

SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY, Puttur

(AUTONOMOUS)

(Approved by AICTE & Affiliated to JNTUA, Ananthapuramu)

(Accredited by NBA for Civil, EEE, Mech., ECE & CSE

Accredited by NAAC with 'A' Grade)

Puttur -517583, Chittoor District, A.P (India)



OUTCOME BASED EDUCATION WITH CHOICE BASED CREDIT SYSTEM

MASTER OF TECHNOLOGY (M.Tech.)

R-20 ACADEMIC REGULATIONS

UNDER AUTONOMOUS STATUS

**M.Tech. Regular Two Year Degree Programme
(for the batches admitted from the academic year 2020 - 21)**

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**SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY
(AUTONOMOUS)**

**Academic Regulations (R20) for
M. Tech (Regular-Full time)
CHOICE BASED CREDIT SYSTEM (CBCS)**

VISION AND MISSION

Vision

"To be one among the premier Institutes of the country in producing Ethically strong and Technically sound engineers and managers to serve the Nation"

Mission

"To create sacred environment for the students to acquire knowledge through innovative and professional approach and utilize it for the welfare of the mankind"

FOREWORD

Siddharth Institute of Engineering & Technology, Puttur, Chittoor District, Andhra Pradesh is an autonomous institution conferred by University Grants Commission (UGC), New Delhi based on its performance as well as future commitment and competency to impart quality education.

The autonomous regulations, course structure and syllabi have been prepared after intense and detailed interaction with several expertise solicited from academics, industry and research, in accordance with the vision and mission of the institute in order to produce a quality-engineering graduate to the society.

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

Dr. K. Chandrasekhar Reddy
Principal

ACADEMIC REGULATIONS**M.Tech. Regular Two Year Degree Programme
(For the batches admitted from the academic year 2020 – 21 onwards)**

NOTE: The regulations below are subject to amendments as may be made by the Academic Council of the Institute from time to time. Any or all such amendments will be effective from such date and to such batches of students (including those already undergoing the programme) as may be decided by the Academic Council. The Jawaharlal Nehru Technological University Anantapur, Ananthapuramu shall confer M.Tech. Post Graduate degree to candidates who are admitted to the Master of Technology Programmes and fulfill all the requirements for the award of the degree.

1. PRELIMINARY DEFINITIONS AND NOMENCLATURE

In the following Regulations, unless the context otherwise requires:

- (i) **“Programme”** means PG degree programme: Master of Technology (M.Tech.).
- (ii) **“Specialization”** means discipline of M.Tech. Degree Programme, like Structural Engineering, Thermal Engineering etc.
- (iii) **“Course”** means a theory or practical subject that is normally studied in a Semester, like Structural Health Monitoring, Nuclear Engineering, Thermal Engineering Lab etc.
- (iv) **“Institute”** means Siddharth Institute of Engineering & Technology, Puttur.
- (v) **“University”** means Jawaharlal Nehru Technological University Anantapur, Ananthapuramu.

2. ADMISSION PROCEDURE

Admissions are made to the first year of Two year M.Tech. Degree programme as per the norms of Andhra Pradesh State Council of Higher Education (APSCHE), Government of Andhra Pradesh.

3. PROGRAMME PATTERN

- ❖ A Candidate after securing admission must pursue the M.Tech. programme of study for four semesters duration.
- ❖ Each semester shall be for a minimum of 90 instruction days including examinations.
- ❖ A candidate admitted to a programme should complete it within a period equal to double the prescribed duration of the programme i.e., 4 years from the date of admission.

Credits

Description	SEMESTER	
	Periods /week	Credits
Theory	03	03
Practical	04	02
Dissertation Phase – I	20	10
Dissertation Phase – II	32	16

4. AWARD OF M.TECH. DEGREE

A student will be declared eligible for the award of the M.Tech. Degree if he/she fulfils the following academic regulations:

- ❖ Pursues a programme of study for not less than two academic years and in not more than four academic years (double the duration) from the year of their admission.
- ❖ Registers for 68 credits and secure all 68 credits.
- ❖ Students, who fail to fulfill all the academic requirements for the award of the degree within four academic years from the year of their admission, shall forfeit their seat in M.Tech. Course and their admission stands cancelled.

5. PROGRAMME OF STUDY

With the approval of AICTE & JNTUA, following courses are offered for the M.Tech. Programme from the academic year 2020-21 and any other course as approved by the authorities of statutory bodies of the college from time to time.

S. No.	Name of the Specialization	Specialization Code
1	Structural Engineering	20
2	Control Systems	75
3	Power Electronics	43
4	CAD/CAM	04
5	Thermal Engineering	88
6	Digital Electronics & Communication Systems	38
7	Embedded Systems	55
8	VLSI	57
9	Computer Science & Engineering	58

6. EVALUATION

The performance of the candidate in each semester shall be evaluated subject wise, with a maximum of 100 marks for theory as well as practical subjects, on the basis of internal examination and end semester examination shall be 40% and 60% respectively.

- ❖ For theory subjects, the total internal weightage for theory courses is 40 marks with the following distribution.
 - 30 marks for Mid-Term tests
 - 10 marks for Assignments

There shall be two mid-term tests in each semester. The duration of mid-term test shall be 2 hours. The test consists of 3 questions with individual choice („either“, „or“ type) for 10 marks each. First mid-term test shall be conducted for 50% of the syllabus and second mid-term for the remaining syllabus.

Between the two midterm examinations, 80% weightage will be given for the better performance and 20 % for the other. The final mid-term marks will be the average of the two mid-term examinations.

End semester examination for 60 marks shall consist of 5 questions (1 question from each unit) with individual choice („either“, „or“ type) for 12 marks each.

The duration of end semester examination shall be 3 hours.

- ❖ For practical subjects, 60 marks shall be for the End Semester Examinations and 40 marks will be for internal evaluation based on the day to day performance.
- ❖ A candidate shall be deemed to have secured the minimum academic requirement in a subject if he/she secures a minimum of 40% (i.e., 24) of marks in the end examination and a minimum aggregate of 50% (i.e., 50) of the total marks in the end semester examination and internal evaluation taken together.
- ❖ In case the candidate does not secure the minimum academic requirement in any of the subjects he/she has to reappear for the semester examination during supplementary examinations, or repeat the course when next offered or do any other specified subject as may be required.
- ❖ 10 marks allotted to assignments in each theory course shall be based on evaluation of 2 assignments (5 marks each) relevant to that particular course.

7. MINI PROJECT

The objective of Mini Project is to training a student to implement various steps of research methodology to solve a real time problem with a scope that suites the allotted credits.

- ❖ Mini Project will have mid semester presentation and end semester presentation. Mid semester presentation will include identification of the problem based on the literature review on the topic referring to latest literature available.
- ❖ End semester presentation should be done along with the detailed report of solution to the defined problem.
- ❖ Mini Project is evaluated by Internal Department Committee (IDC) consisting of HOD, Supervisor and Department senior expert for 100marks.

8. EVALUATION OF DISSERTATION PHASE – I

The objective of Dissertation Phase – I is the student should identify the problem of relevant engineering specialization through extensive literature review and should identify appropriate techniques or methodology for providing solution to the problem.

Dissertation Phase – I will have mid semester presentation and end semester presentation.

Mid semester presentation will include identification of the problem based on the literature review on the topic referring to latest literature available.

End semester presentation should be done along with the report on identification of topic for the work and the methodology adopted involving scientific research, collection and analysis of data, determining solutions and must bring out individuals contribution.

Dissertation Phase – I is evaluated by Internal Department Committee (IDC) consisting of HOD, Supervisor and one internal senior expert for 100 marks.

9. EVALUATION OF DISSERTATION PHASE – II

Dissertation Phase – II will be extension of the work on the topic identified in Dissertation Phase – I. Continuous assessment should be done on the work done by adopting the methodology decided involving numerical analysis/ conduct experiments, collection and analysis of data, etc. There will be pre-submission seminar at the end of academic term. After the approval the student has to submit the detail report and external examiner is called for the viva-voce to assess along with supervisor and HOD. Based on viva-voce external examiner and HOD has to submit the grades

- ❖ Registration of Dissertation Phase - II: A candidate is permitted to register for the Dissertation Phase - II after satisfying the attendance requirements for all the courses (theory and practical courses of I & II Semester)
- ❖ Three copies of the Thesis / Dissertation certified in the prescribed form by the supervisor & HOD shall be presented to the HOD. One copy is to be sent to the examiner.
- ❖ The thesis / dissertation will be adjudicated by one examiner (for a batch of a maximum of 5 students) nominated by the Principal.
- ❖ The student must publish one journal paper.

10. RE-REGISTRATION FOR IMPROVEMENT OF INTERNAL EVALUATION MARKS

Following are the conditions to avail the benefit of improvement of internal evaluation marks.

- ❖ The candidate should have completed the course work and obtained examinations

results for I & II semesters.

- ❖ He/she should have passed all the subjects for which the internal evaluation marks secured are more than 50%.
- ❖ Out of the subjects the candidate has failed in the examination due to internal evaluation marks secured being less than 50%, the candidate shall be given one chance for each theory subject and for a maximum of three theory subjects for Improvement of Internal evaluation marks.
- ❖ The candidate has to re-register for the chosen subjects and fulfill the academic requirements.
- ❖ For each subject, the candidate has to pay a fee equivalent to one third of the semester tuition fee along with the requisition to the Principal.
- ❖ In the event of availing the improvement of internal evaluation marks, the internal evaluation marks as well as the end semester examinations marks secured in the previous attempt(s) for the reregistered subjects stand cancelled.

11. SUPPLEMENTARY EXAMINATIONS

At the end of each Semester there will be regular examinations for the current Semester. Those students who could not clear their courses in their previous attempt can appear for the examinations under supplementary category along with the regular students after registering themselves at the examination branch. Supplementary examinations for the all the other Semesters other than the current one will also be conducted at the same time.

12 ATTENDANCE

- ❖ A student shall be eligible to appear for final examinations if he/she acquires a minimum of 75% of attendance in aggregate of all the subjects in a semester.
- ❖ Shortage of attendance below 65% in aggregate shall in **NO** case be condoned.
- ❖ Condonation of shortage of attendance in aggregate up to 10% (65% and above and below 75%) in each semester may be granted by the College Academic Committee.
- ❖ Students whose shortage of attendance is not condoned in any semester are not eligible to take their end semester examination of that class.
- ❖ A student will not be promoted to the next semester unless he satisfies the attendance requirements of the present semester. They may seek re-admission for that semester when offered next.
- ❖ A stipulated fee shall be payable towards condonation for shortage of attendance to the Institute as decided by the College Academic Committee.

13. WITH-HOLDING OF RESULTS

If the candidate has not paid dues to the college or if any case of indiscipline is pending against him/her, the result of the candidate shall be withheld and he/she will not be allowed/ promoted into the next higher semester. The issue of degree is liable to be withheld in such cases.

14. LETTER GRADE AND GRADE POINT

The letter grade and the grade points are awarded based percentage of marks secured by a candidate in individual course as detailed below:

Range in which the marks in the subject fall	Grade	Grade Points (GP) Assigned
≥ 90	S (Superior)	10
80-89	A (Excellent)	9
70-79	B (Very Good)	8
60-69	C (Good)	7
50-59	D (Average)	6
< 50	F (Fail)	0
Absent	Ab (Absent)	0

Table – Conversion into Grades and Grade Points assigned

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

Semester Grade Point Average (SGPA) and Cumulative Grade Point Average (CGPA):

(i) Semester Grade Point Average (SGPA)

The Semester Grade Point Average (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.,

$$\text{SGPA (S}_i\text{)} = \Sigma (\text{C}_i \times \text{G}_i) / \Sigma \text{C}_i$$

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) Cumulative Grade Point Average (CGPA)

The Cumulative Grade Point Average (CGPA) will be computed in the same manner taking into account all the courses undergone by a student over all the semesters of a program, i.e.

$$\text{CGPA} = \frac{\sum (C_i \times S_i)}{\sum C_i}$$

Where S_i is the SGPA of the i^{th} semester and C_i is the total number of credits in that semester. The SGPA and CGPA shall be rounded off to 2 decimal points and reported in the transcripts. While computing the CGPA the subjects in which the student is awarded Zero grade points will also be included.

Grade Point: It is a numerical weight allotted to each letter grade on a 10-point scale.

Letter Grade: It is an index of the performance of students in a said course. Grades are denoted by letters S, A, B, C, D, and F.

EXAMPLE: Computation of SGPA and CGPA

Illustration for SGPA:

Course	Credit	Grade letter	Grade point	Credit Point (Credit x Grade)
Course-I	2	S	10	2x10 = 20
Course-II	3	A	9	3x9 = 27
Course-III	3	B	8	3x8 = 24
Course-IV	3	D	6	3x6 = 18
Course-V	3	B	8	3x8 = 24
Course-VI	2	C	7	2x7 = 14
Course-VII	2	B	8	2x8=16
	18			143

Thus, SGPA = $143/18 = 7.94$

Illustration for CGPA:

Semester 1	Semester 2	Semester 3	Semester 4
Credit : 18 SGPA: 8.13	Credit : 18 SGPA: 6.9	Credit : 16 SGPA: 8.2	Credit : 16

$$\text{Thus, CGPA} = \left[\frac{(18 \times 8.13) + (18 \times 6.9) + (16 \times 8.2)}{52} \right] = 7.72$$

15. AWARD OF CLASS

The following Class is awarded to the student on successful completion of the M.Tech Degree. Programme depending upon the CGPA obtained.

Class	CGPA
First Class with Distinction	≥ 7.5
First Class	$\geq 6.5 < 7.5$
Second Class	$\geq 5.5 < 6.5$
Pass Class	$\geq 5.0 \& < 5.50$

Equivalent conversion of percentage of marks= (CGPA - 0.5) * 10

For example, student got CGPA = 7.69, he /she secures equivalent of percentage of marks
 $= (7.69-0.5)*10 = 71.9 \%$

16. TRANSITORY REGULATIONS:

Candidates who have discontinued or have been detained for want of attendance or who have failed after having undergone the course in earlier regulations and wish to continue the course are eligible for admission into the unfinished semester from the date of commencement of class work with the same or equivalent subjects as and when subjects are offered. However, the current academic regulations shall apply to them upon readmission.

17. AUDIT COURSE

One mandatory audit course as prescribed by AICTE is introduced in each semester. The student should secure 40% of marks in the examination(s) conducted. However the audit course has no external exam.

18. VIRTUAL LAB

To provide more practical/ experimental exposure to the students, apart from the physical labs, the student is instructed to conduct experiments in the virtual environment.

19. GENERAL

- ❖ The academic regulations should be read as a whole for purpose of any interpretation.
- ❖ Malpractice rules nature and punishments are appended.
- ❖ Where the words “he”, “him”, “his” occur in the regulations, they also include “she”, “her”, “hers”, respectively.
- ❖ In case of any doubt or ambiguity in the interpretation of the above rules, the decision of the Principal is final.
- ❖ The Institute, with the approval of the Academic Council, may change or amend the academic regulations / structure / credits / syllabi at any time and the changes or amendments shall be made applicable to all the students on rolls with effect from the dates notified by the Institute.

**RULES FOR
DISCIPLINARY ACTION FOR MALPRACTICES / IMPROPER CONDUCT
IN EXAMINATIONS**

S. No.	Nature of Malpractices/Improper conduct	Punishment
1. (a)	Possesses or keeps accessible in examination hall, any paper, note book, programmable calculators, Cell phones, pager, palm computers, blue tooth or any other form of material concerned with or related to the course of the examination (theory or practical) in which he/she 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 course of the examination)	Expulsion from the examination hall and cancellation of the performance in that course 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 examination hall in respect of any matter.	Expulsion from the examination hall and cancellation of the performance in that course only of all the candidates involved. In case of an outsider, he/she 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 course of the examination (theory or practical) in which the candidate is appearing.	Expulsion from the examination hall and cancellation of the performance in that course and all other courses the candidate has already appeared including practical examinations and project work and shall not be permitted to appear for the remaining examinations of the courses of that Semester/year. The Hall Ticket of the candidate is to be cancelled.
3	Impersonates any other candidate in	The candidate who has impersonated shall be

	connection with the examination	<p>expelled from examination hall. The Candidate is also debarred for four consecutive semesters from class work and all end examinations. The continuation of the course by the candidate is subject to the academic regulations in connection with forfeiture of seat. The performance of the original candidate, who has been impersonated, shall be cancelled in all the courses of the examination (including practicals and project work) already appeared and shall not be allowed to appear for examinations of the remaining courses of that Semester/year. The candidate is also debarred for four consecutive Semesters from class work and all Semester end examinations if his involvement is established. Otherwise the candidate is debarred for two consecutive semesters from class work and all end 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/she will be handed over to the police and a case is registered against him.</p>
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.	<p>Expulsion from the examination hall and cancellation of performance in that course and all the other courses the candidate has already appeared including practical examinations and project work and shall not be permitted for the remaining examinations of the courses of that Semester/year. The candidate is also debarred for two consecutive Semesters from class</p>

		work and all Semester end examinations. The continuation of the course by the candidate is subject to the academic regulations in connection with forfeiture of seat.
5	Uses 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 course.
6	Refuses to obey the orders of the any officer on duty or misbehaves or creates disturbance of any kind in and around the examination hall or organizes a walkout 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 person or to any of his relations whether by words, either spoken or written or by signs or by visible representation, assaults the officer-in-charge, 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.	In case of students of the college, they shall be expelled from examination halls and cancellation of their performance in that course and all other courses the candidate(s) has (have) already appeared and shall not be permitted to appear for the remaining examinations of the courses of that Semester. If candidate physically assaults the invigilator or/officer in charge of the examination, then the candidate is also barred 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 examination 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 course and all the other courses the candidate has already appeared including practical examinations and project work and shall not be permitted for the remaining examinations of the courses of that Semester/year. The candidate is also debarred for two consecutive Semesters from class work and all Semester end 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 course and all other courses the candidate has already appeared including practical examinations and project work and shall not be permitted for the remaining examinations of the courses of that Semester/year. 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 clause 6 to 8.	Student of the colleges expulsion from the examination hall and cancellation of the performance in that course and all other courses the candidate has already appeared including practical examinations and project work and shall not be permitted for the remaining examinations of the Courses 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 examination hall.	Expulsion from the examination hall and cancellation of the performance in that course and all other courses the candidate has already appeared including practical examinations and project work and shall not be permitted for the remaining examinations of the courses of that Semester/year.
11	Copying detected on the basis of internal evidence, such as, during valuation or during special scrutiny.	Cancellation of the performance in that course and all other courses the candidate has appeared including practical examinations and project work of that Semester examinations depending on the recommendation of the committee.
12	If any malpractice is detected which is not covered in the above clauses 1 to 11 shall be reported to the Principal for further action to award suitable punishment.	

Note:

- i. All malpractices cases are to be handled by the Chief Controller with a committee consist of Controller of Examinations, HoD concerned and subject expert.
- ii. Whenever the performance of a student is cancelled in any course/ courses due to Malpractice, he has to register for the End Examination in those course/courses consequently and has to fulfill all the norms required for award of Degree.
