

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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BACHELOR OF TECHNOLOGY ELECTRONICS AND COMMUNICATION ENGINEERING

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:
 - Bachelor of Technology (B.Tech) degree program
 - UG Degree Program: B.Tech
- ➤ "Branch" means specialization in a program like B.Tech degree program in Electronics & Communication Engineering, B.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 FOR B. TECH. (REGULAR)

Applicable for the students of B. Tech. (Regular) from the Academic Year 2015-16 and onwards

1. Award of B. Tech. Degree

A student will be declared eligible for the award of B. Tech. Degree if he fulfills the following academic regulations:

- 1.1 The candidate shall pursue a course of study for not less than four academic years and not more than eight academic years.
- 1.2 After eight academic years of course of study, the candidate is permitted to write the examinations for two more years.
- 1.3 The candidate shall register for **192 credits** and secure **192 credits** with compulsory subjects as listed in Table-1

, ,		
S.No	Subject Particulars	
1	All practical Subjects	
2	Mini Project	
3	Technical Seminar	
4	Project Work	

Table 1: Compulsory Subjects

- 1.4 In addition to 1.3, the candidate has to register for Mandatory courses (Non-credit course), 50% of scoring is required for the award of the degree.
- 2. The students, who fail to fulfill all the academic requirements for the award of the degree within ten academic years from the year of their admission, shall forfeit their seats in B. Tech. course.

3. Courses of study

The following courses of study are offered at present as specializations for the B. Tech. Course:

S.No	Department	
01	Aeronautical Engineering	
02	Computer Science Engineering	
03	Electronics & Communication Engineering	
04	Information Technology	
05	Mechanical Engineering	
06	Mining Engineering	

4. Credits

	Semester	
Particulars	Periods per	Credits
	week	
Theory	05	04
Theory	04	03
Practical	03	02
Drawing	03	02
Drawing	06	04
Mini Project		04
Technical Seminar	06	02
Major Project	15	10

^{*}Duration of each period is 50 minutes.

5. Distribution and Weightage of Marks

- 5.1 The performance of a student in each semester shall be evaluated subject-wise for a maximum of 100 marks for a theory and 75 marks for a practical subject. In addition, Mini Project, Technical seminar and Major Project work shall be evaluated for 100, 50 and 300 marks, respectively.
- 5.2 For theory subjects the distribution shall be 25 marks for Internal Evaluation and 75 marks for the End-Examination.
- 5.3 For theory subjects, during a semester there shall be 2 mid-term examinations. Each mid- term examination consists of a descriptive paper and assignment. The descriptive paper shall be for 20 marks with a total duration of 2 hours. The descriptive paper shall contain 6 full questions out of which, the student has to answer 4 questions, each carrying 5 marks. While the first mid-term examination shall be conducted from 1 to 2 units of the syllabus, the second mid-term examination shall be conducted from 3 to 5 units. Five (5) marks are allocated for Assignments (as specified by the subject teacher concerned). The first Assignment should be submitted before the conduct of the first mid-examination, and the second Assignment should be submitted before the conduct of the second mid-examination. 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, if any student is absent/scoring internal marks less than 40% in any subject of a mid-term examination he/she will be given a chance to write the internal exam once again after he/she re-registering for the internal exam in the concerned subject and paying stipulated fees as per the norms.

The end examination will be conducted for 75 marks with Part A as a compulsory question for 25 marks. Part B is for maximum of 50 marks with 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 in Part B carries 10 marks.

- 5.4 For practical subjects there shall be a continuous evaluation during a semester for 25 sessional marks and 50 end semester examination marks. Out of the 25 marks for internal evaluation, day-to-day work in the laboratory shall be evaluated for 15 marks and internal practical examination shall be evaluated for 10 marks conducted by the laboratory teacher concerned. The end semester examination shall be conducted with an external examiner and the laboratory teacher. The external examiner shall be appointed from the clusters of colleges which are decided by the examination branch of the College.
- 5.5 For the subject having design and/or drawing, (such as Engineering Graphics, Engineering Drawing, Machine Drawing) and Estimation, the distribution shall be 25 marks for internal evaluation (15 marks for day-to-day work and 10 marks for internal tests) and 75 marks for end semester examination. There shall be two internal tests in a Semester and the average of the two shall be considered for the award of marks for internal tests.
- 5.6 There shall be a Mini Project to be taken up during the vacation after III year II Semester examination. However, the Mini-Project and its report shall be evaluated along with the Major Project work in IV year II Semester. The Mini Project shall be submitted in a report form and presented before the committee. It shall be evaluated for 100 marks. The committee consists of an External Examiner, Head of the Department, and the Supervisor of the Mini Project and a Senior Faculty member of the department. There shall be no internal marks for Mini Project.
- 5.7 There shall be a Technical Seminar presentation in IV year II Semester. For the seminar, the student shall collect the information on a specialized topic and prepare a technical report, showing his understanding of the topic, and submit it to the department. It shall be evaluated by the departmental committee consisting of head of the department, seminar supervisor and a senior faculty member. The seminar report shall be evaluated for 50 marks. There shall be no external examination for the seminar.
- 5.8 Out of a total of 300 marks for the Major Project work, 100 marks shall be allotted for Internal Evaluation and 200 marks for the End Semester Examination (Viva Voce). The End Semester Examination of the Major Project work shall be conducted by the same committee as appointed for the mini-project. In addition, the project supervisor shall also be included in the committee. The topics for mini project, seminar and project work shall be different from one another. The evaluation of project work shall be made at the end of the IV year. The Internal Evaluation shall be on the basis of two seminars given by each student on the topic of his project.
- 5.9 The Laboratory marks and the sessional marks awarded by the College are subject to scrutiny and scaling by the college wherever necessary. In such cases, the sessional and laboratory marks awarded by the College will be referred to Academic Council. The Academic Council will arrive at a scaling factor and the marks will be scaled accordingly. The recommendations of the Academic Council are final and binding. The laboratory records and internal test papers shall be preserved in the College as per the Affiliation University rules and produced before the Committees/Academic Council as and when asked for.

6. Attendance Requirements

- 6.1 A student is eligible to write the University examinations only if he acquires a minimum of 75% of attendance in aggregate of all the subjects.
- 6.2 Condonation of shortage of attendance in aggregate up to 10% (65% and above and below 75%) in each semester or I year may be granted by the College Academic Committee
- 6.3 Shortage of Attendance below 65% in aggregate shall not be condoned.
- 6.4 A student who is short of attendance in semester may seek re-admission into that semester when offered within 4 weeks from the date of the commencement of class work.
- 6.5 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 stands cancelled.
- 6.6 A stipulated fee as determined by the examination branch shall be payable towards condonation of shortage of attendance.
- 6.7 A student will be promoted to the next semester if he satisfies the attendance requirement of the present semester, as applicable, including the days of attendance in sports, games, NCC and NSS activities.
- 6.8 If any candidate fulfills the attendance requirement in the present semester, he shall not be eligible for readmission into the same class.

7. Course Registration:

- 7.1 Every student has to register for a set of Courses in each Semester, with the total number of their Credits being limited by considering the permissible weekly Contact Hours (typically: 30/Week); For this, an average Course Registration of minimum 20 Credits/Semester (e.g., 6-7 Courses) and a maximum of 28 credits are generally acceptable on recommendation of concerned academic advisor by satisfying the pre-requisite conditions.
- 7.2 Approval of the Course Registration will be informed by the concerned Head of the Department on the beginning of the semester by taking the number of students registered (minimum **one-third** students per class) and availability of the faculty into consideration.
- 7.3 Dropping of the Course Registration can be permitted up to two weeks from the commencement of the semester. Thereafter no droppings are permitted.
- 7.4 Interchanging of Course Registrations are not permitted.
- 7.5 The Pre-requisite conditions for the additional course(s) registration by the students are based on the slots available in the Time Table, Class rooms and Faculty availability.

8. Minimum Academic Requirements

The following academic requirements have to be satisfied in addition to the attendance requirements mentioned in item no.6.

- 8.1 A student is deemed to have satisfied the minimum academic requirements if he has earned the credits allotted to each theory/practical design/drawing subject/project and secures not less than 35% of marks in the end semester exam, and minimum 40% of marks in the sum total of the mid-term and end semester exams.
- 8.2 A student will be eligible to be promoted from I year to II year, upon fulfilling the academic requirements of 50 % credits up to I year II semester examinations and secures prescribed minimum attendance in I year.
- 8.3 A student will be eligible to be promoted from II year to III year, upon fulfilling the academic requirements of 50 % credits up to II year I semester examinations and secures prescribed minimum attendance in II year.
- 8.4 A student will be eligible to be promoted from III year to IV year, upon fulfilling the academic requirements of 50 % credits up to III year I semester examinations and secures prescribed minimum attendance in III year.
- 8.5 A student shall register and put up minimum attendance in all 192 credits and shall earn a minimum of 184 credits for the award of B.Tech degree. Further, marks obtained in the 184 credits shall be considered for the calculation of percentage of marks as well as overall CGPA.
- 8.6 Students who fail to earn 184 credits as indicated in the course structure within ten academic years (8 years of study + 2 years additionally for appearing for exams only) from the year of their admission, shall forfeit their seat in B.Tech course and their admission stands cancelled.

9. Course pattern

- 9.1 The entire course of study is for four academic years. I,II, III and IV years shall be on semester pattern.
- 9.2 A student, eligible to appear for the end examination in a subject, but absent from it or has failed in the end semester examination, may write the exam in that subject during the period of supplementary exams.
- 9.3 When a student is detained for lack of credits/shortage of attendance, he may be readmitted into the next semester. However, the academic regulations under which he was first admitted shall continue to be applicable to him.

10. Award of 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 **Choice Based Credit 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	≥ 90
A+(Excellent)	9	85 – 89
A(Very Good)	8	75 – 84
B+(Good)	7	70 – 74
B(Above Average)	6	60 – 69
C(Average)	5	50 – 59
P(Pass)	4	40 – 49
F(Fail)	0	<40
Ab(Absent)	0	-

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

- 13.1 A student shall register and put up minimum attendance in all 192 credits and shall earn a minimum of 184 credits for the award of B.Tech degree. Further, marks obtained in the 184 credits shall be considered for the calculation of percentage of marks as well as overall CGPA \geq 5.0, within 8 academic years from the date of commencement of the first academic year, shall be declared to have **'qualified'** for the award of the B.Tech. Degree in the chosen branch of Engineering as selected at the time of admission.
- 13.2 A student who qualifies for the award of the degree as listed in 13.1 shall be placed in the following classes.
- 13.3 Students with final CGPA (at the end of the under graduate programme) \geq 7.50, and shall be placed in 'first class with distinction'.
- 13.4 Students with final CGPA (at the end of the under graduate programme) \geq 6.50 but < 7.50, shall be placed in 'first class'.
- 13.5 Students with final CGPA (at the end of the under graduate programme) \geq 5.50 but < 6.50, shall be placed in 'Second class'.
- 13.6 All other students who qualify for the award of the degree (as per item 13.1), with final CGPA (at the end of the under graduate programme) \geq 5.00 but < 5.50, shall be placed in 'pass class'.
- 13.7 A student with final CGPA (at the end of the under graduate programme) < 5.00 will not be eligible for the award of the degree.
- 13.8 Students fulfilling the conditions listed under item 13.3 alone will be eligible for award of 'university rank' and 'gold medal'.

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

SGPA (Si) = Σ (Ci x Gi) / Σ Ci

where Ci is the number of credits of the ith course and Gi is the grade point scored by the student in the ith 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.

CGPA = Σ (Ci x Si) / Σ Ci

where Si is the SGPA of the ith semester and Ci 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.

11 Minimum Instruction Days

The minimum instruction days for each semester shall be 90days.

12 There shall be no branch transfers after the completion of the admission process.

13 WITHHOLDING OF RESULTS

If the student has not paid the dues, if any, to the university 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.

14. TRANSITORY REGULATIONS

- 14.1 Discontinued, detained, or failed candidates are eligible for readmission as and when next offered.
- 14.2 After the revision of the regulations, the students of the previous batches will be given two chances for passing in their failed subjects, one supplementary and the other regular. If the students cannot clear the subjects in the given two chances, they shall be given equivalent subjects as per the revised regulations which they have to pass in order to obtain the required number of credits.
- 14.3 In case of transferred students from other Universities, the credits shall be transferred to JNTUH as per the academic regulations and course structure of the MRCET.

15. General

- 15.1 Wherever the words he , him , his , occur in the regulations, they include she , her , hers .
- 15.2 The academic regulation should be read as a whole for the purpose of any interpretation.
- 15.3 In case of any doubt or ambiguity in the interpretation of the above rules, the decision of the Principal is final.
- 15.4 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.
- 15.5 The students seeking transfer to colleges affiliated to JNTUH from various other Universities/Institutions, have to pass the failed subjects which are equivalent to the subjects of prescribed curriculum of the institute, and also pass the subjects of prescribed curriculum of the institute which the candidates have not studied at the earlier Institution on their own without the right to sessional marks. Further, though the students have passed some of the subjects at the earlier institutions, if the same subjects are prescribed in different semesters of prescribed curriculum of the institute, the candidates have to study those subjects in prescribed curriculum of the institute in spite of the fact that those subjects are repeated.

MALPRACTICES RULES

DISCIPLINARY ACTION FOR / IMPROPER CONDUCT IN EXAMINATIONS

Nature of Malpractices/Improper conduct **Punishment** S.No If the candidate: Possesses or keeps accessible in examination Expulsion from the examination hall, any paper, note book, programmable hall and cancellation of the calculators, Cell phones, pager, palm computers performance in that subject only. or any other form of material concerned with or related to the subject of the examination 1. (a) (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) Gives assistance or guidance or receives it from Expulsion from the examination (b) any other candidate orally or by any other body hall and cancellation of the

	language methods or communicates through cell phones with any candidate or persons in or outside the exam hall in respect of any matter.	performance in that subject only of all the candidates involved. In case of an outsider, he will be handed over to the police and a case is registered against him.
2.	Has copied in the examination hall from any paper, book, programmable calculators, palm computers or any other form of material relevant to the subject of the examination (theory or practical) in which the candidate is appearing.	Expulsion from the examination hall and cancellation of the performance in that subject and all other subjects the candidate has already appeared including practical examinations and project work and shall not be permitted to appear for the remaining examinations of the subjects of that Semester/year. The Hall Ticket of the candidate is to be cancelled and sent to the University.
3.	Impersonates any other candidate in connection with the examination.	The candidate who has impersonated shall be expelled from examination hall. The candidate is also debarred and forfeits the seat. The performance of the original candidate who has been impersonated, shall be cancelled in all the subjects of the examination (including practicals and project work) already appeared and shall not be allowed to appear for examinations of the remaining subjects of that semester/year. The candidate is also debarred for two consecutive semesters from class work and all University examinations. The continuation of the course by the candidate is subject to the academic

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	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.	and a police case is registered against them.
	Leaves the exam hall taking away answer script	Expulsion from the examination
	or intentionally tears of the script or any part	hall and cancellation of
7.	thereof inside or outside the examination hall.	performance in that subject and all the other subjects the candidate has already appeared including practical examinations and project work and shall not be permitted for the remaining examinations of the subjects of that semester/year. The candidate is also debarred for two consecutive semesters from class work and all University examinations. The continuation of the course by the candidate is subject to the academic regulations in connection with forfeiture of seat.
	Possess any lethal weapon or firearm in the	Expulsion from the examination
8.	examination hall.	hall and cancellation of the performance in that subject and all other subjects the candidate has already appeared including practical examinations and project work and shall not be permitted for the remaining examinations of the subjects of that semester/year. The candidate is also debarred and forfeits the seat.

	If student of the college, who is not a candidate	Student of the colleges expulsion
	for the particular examination or any person not	from the examination hall and
	connected with the college indulges in any	cancellation of the performance
	malpractice or improper conduct mentioned in	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
9.		permitted for the remaining
		examinations of the subjects of
		that semester/year. 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	Expulsion from the examination
10.	examination hall.	hall and cancellation of the
		performance in that subject and
		all other subjects the candidate
		has already appeared including
		practical
		examinations and project work
		and shall not be permitted for the
		remaining examinations of the
		subjects of that semester/year.
11.	Copying detected on the basis of internal	Cancellation of the performance
	evidence, such as, during valuation or during	in that subject and all other
	special scrutiny.	subjects the candidate has
		appeared including practical
		examinations and project work of
		that semester/year examinations.
4.5	If any malpractice is detected which is not	
12.	covered in the above clauses 1 to 11 shall be	
	reported to the University for further action to	
	award suitable punishment.	

Malpractices identified by squad or special invigilators

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

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