

**PSG COLLEGE OF TECHNOLOGY, COIMBATORE - 641 004**  
(Autonomous college affiliated to Anna University, Coimbatore)

**2009 REGULATIONS OF ME/ MTech DEGREE PROGRAMMES**  
(For the batches of students admitted in 2009-2010 and subsequently)

**NOTE:** The regulations hereunder are subject to amendments as may be made by the Academic Council of the College from time to time. Any or all such amendments will be effective from such date and to such batches of students (including those already in the middle of the programme) as may be decided by the Academic Council.

**1. CONDITIONS FOR ADMISSION**

- (i) Candidates for admission to the first semester of the ME / MTech degree programme shall be required to have passed an appropriate degree examination of Anna University, Coimbatore as specified under eligible qualification for admission in section 3 or any other examination of any recognized University or authority accepted by Anna University, Coimbatore as equivalent thereto. The students shall also be required to satisfy all other conditions of admission thereto prescribed by the Anna University, Coimbatore.
- (ii) Part-time candidates should satisfy other conditions regarding experience, sponsorship, place of work, etc., that may be prescribed by Anna University, Coimbatore from time to time, in addition to satisfying requirements as in section 1 (i).

**2. DURATION OF THE PROGRAMME**

- (i) **Minimum duration:** The programme will extend over a period of two academic years in the case of full-time programme and three academic years in case of part-time programme, leading to the Degree of Master of Engineering (M.E)/ Master of Technology (M.Tech) of the Anna University, Coimbatore. An academic year will be divided into two semesters.

Each semester shall normally consist of 90 working days or 450 hours or 540 periods of 50 minutes each.

- (ii) **Maximum duration:** The full-time student shall complete all the passing requirements of the M.E / M.Tech degree programme within a maximum period of 4 years / 8 semesters in case of full time programme, and 6 years / 12 semesters in case of part-time programme ; these durations are to be reckoned from the commencement of the semester to which the student was first admitted to the programme.

**3. QUALIFICATIONS FOR ADMISSION**

The various ME / MTech degree programmes offered and the eligible qualifications for admission to the respective programmes are listed below:

Department	ME/MTech Degree Programme offered	Full-time (FT)/ Part-time (PT)	Eligible Qualification for Admission (Note 1)	Minimum Credits (Note 2)
CIVIL ENGINEERING	ME - Structural Engineering	FT & PT	BE / BTech Civil	79
	ME - Infrastructure Engineering	FT	BE / BTech Civil	79

MECHANICAL ENGINEERING	ME - Engineering Design	FT	BE / BTech ( Mech / Prod / Auto / Manufacturing / Industrial Engg./ Mechatronics )	80
	ME - Computer Integrated Manufacturing	FT	BE / BTech ( Mech / Prod / Auto / Manufacturing / CIM / Industrial Engg./ Metallurgy / Mechatronics )	80
	ME - Industrial Engineering	FT & PT	BE / BTech All branches	81
	ME - Lean Manufacturing	FT	BE / BTech ( Mech / Prod / Auto / Manufacturing / Industrial Engg./ Mechatronics / Metallurgy / Polymer Technology/ Polymer Engg/ Chemical Engg/ Petro-Chemical Engg/ Food Processing Engg/ Petroleum Technology/ Leather Technology / Printing Technology/ Ceramic Technology / Food Technology / Textile Technology )	78
	ME – Manufacturing Systems and Technology	FT	BE / BTech ( Mech / Manufacturing/ Industrial Engg / Prod / Auto / Mechatronics / Metallurgy / Mining)	77
ELECTRICAL & ELECTRONICS ENGINEERING	ME - Electrical Machines	PT	BE / BTech ( EEE / E&I / I&C )	75
	ME - Applied Electronics	FT & PT	BE / BTech ( EEE/ECE / Electronics / E&I / I&C / Instrumentation / Biomedical / Biomedical Instrumentation )	75
	ME - Power Electronics & Drives	FT	BE / BTech ( EEE/ECE / Electronics / E&I / I&C / Instrumentation )	75
	ME – Embedded and Real-Time Systems	FT	BE / BTech ( EEE/ECE / Electronics / E&I / I&C / IT / Instrumentation / CSE / Biomedical )	75
INSTRUMENTATION AND CONTROL ENGINEERING	ME - Control Systems	FT	BE / BTech ( EEE/ECE / E&I / Electronics / I&C / Instrumentation )	75
ELECTRONICS & COMMUNICATION ENGINEERING	ME - Communication Systems	FT	BE / BTech ( ECE / Electronics / E&I )	77
	ME - VLSI Design	FT	BE / BTech ( EEE/ECE / Electronics / E&I / I&C / Instrumentation / CSE / IT )	76
METALLURGICAL ENGINEERING	ME - Industrial Metallurgy	FT & PT	BE / BTech ( Metallurgy / Mech / Prod / Auto / Manufacturing )	73
AUTOMOBILE ENGINEERING	ME - Automotive Engineering	FT	BE / BTech ( Mech / Prod / Auto / Manufacturing / Mechatronics/EEE/ECE )	78
PRODUCTION ENGINEERING	ME - Production Engineering	FT & PT	BE / BTech ( Prod / Mech / Auto / Manufacturing / Industrial Engg./ Metallurgy )	77
	ME - Product Design & Commerce	FT	BE / BTech ( Mech / Prod / Auto / Manufacturing / Industrial Engg. / Mechatronics )	81

ENERGY ENGINEERING	ME - Energy Engineering	FT	BE / BTech ( Mech / Auto / EEE / Chemical Engineering )	81
COMPUTER SCIENCE & ENGINEERING	ME - Computer Science & Engineering	FT	BE / BTech ( EEE/ECE / E&I/ Electronics / I&C / CSE / IT Instrumentation / <b>(or)</b> MCA	75
	ME – Software Engineering	FT	BE / BTech ( EEE/ECE/ E&I/ I&C/ Electronics/ Instrumentation/CSE/ IT)	75
TEXTILE TECHNOLOGY	MTech - Textile Technology	FT & PT	BE / BTech ( Textile Technology / Textile Chemistry )	75
INFORMATION TECHNOLOGY	MTech - Information Technology	FT	BE / BTech ( EEE / ECE / E&I / I&C / Electronics / Instrumentation / CSE / IT )	79
	ME - Network Engineering	FT	BE / BTech ( EEE / ECE / CSE / IT / E&I / Electronics ) <b>or</b> MCA	80
BIOTECHNOLOGY	MTech – Biotechnology	FT	BTech (Chemical Engg/ Leather Technology / Bio-chemical Engg / Industrial Biotech / Petroleum Tech / Petroleum Engg / Petrochemicals / Petroleum Refining & Petrochemicals) <b>or</b> B.Pharm / MSc (Biochemistry/ Microbiology / Bio-Physics / Biotechnology/ Biology/ Botany/ Zoology/ Genetics)	79

**Note 1:** Eligible Qualification is subject to amendments as may be made by the Anna University Coimbatore from time to time.

**Note 2:** Minimum credits to be earned through successful completion of the courses of study of the respective degree programme are listed in section 13, for the award of degree.

#### 4. STRUCTURE OF PROGRAMMES

- (i) **Curriculum:** The curriculum for each programme includes courses of study and detailed syllabi. The courses of study include nine core theory courses, six elective theory courses, an industrial visit & technical seminar, three practical courses, Project work I and Project work II as given in section 13.

**Full-time programme:** Every full time student shall undergo the courses of his / her programme given in section 13 in various semesters as shown below:

- Semester 1: 6 theory courses and 1 practical course
- Semester 2: 6 theory courses, industrial visit & technical seminar and either 1 or 2 practical courses
- Semester 3: 3 theory courses, Project work I and 1 practical course, if not accounted in semester 2.
- Semester 4: Project work II

The full time student shall undergo a total of nine core theory courses during the semesters 1 and 2 put together subject to undergoing a minimum of four theory courses in semester 1.

**Part-time programme:** Every part time student shall undergo the courses of his / her programme given in section 13 in various semesters as shown below:

- Semester 1: 3 theory courses and 1 practical course
- Semester 2: 3 theory courses and industrial visit & technical seminar
- Semester 3: 3 theory courses and 1 practical course
- Semester 4: 3 theory courses and 1 practical course
- Semester 5: 3 theory courses and Project work I
- Semester 6: Project work II

The part time student shall undergo a total of nine core theory courses during the semesters 1 to 4 put together subject to undergoing a minimum of two theory courses per semester.

- (ii) **Theory courses:** Every student shall undergo nine core theory courses of his/her degree programme as given in section 13 infra and six elective theory courses as indicated in section 4(i) supra. The student shall opt electives from the list of electives relating to his/her degree programme as given in section 13 in consultation with the tutor and the HoD. However, a student may be permitted to take a maximum of two electives from the list of courses of other ME / MTech degree programmes with specific permission from the Head of the Department offering the programme.

Students of ME - Industrial Engineering, ME - Energy Engineering and ME - Lean Manufacturing degree programmes may be permitted to take all the six electives from the list of courses of other ME / MTech degree programmes, the above programmes being inter-disciplinary in nature.

- iii) **Practical Courses:** Every student shall opt for three practical courses from the list of practical courses as given in section 13 relating to his / her degree programme.

Every practical course shall be evaluated based on conduct of experiments / exercises / mini projects / development of software packages and report submitted. The criteria for arriving at the internal assessment marks shall be decided by the faculty-in-charge of the practical course.

- iv) **One Credit Courses:** Students can also opt for industry oriented one credit courses of 14 hours duration which will be offered by experts from industry / other institution / our faculty on specialized topics apart from the prescribed courses of study of the programme. Students can complete such one credit courses during the semesters 1 to 4 as and when these courses are offered by the Department. A student will also be permitted to register for the one credit courses of other departments provided the student has fulfilled the necessary pre-requisites of the course being offered subject to approval by both the Heads of departments. However, the grades earned by the students in one credit courses will not be included in the computation of CGPA.

- v) **Industrial Visit & Technical Seminar:** A minimum of two industrial visits are to be arranged as part of the course and the students are expected to make a presentation based on their learnings in the industrial visits.

Every student shall make presentations on latest topics from international journals / patents relevant to his/her field of study in the second semester of their respective degree programmes. The student shall also submit a report highlighting the summary of the presentations in an appropriate format at the end of the semester.

- vi) **Project Work:** Every student shall undertake the Project Work I during the third semester (fifth semester for part-time programme) and the Project Work II during the fourth semester (sixth semester for part-time programme). The Project Work shall be undertaken in an Industrial / Research Organization or in the College in consultation with the faculty guide and the HoD. In case of Project Work at Industrial / Research organization, the same shall be jointly supervised by a faculty guide and an expert from the organization.

- vi) **Credit assignment:** The exact number of credits assigned to the different courses for various programmes is shown in section 13.

- viii) **Minimum credits:** For the award of the degree, the student shall earn the minimum number of credits as shown in section 3 by passing the prescribed courses of study as shown in section 4(i).

- ix) **Medium of instruction:** The medium of instruction, examinations, project report etc. shall be English.

## 5. REQUIREMENTS FOR ATTENDANCE AND PROGRESS

- i) A student will be deemed to have completed the course of any semester only if
- a) he / she has satisfied the attendance requirements as per the norms given below:
    - Minimum attendance for eligibility to appear for semester examinations - 80%.
    - An exemption up to 10 % can be awarded based on recommendation of HOD for participation in official co-curricular and extra-curricular activities.
    - An exemption up to 10% can be awarded in exceptional cases on medical grounds on recommendation of the HOD.
  - b) his / her progress has been satisfactory
  - c) his / her conduct has been satisfactory.
- ii) Students who do not qualify to appear for final examinations of any semester for want of attendance and/or progress and/or conduct have to register for and redo that semester programme at the next immediate available opportunity subject to the approval of Director of Technical Education and Anna University, Coimbatore.

## 6. PROCEDURE FOR COMPLETING THE PROGRAMME

- i) The course work of the odd semesters will normally be conducted only in odd semesters and that of the even semesters only in even semesters.
- ii) A student will be permitted to proceed to the courses of study of any semester only if he/ she has satisfied the requirements of attendance, progress and conduct in respect of the preceding semester and had paid fees for that semester.

## 7. PROCEDURE FOR REJOINING THE PROGRAMME

A student who is required to repeat the study of any semester for want of attendance/ progress/conduct or who desires to rejoin the course after a period of discontinuance or who upon his/her own request is permitted by the authorities to repeat the study of any semester, may join the semester which he/she is eligible or permitted to join, only at the time of its normal commencement for a regular batch of students and after obtaining the approval from Anna University, Coimbatore. No student will however be enrolled in more than one semester at any time. In the case of repeaters, the marks secured earlier in the repeated courses will be discarded.

## 8. ASSESSMENT AND PASSING REQUIREMENTS

- (i) **Assessment:** The assessment will comprise of final examination and/or continuous assessment, carrying marks as specified in the scheme in section 13 infra. Continuous assessment marks will be awarded on assessing the student continuously during the semester as per guidelines framed by the College. All assessment will be done on absolute mark basis. However, for the purpose of reporting the performance of a

student, letter grades and grade points will be awarded as per grading norms stipulated in section 8(vi).

- (ii) **Final examinations:** Final examinations will normally be conducted during November / December and during April / May of each year.

A student will be permitted to appear at the final examination of a semester only if he/she has completed the study of that semester satisfying the requirements given in section 5 and registers simultaneously for the examinations of the highest semester eligible.

A student, who is not permitted to appear at the final examination of a semester, is not permitted to proceed to the subsequent semester.

A student who is not permitted to appear at the final examination of any semester has to register for and redo the courses of that semester at the next available opportunity.

- (iii) **Project Work I:** Every student shall submit a report on Project Work I on dates announced by the department through the faculty guide to the HoD. If a student fails to submit the report on Project Work I on or before the specified date, he/she is deemed to have failed in it.

The student shall also present seminars about the progress of the Project Work I during the third semester. The seminars shall be presented before a review committee constituted by the HoD.

The Project Work I will be evaluated based on the seminars, report and a viva-voce examination. The viva-voce examination will be carried out by a team of faculty consisting of the internal examiner, appointed by the HoD.

A student who fails in Project Work I shall register for redoing the same at the beginning of a subsequent semester. Only on satisfactory completion of Project Work I, the student will be allowed to register for Project Work II.

- (iv) **Project Work II:** Every student shall submit a report on Project Work II on dates announced by the department through the faculty guide to the HoD. If a student fails to submit the report on Project Work II on or before the specified date, he/she is deemed to have failed in it.

The student shall also present seminars about the progress of the Project Work II during the fourth semester. The seminars shall be presented before a review committee constituted by the HoD.

The Project Work II will be evaluated based on the seminars, report and a viva-voce examination. The viva-voce examination will be carried out by a team consisting of an internal examiner, usually the supervisor, and an external examiner, appointed by the Principal. The continuous assessment marks of Project Work II shall not be carried over to the next appearance, if the student had failed in the same.

A student who fails in Project Work II shall register for redoing the same at the beginning of a subsequent semester.

- (v) **Industrial Visit & Technical Seminar:** Every student will be evaluated based on two presentations (i) technical/research papers (ii) industrial visits. A technical report submitted by the student will also be evaluated by a committee nominated by the Head of the department.

There will be a viva-voce examination on the dates announced by the department to verify the depth of understanding of the student in both the technical topic and the industrial visits.

A student who fails in this course shall register for redoing the same at the beginning of a subsequent semester.

(vi) **Letter Grade and Grade Point:** Each student, based on his / her performance, will be awarded a final letter grade and grade point as given in the table infra for each course at the end of each semester by following

- (a) Relative Grading System for theory courses having Continuous Assessment and Final Examination components and
- (b) Absolute Grading System for all other courses including Laboratory courses, Project and Courses carrying only Continuous Assessment marks.

**a. Relative Grading System**

In relative grading system, the grades are awarded to the students based on their performance relative to the other as detailed below.

For each course, the total mark, M [M is equal to Continuous Assessment marks secured (CA) + Final Examination marks secured (FE)] is computed for each student. For each course the statistical parameters mean ( $\mu$ ), and standard deviation ( $\sigma$ ) of the distribution of marks are arrived as given below, where n is the total number of students appeared in a course.

$$\mu = \sum_{i=1}^n \frac{Mi}{n} \qquad \sigma = \sqrt{\frac{\sum_{i=1}^n (Mi - \mu)^2}{n}}$$

The letter grade and the grade point to each student studying a course are awarded based on the statistical parameters, mean, ( $\mu$ ) and standard deviation, ( $\sigma$ ) of the distribution of marks as detailed below :

Range of total marks (M) secured (M=CA+ FE)	Grade	Grade Point, g
$M \geq \mu + 2\sigma$	S	10
$\mu + 1.2\sigma \leq M < \mu + 2\sigma$	A	9
$\mu + 0.4\sigma \leq M < \mu + 1.2\sigma$	B	8
$\mu - 0.4\sigma \leq M < \mu + 0.4\sigma$	C	7
$\mu - 1.2\sigma \leq M < \mu - 0.4\sigma$	D	6
$\text{Min} [\mu - 2\sigma, 50] \leq M < \mu - 1.2\sigma$	E	5
$M < \text{min} [\mu - 2\sigma, 50]$ or FE less than 50% of maximum of final examination marks.	RA	0
Withdrawal from examination	W	0

The examiner and HoD may recommend change of range for any course after due justification.

**b. Absolute Grading System**

In absolute grading system, the letter grade and grade points are awarded to each student based on the percentage of marks secured by him/her in Lab courses, Project and courses carrying only continuous assessment marks, as detailed below.

Range of percentage of total marks	Letter Grade	Grade Point g
90 to 100	S	10
80 to 89	A	9
70 to 79	B	8
60 to 69	C	7
55 to 59	D	6
50 to 54	E	5
0 to 49 or less than 50% in final examination	RA	0
Withdrawal	W	0

“RA” denotes reappearance/absent

“W” denotes withdrawal from the final examination.

- (vii) **Cumulative Grade Point Average:** After the completion of the programme, the Cumulative Grade Point Average (CGPA) from the first semester to final semester is calculated using the formula.

$$CGPA = \frac{\sum g_i * C_i}{\sum C_i}$$

where  $g_i$  is Grade point secured corresponding to the course  
 $C_i$  is Credit rating of the course

- (viii) **Passing a course:** A student, who is absent for the final examination or withdraws from final examination or secures a letter grade RA (Grade point 0) in any course carrying continuous assessment and final examination marks, will retain the already earned continuous assessment marks for one subsequent appearance in the examination of that course and thereafter he/she will be solely assessed by the final examination carrying the entire marks of that course.

A student, who scores a letter grade RA (Grade point 0) in any course carrying only continuous assessment marks, will be solely examined by a final examination carrying the entire marks of that course, the continuous assessment marks obtained earlier being discarded.

If a student who has registered for a one credit course does not clear the same successfully, it will be treated as 'withdrawal' from that course; One credit courses will be evaluated by the course instructor / department faculty concerned and will carry a total of



100 marks for continuous assessment; out of which 50 marks will be for final test to be scheduled by the course instructor / department faculty concerned.

A student who is absent in the final semester examination of a course after registering for the same will be considered to have appeared and failed in that examination and awarded grade RA.

If a candidate fails to appear for the viva-voce examination after submitting the report on project work on the date specified by the college / department, he/she will be marked as absent for the project work. Such candidates will be allowed to appear for the viva-voce examination at the next earliest opportunity, the project being evaluated at that time.

The continuous assessment component of Project work II shall not be carried to the next appearance if the student had failed in the same.

#### (viii) **Supplementary Examinations**

##### ***For courses under Relative Grading System :***

###### *a. Examination in a course conducted exclusively as a supplementary examination*

If a student appears in the above supplementary examination, then his / her grade in that course will be on par with the grade allotted for the same score in that course in the immediate preceding regular examination.

###### *b. Examination in a course conducted as a regular examination for a batch of regular students and as a supplementary examination for a batch of other students.*

If a student appears in a supplementary examination, the examination being conducted along with a batch of regular students, then his / her grade in that course will be based on the grade allotted to the same score in that course applicable to the above batch of regular students.

##### ***For courses under Absolute Grading System:***

If a student appears in a supplementary examination for the above courses, the grade and grade point will be awarded according to absolute grading system based on the percentage of marks secured in that course.

## **9. QUALIFYING FOR THE AWARD OF DEGREE**

A student will be declared to have qualified for the award of the ME/MTech degree provided

- (i) he/she has successfully completed the course requirements and has passed all the prescribed courses of study of the respective programme listed in section 13 within the duration specified in section 2 and
- (ii) No disciplinary action is pending against the student.

## **10. CLASSIFICATION OF DEGREE**

- (i) **First Class with Distinction:** A student who qualifies for the award of degree vide section 9 having passed all the courses at the first opportunity within the stipulated number of semesters after the commencement of his /her study and securing a CGPA of 8.50 and above shall be declared to have passed in First Class with Distinction. For this purpose the withdrawal from examination (vide section 11) will not be construed as an

opportunity for appearance in the examination. Further, the authorized break of study (vide section 12) will not be counted for the purpose of classification.

- (ii) **First Class:** A student who qualifies for the award of degree vide section 9 having passed all the courses within a maximum period of stipulated number of semesters after commencement of his /her study and securing a CGPA of 6.50 and above shall be declared to have passed in First Class. For this purpose, the authorized break of study (vide section 12) will not be counted for the purpose of classification.
- (iii) **Second Class:** All other students who qualify for the award of degree vide section 9 shall be declared to have passed in Second Class.

## 11. WITHDRAWAL FROM EXAMINATION

- (i) A student may, for valid reasons, be granted permission to withdraw from appearing for the examination in any course or courses of only one semester examination during the entire duration of the degree programme. Also, only one application for withdrawal is permitted for that semester examination in which withdrawal is sought.
- (ii) Withdrawal application shall be valid only if the student is otherwise eligible to write the examination and if it is made prior to the commencement of the semester examination or on the day of the examination of a course / set of courses and also recommended by the HoD and the Principal.

## 12. TEMPORARY BREAK OF STUDY

- (i) A student is not normally permitted to temporarily break the study. However, if a student intends to temporarily discontinue the programme in the middle for valid reasons (such as accident or hospitalization due to prolonged ill health) and to rejoin the programme in a later respective semester he/she shall apply to the Principal in advance, in any case, not later than the last working day of the semester in question, through the HoD and stating the reasons there for.
- (ii) A student permitted for break of study shall rejoin the programme at the respective semester as and when it is offered after the break and shall be governed by the rules and regulations in force at the time of rejoining.
- (iii) The stipulated number of semesters specified for passing all the courses for the purpose of classification [vide sections 10(i) and (ii)] shall be increased by the period of such break of study permitted.
- (iv) The total period for completion of the programme reckoned from the commencement of the semester to which the student was first admitted shall not exceed the maximum period specified in section 2 irrespective of the period of break of study in order that he/she may be qualified for the award of the degree.
- (v) If any student is detained for non-completion of study of a semester vide section 5, the period of such detention shall not be considered as permitted break of study and section 12 (iii) is not applicable for such case.