester in consultation with the course coordinator.
- 3.7 The medium of instruction, examination, seminar and project reports will be in English.

#### **4.0 Content of the Course Work**

#### 4.1 Semester I:

The student has to credit six theory courses. All these courses will be core courses out of which one will be from the area of Applied Mathematics.

#### 4.2 Semester II:

The student has to credit 6 theory courses, one Seminar, one Laboratory and Thesis-Preliminary Part I in this semester. Among the six theory subjects, two would be the core subjects offered by the Stream concerned; two would be Stream Electives, one would be a Department Elective and the remaining one would necessarily be a core course on Research Methodology. Stream and Department electives are to be selected from the electives listed in the scheme and syllabus for each stream.

For the Thesis-Preliminary Part I the student is expected to start the preliminary background studies towards the Thesis by conducting a literature survey in the relevant field. He/she should broadly identify the area of the Thesis work, familiarize with the design and simulation tools required for the Thesis work and plan the experimental platform, if any, required for Thesis work. The student will submit a detailed report of these activities at the end of the semester.

#### 4.3 Semester III:

The student has to credit two subjects from the group of Electives listed for the Semester concerned and a Non Departmental Inter-Disciplinary core course. The inter-disciplinary course has to be selected from the list of Inter-Disciplinary courses offered by another department in consultation with the Course Coordinator. Each department will announce the list of Inter-Disciplinary courses offered, from among the common list of Inter-Disciplinary courses for the M.Tech programme

Thesis-Preliminary Part II comprises of a preliminary thesis work, two seminars and submission of thesis-preliminary report. The first seminar would highlight the topic, objectives, and methodology and the second seminar will be a presentation of the work they have completed till the third semester and scope of the work which is to be accomplished in the fourth semester, mentioning the expected results.

#### 4.4 Semester IV:

The fourth semester is entirely devoted for the thesis work. There would be an interim presentation at the first half of the semester to evaluate the progress of the work and at the end of the semester there would be a Pre-Submission seminar before the Evaluation Committee for assessing the quality and quantum of the work. This would be the qualifying exercise for

the students for getting approval from the Department Committee for the submission of Thesis. At least one technical paper is to be prepared for possible publication in Journals/ Conferences. The final evaluation of the Thesis would be conducted by the board of examiners constituted by the University including the Guide and an external examiner.

#### 4.5 Industrial Training/Internship:

Those candidates who wish to take up industrial training/internship with any industry can do so after obtaining permission from Principal without affecting the regular course work, at the end of third semester.

The distribution of credits for the course work is given in Table 2.

**Table 2: Distribution of credits among the Semesters**

Semester	Course work content	Total credits allotted	Total credits Allotted semester-wise
I	6 Theory Subjects	$6 \times 3 = 18$	21
	Seminar	$1 \times 2 = 2$	
	Laboratory -I	$1 \times 1 = 1$	
II	6 Theory Subjects - 2 Core subjects, 2 Stream Electives, 1 Department Elective and a Course on Research methodology.	$(2 \times 3) + (2 \times 3) +$ $(1 \times 3) + (1 \times 2)$ $= 17$	22
	Laboratory - II	$1 \times 1 = 1$	
	Seminar	$1 \times 2 = 2$	
	Thesis Preliminary Part I	2	
III	2 Theory Subjects ( Stream Electives)	$2 \times 3 = 6$	14
	1 Non-Department Elective (Interdisciplinary Elective)	$1 \times 3 = 3$	
	Thesis – Preliminary Part II	5	
IV	Thesis	12	12
	<b>Total Credits in all four semesters</b>		<b>69</b>

#### 5.0 Details of committees for approval and course work contents:

The entire academic matters relating to the PG programme will be managed by the Principal of the respective institutions .

**5.1 Academic Committee:** The Academic Committee for PG Courses of the concerned institution will comprise of (i) Principal (ii) Heads of all Departments offering P.G. Courses and (iii) **P.G. Coordinator in the various departments.**

### **5.2 Course coordinator:**

Each Department will have a Professor as Course Coordinator for each M.Tech Programme. The responsibilities of the Course Coordinator are

1. To supervise and coordinate the activities of the particular course.
2. To guide and advice the students in all academic matters .
3. To keep a record of the academic activities of students registered for the particular M Tech programme

### **5.3 P.G. Coordinator**

In the departments where more than one M.Tech programmes are offered, one Professor will act as the P.G. Coordinator for coordinating the academic activities in the department for the PG courses .

### **5.4 Department Committee:**

Each Department of every institution offering PG Course will have a Department Committee to look after the P.G. Courses. This Committee will consist of (i) Head of the Department (ii) The Course coordinator of each stream and (iii) The PG Coordinator (iv) One faculty member nominated by the Head of the Department. The Department committee will finalise the semester results for each stream.

### **5.5 Evaluation Committee:**

Each department of every institution offering PG Courses will constitute evaluation committees to evaluate seminars, projects, pre-submission seminar for the Thesis etc. consisting of at-least three faculty members. The internal guide and another expert in the area of specialisation shall be the two essential members of this committee.

### **5.6 Class Committee**

Class committees will be relevant for each department offering the PG course in every college. Branch-wise class committees will be constituted by the Heads of the Department as follows:

- i. Teachers offering courses for the particular course.

- ii. One Professor preferably not offering courses for the class as Chairman
- iii. One student member
- iv. Course Coordinator – Ex-Officio Member

5.6.1 The basic responsibilities of the class/ course committee are:

- i. To review periodically the progress of the classes to discuss problems concerning curricula and syllabi and the conduct of the classes.
- ii. The type of assessment for the course will be decided by the teacher in consultation with the class committee and will be announced to the students at the beginning of the semester.

## **6.0 Facility for Students to do Thesis work outside the parent institute:**

As far as possible the students shall be encouraged to do their thesis work in the parent institute itself. However if found essential, they may be permitted for continuing their thesis in the IV<sup>th</sup> semester outside the parent Institute with the approval of the Department Committee, and Principal. For students who are availing this facility, the following conditions are to be observed.

The student has to get prior approval from the Department Committee and Principal in the third semester itself, for availing this facility as well as choice of the Institution/Industry/ R&D organization with which the student is associated for continuing his/her thesis work. They have to get this approval in the third semester itself.

1. If they are doing their thesis work in an Educational Institute then the Institute is to be preferably an institution of national repute like IITs, IISc, NITs etc.
2. Students availing this facility should continue as regular students of the parent institute itself.
3. They should have an external as well as an internal guide. The internal guide should belong to the parent institution and the external guide should be from the Institution/Industry/ R&D organization with which the student is associated for doing the thesis work.
4. The student also has to furnish a certificate from the external guide stating the willingness to supervise the thesis work through the Institution/Industry/ R&D organization with which the student is associated for his/her thesis work and has to submit the same to the Department Committee.

5. The student has to furnish his /her monthly progress as well as attendance report signed by the external guide and submit the same to the concerned Internal guide.
6. The external guide and the internal guide are to be preferably present during all the stages of evaluation of the thesis work. In case the external guide is not present, the internal guide can alone take the responsibility of conducting the evaluation.

## **7.0 Registration and Enrolment**

- 7.1 For the first semester every student has to enroll and register for the courses he / she intends to undergo on a specified date notified to the students. The concerned Course Coordinator will guide the students in the registration process.
- 7.2 For the subsequent semesters, registration for the courses will be done by the Course Coordinator during a specified week before the end semester examination of the previous semester. The registration form will give details of the core and elective courses, project and seminar to be taken in a semester with the number of credits. The student should consult his / her Course Coordinator for the choice of courses. The registration form is then filled and signed by the student and the Course Coordinator.
- 7.3 From the second semester onwards, all students have to enroll on a specified day at the beginning of a semester. A student will become eligible for enrollment only if he/she satisfies requirements specified in **Section 8.0** and in addition he/she has cleared all dues to the Institute, Hostel and the Library up to the end of the previous semester and also he/she is not debarred from enrollment by the Principal.
- 7.4 In extraordinary circumstances like medical grounds, a student may be permitted to withdraw from a semester completely. Normally a student will be permitted to withdraw from the programme only for a maximum continuous period of two semesters.

## **7.5 Maximum Duration of the Programme.**

A student is ordinarily expected to complete the M.Tech programme in four semesters.

In case of students who do not complete their thesis work by the end of fourth semester, they will be permitted to submit the report within six months. The student has to keep the registration live till the time of submission of thesis by paying the registration fees. Under no circumstances students would be permitted to spend more than three years to complete the course work and five years for the total programme including the thesis work from the date of admission to the programme.

## 7.6 Discontinuation from the Programme

Students may be permitted to discontinue the programme and take up a job provided they have completed all the course work. Students desirous of discontinuing their programme at any stage in the fourth semester with the intention of completing the thesis at a later date, should seek and obtain the permission of the Principal before doing so. When students are taking up the thesis work at a later period they have to satisfy the following requirements.

- i. The student has to get prior approval from the Principal for rejoining their parent institution for doing their thesis work.
- ii. The students should take full time leave from the organisation where they work, for one semester. The permission of the employer to continue studies with full time leave for one semester should be submitted to the University while applying for readmission for completing the thesis.
- iii. Upon readmission, the student has to get enrolled in the concerned department of the parent institute by remitting the required fee.

## 8.0 Attendance

8.1 The percentage of attendance for each subject will be calculated upto the last day of instruction and this will be indicated in the grade card by a code number/letter as follows:

Attendance Rounded to	Code
95% and above	H
85 to 94%	9
75 to 84%	8
Below 75%	W

8.2 Those students with the percentage of attendance for the entire semester for all courses put together is less than 75%, will not be permitted to register for the end semester examination in that semester. In such cases, the registration for that semester will be treated as cancelled and he/she should register for and repeat the entire semester by taking readmission from the University. The particulars of all students who have attendance less than 75% in the semester will be announced by the Head of the Departments concerned, within 7 days of closure of the semester.

8.3 A candidate is eligible for condonation of shortage of attendance only once in the

entire programme subject to the conditions given below.

- i. The conduct and progress must be good as certified by the Principal.
- ii. Condonation will be granted if he/she has secured not less the 60% of attendance.
- iii. By the recommendation of the head of the institution, the condonation shall be granted by the University subject to rules and procedures prescribed by the University from time to time.

8.4 If a student is continuously absent for more than 15 working days without any authorization by the Course Coordinator, his/her registration would automatically get cancelled.

## 9.0 Leave Rules

9.1 All M.Tech students should apply to the Head of the Department for leave stating the reasons whenever they are not in a position to attend course/thesis work.

9.2 Students are eligible for leave of 20 days in a year which will be regularized 15 days per semester. The intervening holidays will be treated as part of leave with provision of suffixing and prefixing holidays.

## 10.0 Evaluation Process:

In the first, second and the third semesters, all the subjects to be credited are evaluated through continuous internal assessment and end semester examinations. For the all the lecture based courses in the first semester and all lecture based courses except the Research Methodology course in the second semester, the end of semester examination will be conducted by the University. For all the courses in third semester, for the Research Methodology in the second semester and for the laboratory/seminar/Thesis preliminary Part I and II, the end of semester examination will be conducted by the respective Colleges. The chairman / chairperson for University Examinations will be appointed by the University and selected from among the senior faculty members having specialization in concerned engineering discipline from Government / Aided engineering colleges.

### 10.1 Assessment Procedure : Tests and Examinations

For theory subjects, internal continuous assessments will be made during the semester. The assessment details as decided at the class committee will be

announced to the students right at the beginning of the semester by the teacher. There will be a minimum of two tests and two assignments per subject.

10.2 The Seminars, Thesis Preliminary and Laboratory work will be evaluated by the Evaluation Committee. For the Thesis Preliminary the students are required to submit a report of the literature survey /work done/ progress and present the contents of the report before the committee which will be evaluated by the committee. The laboratory work will be evaluated by the staff member/(s) concerned.

10.3 The internal evaluation of the Thesis in the IV<sup>th</sup> Semester would be done by the Evaluation committee. Final evaluation of Thesis would be conducted by the guide and an Examiner from outside the College, appointed by the University of Kerala.

10.4 **End Semester Examination** for theory subjects

10.4.1 The question paper will be of modular structure (three modules, in total) where the student has to answer two questions out of the three questions, from each module. Question papers in theory subjects, where end of semester examination is common University examinations, shall be set by the Examiners appointed for that purpose by the University.

10.4.2 There shall be double valuation of theory papers for which end of semester examinations are conducted by the University. The theory answer papers shall be valued independently by the two examiners appointed by the University. If the difference between the marks awarded by the two Examiners is not more than 15 per cent of the maximum marks, the marks awarded to the candidate shall be the average of two evaluations. If the difference between the marks awarded by the two Examiners is more than 15 per cent of the maximum marks, the Script shall be evaluated by a third Examiner. The average of the marks of nearest two valuations shall be considered as the marks secured by the candidate. However, if one of the three marks falls exactly midway between the other two, then the highest two marks shall be taken for averaging.

10.4.3. The question paper for the end of semester examination conducted by University will be scrutinized by a committee appointed by the University and the question

paper for subjects having examination conducted by the respective colleges, will be scrutinized by a committee appointed by the concerned Department .

## 10.5 Scheme of Evaluation

The following will be the scheme of evaluation for the different courses.

### a. Theory subjects

Continuous assessment : 40 % (25% for Tests + 15% for Assignments)

End semester examination : 60 %

### b. Laboratory / Seminar

Continuous assessment : 100 %

### c. Thesis-Preliminary Part I (Semester II)

Internal assessment of work by the guide : 50%

Internal Evaluation by Committee : 50%

### d. Thesis-Preliminary Part II (Semester III)

Internal assessment of work by the guide : 50%

Internal Evaluation by Committee : 50%

### e. Thesis (Semester IV)

Internal assessment of work by the guide : 25%

Internal Evaluation by Committee : 25%

Final Evaluation by Internal and External Examiner : 50% ( 5% marks is for publication in Journal /Conference)

## 10.6 Methods of Awarding Grades

10.6.1 A student is awarded a letter grade in each course he/she has registered for, indicating his /her overall performance in that course. There are seven letter grades **S, A, B, C, D, F, and I**. The correspondence between grades and points (on a 10-point scale) rating is given below.

Range of Percentage of marks	Letter Grade	Points
90 - 100	S	10
80 - 89	A	9
70 - 79	B	8
60 - 69	C	7
50 - 59	D	6
Below 50	F	0
Incomplete	I	

Grade	Points
S	10
A	9
B	8
C	7
D	6
F	0

## 10.7 Criteria for Pass in a course and acquiring credit

10.7.1 For the lecture based courses having end of semester examinations, a student is deemed to have completed a course successfully and earned the credit if he / she secures a letter grade D or higher and has secured a minimum of 50% marks in the End of Examination. A course successfully completed cannot be repeated. A letter grade F in any subject implies failure in that subject.

For Seminar/Laboratory/Thesis Preliminary (where the evaluation is completely internal assessment), the student has to acquire a letter grade D or higher. If he/she fails to obtain this minimum grade, he/she has to repeat the Seminar/Laboratory/Thesis Preliminary with respect to that course with permission from the University in the subsequent semesters for the successful completion.

10.7.2 A student securing F or I grade in any core course has to reappear for the examination for the same course in the subsequent chances. If it is an elective course, the student has the option to reappear for the examination in the same course or to change the elective course in which case he/she has to repeat the course work with respect to the new elective course. A student will be given only three consecutive chances for reappear and retrieve the credits in this manner.

## 10.8 Grade Card

10.8.1 The grade card will be issued at the end of the semester to each student by the University. It will contain the following details:

- i. the credits for each course registered for that semester
- ii. performance in each subject by the letter grade obtained vide 10.6.1
- iii. the attendance put in each course in the form of the code vide 8.1
- iv. the total number of credits earned by the student upto the end of that semester.
- v. Grade Point Average (GPA) of all the courses taken during a semester if he successfully completed all the courses in that semester.
- vi. the Cumulative Grade Point average (CGPA) of all the courses taken

from the first semester is shown in the final semester grade card.

10.8.2 The Grade Point Average (GPA) will be calculated by the formula.

$$\text{GPA} = \frac{\sum (\text{C} \times \text{GP})}{\sum \text{C}}$$

where C = Credit for the course, GP = the grade point obtained for the course and the sum is over all the courses taken in that semester.

For the Cumulative Grade Point average (CGPA) a similar formula is used except that the sum is over all the courses taken in all the semesters completed upto the point in time.

$$\text{CGPA} = \frac{\sum_{i=1}^m C_i G_i}{\sum_{i=1}^m C_i}$$

where, m is the number of courses registered up to that semester,  $C_i$  is the number of credits allotted to  $i^{\text{th}}$  subject as per the scheme, and  $G_i$  is the grade points corresponding to the grade awarded to the student for the subject.

## 10.9 Classification Degree

The student will be eligible for the award of the degree on completion of the mandatory requirements of 69 credit, obtaining at least 'D' grade in each subject and a CGPA of 6.0. A student will be placed in First Class with Distinction if he/she scores CGPA > 8.5. He/she will be placed in First Class if CGPA is > 7 but less than 8.5.

## 11.0 Provision to include a new elective

Normally the revision of the scheme and syllabus is to take place in every 5 years. But to keep the syllabus in tune with the new and emerging technology trend, a new elective course can be introduced after obtaining the approval of the University. The syllabus of the proposed course has to be approved before the commencement of the semester in which the course is proposed.

## 12.0 Part Time program

The part time M Tech program will be of seven semesters (three and a half years). The courses, contents, syllabus and evaluation process will be same as that of regular program. The first semester of the regular program will be split into the I<sup>st</sup> and III<sup>rd</sup> semesters. The second

semester of the regular program will be split into II<sup>nd</sup> and IV<sup>th</sup> semesters. The third semester of the regular program will be same as the V<sup>th</sup> semester. The staggered scheme for the part time programme is shown below . The scheme will be split as shown below.

Semester	Courses			Remarks
	Core Courses	Electives	Lab/Seminar/Thesis	
I	3 core courses	-	Lab 1	I <sup>st</sup> semester of regular programme
II	2 Core courses	Stream Elective I	Lab 2	II <sup>nd</sup> semester of regular programme
III	3 core courses		Seminar 1	I <sup>st</sup> semester of regular programme
IV	Research methodology	Department Elective Stream Elective II	Seminar 2 Thesis Preliminary I	II <sup>nd</sup> semester of regular programme
V		Stream Elective III and IV Inter Disciplinary Elective	Thesis Preliminary II	III <sup>rd</sup> semester of regular programme
VI	Thesis			IV <sup>th</sup> semester of regular programme
VII				

### 13.0 Revision of Regulations

Notwithstanding all that has been stated above the University has the right to modify any of the regulations, scheme of studies, examinations and syllabi from time to time.