



MALLA REDDY COLLEGE OF ENGINEERING & TECHNOLOGY

(Autonomous Institution – UGC, Govt. of India)

Sponsored by CMR Educational Society

(Affiliated to JNTU, Hyderabad, Approved by AICTE - Accredited by NBA & NAAC – 'A' Grade - ISO 9001:2008 Certified)

Maisammaguda, Dhulapally (Post Via Hakimpet), Secunderabad – 500100, Telangana State, India.

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MASTER OF TECHNOLOGY

ACADEMIC REGULATIONS

COURSE STRUCTURE AND SYLLABUS

(Batches admitted from the academic year 2015 - 2016)

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 candidates (including those already pursuing the program) as may be decided by the Academic Council.

PRELIMINARY DEFINITIONS AND NOMENCLATURES

*"Autonomous Institution /College" means an institution/college designated as autonomous institute / college by University Grants Commission (UGC), as per the UGC Autonomous College Statutes.

*"Academic Autonomy" means freedom to a College in all aspects of conducting its academic programs, granted by the University for promoting excellence.

*"Commission" means University Grants Commission.

*"AICTE" means All India Council for Technical Education.

*"University" the Jawaharlal Nehru Technological University, Hyderabad.

*"College" means Malla Reddy College of Engineering & Technology, Secunderabad unless indicated otherwise by the context.

*"Program" means:

Master of Technology (M.Tech) degree program

PG Degree Program: M.Tech

*"Branch" means specialization in a program like M.Tech degree program in Electronics and Communication Engineering, M.Tech degree program in Computer Science and Engineering etc.

*"Course" or "Subject" means a theory or practical subject, identified by its course – number and course-title, which is normally studied in a semester.

*T–Tutorial, P–Practical, D–Drawing, L–Theory, C–Credits

FOREWORD

The autonomy is conferred on Malla Reddy College of Engineering & Technology (MRCET) by UGC based on its performance as well as future commitment and competency to impart quality education. It is a mark of its ability to function independently in accordance with the set norms of the monitoring bodies like UGC and AICTE. It reflects the confidence of the UGC in the autonomous institution to uphold and maintain standards it expects to deliver on its own behalf and thus awards degrees on behalf of the college. Thus, an autonomous institution is given the freedom to have its own curriculum, examination system and monitoring mechanism, independent of the affiliating University but under its observance.

Malla Reddy College of Engineering & Technology (MRCET) is proud to win the credence of all the above bodies monitoring the quality in education and has gladly accepted the responsibility of sustaining, and also improving upon the values and beliefs for which it has been striving for more than a decade in reaching its present standing in the arena of contemporary technical education. As a follow up, statutory bodies like Academic Council and Boards of Studies are constituted with the guidance of the Governing Body of the College and recommendations of the JNTU Hyderabad to frame the regulations, course structure and syllabi under autonomous status.

The autonomous regulations, course structure and syllabi have been prepared after prolonged and detailed interaction with several experts drawn from academics, industry and research, in accordance with the vision and mission of the college which reflects the mindset of the institution in order to produce quality engineering graduates to the society.

All the faculty, parents and students are requested to go through all the rules and regulations carefully. Any clarifications, if needed, are to be sought at appropriate time and with principal of the college, without presumptions, to avoid unwanted subsequent inconveniences and embarrassments. The Cooperation of all the stake holders is sought for the successful implementation of the autonomous system in the larger interests of the institution and brighter prospects of engineering graduates.

“A thought beyond the horizons of success committed for educational excellence”

PRINCIPAL



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VISION

- ❖ To establish a pedestal for the integral innovation, team spirit, originality and competence in the students, expose them to face the global challenges and become technology leaders of Indian vision of modern society.

MISSION

- ❖ To become a model institution in the fields of Engineering, Technology and Management.
- ❖ To impart holistic education to the students to render them as industry ready engineers.
- ❖ To ensure synchronization of MRCET ideologies with challenging demands of International Pioneering Organizations.

QUALITY POLICY

- ❖ To implement best practices in Teaching and Learning process for both UG and PG courses meticulously.
- ❖ To provide state of art infrastructure and expertise to impart the quality education.
- ❖ To groom the students to become intellectually creative and professionally competitive.
- ❖ To channelize the activities and tune them in heights of commitment and sincerity, the requisites to claim the never ending ladder of SUCCESS year after year.

For more information: www.mrcet.ac.in

ACADEMIC REGULATIONS R-15 FOR M. TECH. (REGULAR) DEGREE COURSE

Academic Regulations of R-15 are applicable for the students of M. Tech. (Regular) Course from the Academic Year 2015-16 and onwards. The M.Tech Degree of Malla Reddy College of Engineering & Technology (MRCET), Secunderabad shall be conferred on candidates who are admitted to the program and who fulfill 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 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 University (or) State Government (or) on the basis of any other order of merit as approved by the University, subject to norms as laid down by the State 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.
- 2.2. A student, who fails to fulfill all the academic requirements for the award of the degree within four academic years from the year of his admission, shall forfeit his seat in M. Tech. course.
- 2.3. The student shall register for all 88 credits and secure all the 88 credits.
- 2.4. The minimum instruction days in each semester are 90.

3.0 A. COURSE OF STUDY

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

1. Aerospace Engineering
2. Computer Science and Engineering
3. Machine Design
4. System and Signal Processing
5. VLSI and Embedded Systems
6. Thermal Engineering

and any other course as approved by the MRCET from time to time.

3.0 B. Departments offering M. Tech. Programmes with specializations are noted below:

Aeronautical Engineering	Aerospace Engineering
Computer Science Engineering	Computer Science Engineering
Electronics & Communication Engineering	System & Signal Processing
Electronics & Communication Engineering	VLSI and Embedded Systems
Mechanical Engineering	Machine Design
Mechanical Engineering	Thermal Engineering

4.0 ATTENDANCE

The programs are offered on a unit basis with each subject being considered a unit.

- 4.1 A student shall be eligible to write University examinations if he acquires a minimum of 75% of attendance in aggregate of all the subjects.
- 4.2 Condonation of shortage of attendance in aggregate up to 10% (65% and above and below 75%) in each semester shall be granted by the College Academic Committee.
- 4.3 Shortage of Attendance below 65% in aggregate shall not be condoned.
- 4.4 Students whose shortage of attendance is not condoned in any semester are not eligible to write their end semester examination of that class and their registration shall stand cancelled.
- 4.5 A prescribed fee as determined by the examination branch shall be payable towards condonation of shortage of attendance.
- 4.6 A student shall not be promoted to the next semester unless he satisfies the attendance requirement of the present semester, as applicable. They may seek readmission into that semester when offered next. If any candidate fulfills the attendance requirement in the present semester, he shall not be eligible for readmission into the same class.
- 4.7 In order to qualify for the award of the M. Tech. Degree, the candidate shall complete all the academic requirements of the subjects, as per the course structure.
- 4.8 A student shall not be promoted to the next semester unless he satisfies the minimum academic requirements of the previous semester.

5.0 EVALUATION

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

For the theory subjects 75 marks shall be awarded based on the performance in the End Semester Examination and 25 marks shall be awarded based on the Internal Examination Evaluation. The internal evaluation consists of two mid-term examination of 25 marks each covering descriptive paper which consists 5 questions consisting of two parts each (a) and (b), out of which the student has to answer either (a) or (b), not both. Each question carries 5 marks for a total duration of 2 hours. The total marks secured by the student in each mid-term examination are evaluated for 25 marks, and the average of the two mid-term examinations shall be taken as the final marks secured by each candidate.

However, any student scoring internal marks less than 40% will be given a chance to write the internal exam once again after he/she re-registering for the concerned subject and paying stipulated fees as per the norms.

- 5.1 The end semesters examination will be conducted for 75 marks with 5 questions consisting of two questions each (a) and (b), out of which the student has to answer

- either (a) or (b), not both and each question carries 15 marks.
- 5.2 For practical subjects, 75 marks shall be awarded based on the performance in the End Semester Examinations and 25 marks shall be awarded based on the day-to-day performance as Internal Marks.
- 5.3 There shall be two seminar presentations during I year I semester and II semester respectively. 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 Departmental Academic Committee consisting of Head of the Department, Supervisor and two other senior faculty members of the department. For each Seminar there will be only internal evaluation of 50 marks. A candidate has to secure a minimum of 50% of marks to be declared successful.
- 5.4 A candidate shall be deemed to have secured the minimum academic requirement in a subject 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 Examination taken together.
- 5.5 In case the candidate does not secure the minimum academic requirement in any subject (as specified in 5.4) he has to reappear for the End semester Examination in that subject.
- 5.6 A candidate shall be given one chance to re-register for each subject provided the internal marks secured by a candidate are less than 50% and so has failed in the end examination. In such a case, the candidate must re-register for the subject(s) and secure the required minimum attendance. The candidate's attendance in the re-registered subject(s) shall be calculated separately to decide upon his eligibility for writing the end examination in those subject(s). In the event of the student taking another chance, his internal marks and end examination marks obtained in the previous attempt stand cancelled.
- 5.7 In case the candidate secures less than the required attendance in any subject, he shall not be permitted to write the End Examination in that subject. He shall re-register the subject when next offered.
- 5.8 Laboratory examination for M. Tech. courses must be conducted with two Examiners, one of them being the Laboratory Class Teacher and the second examiner shall be another Laboratory Teacher.

6.0 EVALUATION OF PROJECT/DISSERTATION WORK

- Every candidate shall be required to submit a thesis or dissertation on a topic approved by the Project Review Committee.
- 6.1 A Project Review Committee (PRC) shall be constituted with Principal as Chairperson, Heads of all the Departments offering the M. Tech. programs and two other senior faculty members.
- 6.2 Registration of Project Work: A candidate is permitted to register for the project work after satisfying the attendance requirement of all the subjects, both theory and practical.
- 6.3 After satisfying 6.2, a candidate has to submit, in consultation with his project supervisor, the title, objective and plan of action of his project work to the Departmental Academic Committee for approval. Only after obtaining the approval of the Departmental Academic Committee can the student initiate the

Project work.

- 6.4 If a candidate wishes to change his supervisor or topic of the project, he can do so with the approval of the Departmental Academic Committee. However, the Departmental Academic Committee 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.
- 6.5 A candidate shall submit his status report in a bound-form in two stages at least with a gap of 3 months between them.
- 6.6 The work on the project shall be initiated at the beginning of the II year and the duration of the project is two semesters. A candidate is permitted to submit Project Thesis only after successful completion of theory and practical course with the approval of PRC not earlier than 40 weeks from the date of registration of the project work. For the approval of PRC the candidate shall submit the draft copy of thesis to the Principal through Head of the Department and make an oral presentation before the PRC.
- 6.7 Three copies of the Project Thesis certified by the supervisor shall be submitted to the College/School/Institute.
- 6.8 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.
- 6.9 If the report of the examiner is not favorable, the candidate shall revise and resubmit the Thesis, in the time frame as decided by the PRC. If the report of the examiner is unfavorable again, the thesis shall be summarily rejected.
- 6.10 If the report of the examiner is favorable, 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 Board shall jointly report the candidate's work as one of the following:
- A. Excellent
 - B. Good
 - C. Satisfactory
 - D. Unsatisfactory

The Head of the Department shall coordinate and make arrangements for the conduct of Viva- Voce examination.

If the report of the Viva-Voce is unsatisfactory, 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, he will not be eligible for the award of the degree.

7.0 AWARD OF DEGREE AND CLASS

In assessing the performance of the students in examinations, the usual approach is to award marks based on the examinations conducted at various stages (sessional, mid-term, end-semester etc.,) in a semester. As per UGC Autonomous guidelines, the following system is implemented in awarding the grades and CGPA under the Credit Based Semester System (CBCS).

Letter Grades and Grade Points:

The UGC recommends a 10-point grading system with the following letter grades as given below:

Grades	Points	Marks secured (%)
O (Outstanding)	10	≥ 85
A+(Excellent)	9	80 – 84
A(Very Good)	8	75 – 79
B+(Good)	7	70 – 74
B(Above Average)	6	65 – 69
C(Average)	5	60 – 64
P(Pass)	4	50 – 59
F(Fail)	0	<50
Ab(Absent)	0	-

A student obtaining Grade F shall be considered failed and will be required to reappear in the examination

Declaration of Results

- Computation of SGPA and CGPA are done using the procedure listed hereunder.
- For final percentage of formula marks equivalent to the computed final CGPA, the following formula may be used.

$$\% \text{ of Marks} = (\text{final CGPA}) \times 10$$

Computation of SGPA and CGPA

The UGC recommends the following procedure to compute the Semester Grade Point Average (SGPA) and Cumulative Grade Point Average (CGPA):

i. 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

$$\text{SGPA } (S_i) = \Sigma(C_i \times G_i) / \Sigma C_i$$

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.

ii. The CGPA is also calculated in the same manner taking into account all the courses undergone by a student over all the semesters of a programme, i.e.

$$\text{CGPA} = \Sigma(C_i \times S_i) / \Sigma C_i$$

where S_i is the SGPA of the i^{th} semester and C_i is the total number of credits in that semester.

iii. The SGPA and CGPA shall be rounded off to 2 decimal points and reported in the transcripts.

Award of Class for UG and PG Courses; CGPA secured out of 10

Division	CGPA
First Class with Distinction	≥ 7.0
First Class	≥ 6.0 but < 7.00
Second Class	≥ 5.0 but < 6.00
Pass Class	≥ 4.0 but < 5.00

8.0 WITHHOLDING OF RESULTS

If the student has not paid the dues, if any, to the Institute or if any case of indiscipline is pending against him, the result of the student will be withheld and he will not be allowed into the next semester. His degree will be withheld in such cases.

9.0 TRANSITORY REGULATIONS

- 9.1 Discontinued, detained, or failed candidates are eligible for admission to two earlier or equivalent subjects at a time as and when offered.

10. 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 case of any doubt or ambiguity in the interpretation of the above rules, the decision of the Academic Council of the College is final.
- 10.4 The College 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 Academic Council of the College/Affiliating University.

MALPRACTICES RULES
DISCIPLINARY ACTION FOR / IMPROPER CONDUCT IN EXAMINATIONS

S.No	Nature of Malpractices/Improper conduct	Punishment
	If the candidate:	
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. 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. 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. 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.	Using 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.	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	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

	person or to any of his relations whether by words, either spoken or written or by signs or by visible representation, assaults the officer-incharge, 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.	the remaining examinations of the subjects of that semester. 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.
7.	Leaves the exam hall taking away answer script or intentionally tears of the script or any part thereof inside or outside the examination hall.	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. 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.
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. 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	Student of the colleges expulsion from the examination hall and cancellation of the performance in that subject and all other

	clause 6 to 8.	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. The candidate is also debarred and forfeits the seat. Person(s) who do not belong to the College will be handed over to police and, a police case will be registered against them.
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.
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 examinations.
12.	If any malpractice is detected which is not covered in the above clauses 1 to 11 shall be reported to the Academic Council of the College (or) affiliating University for further action towards suitable punishment.	

Malpractices identified by squad or special invigilators will entail punishment to the candidates as per the above guidelines..