



JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY: KAKINADA
(Established by Andhra Pradesh Act No.30 of 2008)
Kakinada – 533 003, Andhra Pradesh (India)

ACADEMIC REGULATIONS R19 FOR M. Tech (REGULAR) DEGREE COURSE

Applicable for the students of M. Tech (Regular) Course from the Academic Year 2019-20 onwards. The M. Tech Degree of Jawaharlal Nehru Technological University Kakinada shall be conferred on candidates who are admitted to the program and who fulfil 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 on the basis of any other order of merit as approved by the University, subject to reservations as laid down by the 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 **The student shall register for all 68 credits and secure all the 68 credits.**

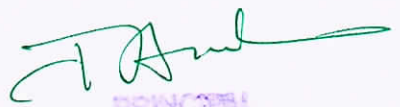
2.3 The minimum instruction days in each semester are 90.

3.0 PROGRAMME OF STUDY

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

M.Tech

1. M.Tech- Structural Engineering
2. M.Tech- Structural Design
3. M. Tech- Transportation Engineering
4. M.Tech- Infrastructure Engineering & Management
5. M. Tech - Computer Aided Structural Engineering
6. M. Tech - Soil Mechanics and Foundation Engineering
7. M. Tech- Environmental Engineering
8. M.Tech-Geo-Informatics
9. M.Tech-Spatial Information Technology


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10. M.Tech- Civil Engineering
11. M. Tech-Highway Engineering
12. M.Tech -Geo-Technical Engineering
13. M.Tech- Remote Sensing
11. M.Tech- Power Electronics
12. M.Tech- Power & Industrial Drives
13. M.Tech- Power Electronics & Electrical Drives
14. M.Tech- Power System Control & Automation
15. M.Tech- Power Electronics & Drives
16. M.Tech- Power Systems
17. M.Tech- Power Systems Engineering
18. M.Tech- Electrical Power Systems
19. M.Tech- High Voltage Engineering
20. M.Tech- Power Electronics and Power Systems
21. M.Tech- Power System and Control
22. M.Tech- Power Electronics & Systems
23. M.Tech- Electrical Machines and Drives
24. M.Tech- Advanced Power Systems
25. M.Tech- Power Systems with Emphasis on High Voltage Engineering
26. M.Tech- Control Engineering
27. M.Tech- Control Systems
28. M.Tech- Electrical Power Engineering
29. M.Tech- Power Engineering & Energy System
29. M.Tech- Thermal Engineering
30. M.Tech- CAD/CAM
31. M.Tech- Machine Design
32. M.Tech- Computer Aided Design and Manufacture
33. M.Tech- Advanced Manufacturing Systems
34. M.Tech-Computer Aided Analysis & Design
35. M.Tech- Mechanical Engineering Design
36. M.Tech- Systems and Signal Processing
37. M.Tech- Digital Electronics and Communication Systems
38. M.Tech- Electronics & Communications Engineering
39. M.Tech- Communication Systems
40. M.Tech- Communication Engineering & Signal Processing
41. M.Tech- Microwave and Communication Engineering
42. M.Tech- Telematics
43. M.Tech- Digital Systems & Computer Electronics
44. M.Tech- Embedded System
45. M.Tech- VLSI
46. M.Tech- VLSI Design




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47. M.Tech- VLSI System Design
48. M.Tech- Embedded System & VLSI Design
49. M.Tech- VLSI & Embedded System
50. M.Tech- VLSI Design & Embedded Systems
51. M.Tech- Image Processing
52. M.Tech- Digital Image Processing
53. M.Tech- Computers & Communication
54. M.Tech- Computers & Communication Engineering
55. M.Tech- Instrumentation & Control Systems
56. M.Tech – VLSI & Micro Electronics
57. M.Tech – Digital Electronics & Communication Engineering
58. M.Tech- Embedded System & VLSI
59. M.Tech- Computer Science & Engineering
60. M.Tech- Computer Science
61. M.Tech- Computer Science & Technology
62. M.Tech- Computer Networks
63. M.Tech- Computer Networks & Information Security
64. M.Tech- Information Technology
65. M.Tech- Software Engineering
66. M.Tech- Neural Networks
67. M.Tech- Chemical Engineering
68. M.Tech- Biotechnology
69. M.Tech- Nano Technology
70. M.Tech- Food Processing
71. M.Tech- Avionics
72. M. Tech- Mining Engineering
73. M. Tech- Auto mobile Engineering
74. M. Tech- Agricultural Engineering
75. M. Tech - Material Science and Technology

and any other course as approved by AICTE/ University from time to time.

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

Civil Engg.	<ol style="list-style-type: none"> 1. M.Tech. - Structural Engineering 2. M.Tech. - Structural Design 3. M.Tech. - Computer Aided Structural Engineering 4. M.Tech - Infrastructure Engineering & Management 5. M.Tech - Civil Engineering 6. M. Tech - Soil Mechanics and Foundation Engineering 7. M.Tech - Geo-Technical Engineering 8. M.Tech - Transportation Engineering 9. M.Tech - Environmental Engineering
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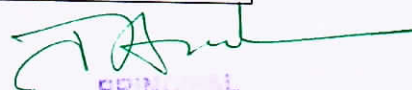

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	10. M.Tech - Geo-Informatics 11. M. Tech-Highway Engineering
EEE	1. M.Tech- Power Electronics 2. M.Tech- Power & Industrial Drives 3. M.Tech- Power Electronics & Electrical Drives 4. M.Tech- Power System Control & Automation 5. M.Tech- Power Electronics & Drives 6. M.Tech- Power Systems 7. M.Tech- Power Systems Engineering 8. M.Tech- Electrical Power Systems 9. M.Tech- High Voltage Engineering 10. M.Tech- Power Electronics and Power Systems 11. M.Tech- Power System and Control 12. M.Tech- Power Electronics & Systems 13. M.Tech- Electrical Machines and Drives 14. M.Tech- Advanced Power Systems 15. M.Tech- Power Systems with Emphasis on High Voltage Engineering 16. M.Tech- Control Engineering 17. M.Tech- Control Systems 18. M.Tech- Electrical Power Engineering 19. M.Tech- Power Engineering & Energy System
ME	1. M.Tech- Thermal Engineering 2. M.Tech- CAD/CAM 3. M.Tech- Machine Design 4. M.Tech- Computer Aided Design and Manufacture 5. M.Tech- Advanced Manufacturing Systems 6. M.Tech-Computer Aided Analysis & Design 7. M.Tech- Mechanical Engineering Design 8. M.Tech- Mining Engineering 9. M. Tech- Automobile Engineering
ECE	1. M.Tech- Systems and Signal Processing 2. M.Tech- Digital Electronics and Communication Systems 3. M.Tech- Electronics & Communications Engineering 4. M.Tech- Communication Systems 5. M.Tech- Communication Engineering & Signal Processing 6. M.Tech- Microwave and Communication Engineering 7. M.Tech- Telematics 8. M.Tech- Digital Systems & Computer Electronics 9. M.Tech- Embedded System 10. M.Tech- VLSI 11. M.Tech- VLSI Design 12. M.Tech- VLSI System Design 13. M.Tech- Embedded System & VLSI Design


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	14. M.Tech- VLSI & Embedded System 15. M.Tech- VLSI Design & Embedded Systems 16. M.Tech- Image Processing 17. M.Tech- Digital Image Processing 18. M.Tech- Computers & Communication 19. M.Tech- Computers & Communication Engineering 20. M.Tech- Instrumentation & Control Systems 21. M.Tech – VLSI & Micro Electronics 22. M.Tech – Digital Electronics & Communication Engineering 23. M.Tech- Embedded System & VLSI
CSE	1. M.Tech- Computer Science & Engineering 2. M.Tech- Computer Science 3. M.Tech- Computer Science & Technology 4. M.Tech- Computer Networks 5. M.Tech- Computer Networks & Information Security 6. M.Tech- Information Technology 7. M.Tech- Software Engineering 8. M.Tech- Neural Networks 9. M.Tech- Cyber Security 10. MCA
Metallurgical Engineering	1. M. Tech - Material Science and Technology
Inter disciplinary	2. M.Tech - Chemical Engineering 3. M.Tech – Bio-technology 4. M.Tech – Nano-Technology 5. M.Tech- Food Processing Technology 6. M.Tech- Avionics 7. M.Tech - Remote Sensing 8. M.Tech - Spatial Information Technology 9. M.Tech - Environmental Engineering & Management 10. M.Tech – Renewable Energy 11. M.Tech – Environmental Occupational Health & Safety 12. M.Tech - Agricultural Engineering
MBA	1. MBA Regular 2. Integrate MBA 3. MBA (Agribusiness Management/Entrepreneurship) 4. MBA (Master in Hospital Administration) 5. MBA (Logistics and Supply Chain Management) 6. Dual Degree MBA (Previously MAM)


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4.0 ATTENDANCE

- 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/courses, and with minimum 50% in each and every course including practicals.
- 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 and not eligible to write their end semester examination of that class.
- 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.
- 4.5 A prescribed fee 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 re-admission into that semester when offered next. If any candidate fulfills the attendance requirement in the present semester, he shall not be eligible for re-admission into the same class.

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 practical, on the basis of Internal Evaluation and End Semester Examination.

- 5.1 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 Evaluation. The internal evaluation shall be made based on the **average** of the marks secured in the two Mid Term-Examinations conducted-one in the middle of the Semester and the other immediately after the completion of instruction. Each mid term examination shall be conducted for a total duration of 120 minutes with 4 questions (without choice) each question for 10 marks, and it will be reduced to 25 marks. End semester examination is conducted for 75 marks for all FIVE (5) questions (one question from one unit) to be answered (either or).
- 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. The internal evaluation based on the day to day work-5 marks, record- 5 marks and the remaining 15 marks to be awarded by conducting an internal laboratory test. The end examination shall be conducted by the examiners, with a breakup marks of Procedure-20, Experimentation-30, Results-10, Viva-voce-15.
- 5.3 For Mini Project with 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 Project Review Committee consisting of Head of the Department, supervisor/mentor and two other senior faculty members of the department. For Mini Project with Seminar, there will be only internal evaluation of 100 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 Evaluation taken together.



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- 5.5 In case the candidate does not secure the minimum academic requirement in any subject (as specified in 5.4) he has to re-appear for the End semester Examination in that subject. 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 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 shall stand cancelled. For re-registration the candidates have to apply to the University through the college by paying the requisite fees and get approval from the University before the start of the semester in which re-registration is required.
- 5.6 In case the candidate secures less than the required attendance in any re-registered subject(s), he shall not be permitted to write the End Examination in that subject. He shall again re-register the subject when next offered.
- 5.7 Laboratory examination for M. Tech. courses must be conducted with two Examiners, one of them being the Laboratory Class Teacher or teacher of the respective college and the second examiner shall be appointed by the University from the panel of examiners submitted by the respective college.

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 Head of the Department and two other senior faculty members in the department.
- 6.2 Registration of Dissertation/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 for approval. The student can initiate the Project work, only after obtaining the approval from the Project Review Committee (PRC).
- 6.4 If a candidate wishes to change his supervisor or topic of the project, he can do so with the approval of the Project Review Committee (PRC). However, the PRC 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 Continuous assessment of Dissertation-I and Dissertation-II during the Semester(s) will be monitored by the PRC.
- 6.6 A candidate shall submit his status report in two stages to the PRC, at least with a gap of 3 months between them.
- 6.7 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. The candidate has to pass all the theory and practical subjects before submission of the Thesis.




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- 6.8 Three copies of the Project Thesis certified by the supervisor shall be submitted to the College/School/Institute.
- 6.9 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.
- 6.10 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. The candidate has to re-register for the project and complete the project within the stipulated time after taking the approval from the University.
- 6.11 The Head of the Department shall coordinate and make arrangements for the conduct of Viva-Voce examination.
- 6.12 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 for a maximum of 100 marks.
- 6.13 If the report of the Viva -Voce is unsatisfactory (i.e., <50 % of marks), 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, the candidate has to re-register for the project and complete the project within the stipulated time after taking the approval from the University.

7.0 Cumulative Grade Point Average (CGPA)

Marks Range Theory/ Laboratory (Max – 100)	Marks Range Mini Project/ Project Work or Dissertation (Max – 100)	Letter Grade	Level	Grade Point
≥ 90	≥ 90	O	Excellent	10
≥80 to <90	≥80 to <90	S	Very Good	9
≥70 to <80	≥70 to <80	A	Good	8
≥60 to <70	≥60 to <70	B	Fair	7
≥50 to <60	≥50 to <60	C	Satisfactory	6
<50	<50	F	Fail	0
		AB	Absent	0


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Computation of SGPA

- The following procedure is to be adopted to compute the Semester Grade Point Average(SGPA) and Cumulative Grade Point Average(CGPA):
- 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
- $SGPA (S_i) = \frac{\sum (C_i \times G_i)}{\sum C_i}$
- 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.

Computation of CGPA


- The **CGPA** is also calculated in the same manner taking into account all the courses undergone by a student over all the semester of a Programme, i.e.
- $CGPA = \frac{\sum (C_i \times S_i)}{\sum C_i}$
- 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.
- Equivalent Percentage = $(CGPA - 0.75) \times 10$

8.0 AWARD OF DEGREE AND CLASS

After a student has satisfied the requirements prescribed for the completion of the program and is eligible for the award of M. Tech. Degree he shall be placed in one of the following four classes:

Class Awarded	CGPA to be secured	
First Class with Distinction	≥ 7.75 (Without any supplementary appearance)	From the CGPA secured from 68 Credits.
First Class	≥ 7.75 (With any supplementary appearance)	
	≥ 6.75 and < 7.75 (Without any supplementary appearance)	
Second Class	≥ 6.75 and < 7.75 (With any supplementary appearance)	
	≥ 6.0 to < 6.75 (Without any supplementary appearance)	
Pass Class	≥ 6.0 to < 6.75 (With any supplementary appearance)	

The Grades secured, Grade points and Credits obtained will be shown separately in the memorandum of marks.


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9.0 WITHHOLDING OF RESULTS


If the student is involved in indiscipline/malpractices/court cases, the result of the student will be withheld.

10.0 TRANSITORY REGULATIONS (for R19)

- 10.1 Discontinued or detained candidates are eligible for readmission (within the duration as mentioned in item 2.1) as and when next offered.
- 10.2 The readmitted students will be governed by the regulations under which the candidate has been admitted.

11.0 GENERAL

- 11.1 Wherever the words “he”, “him”, “his”, occur in the regulations, they include “she”, “her”, “hers”.
- 11.2 The academic regulation should be read as a whole for the purpose of any interpretation.
- 11.3 In the case of any doubt or ambiguity in the interpretation of the above rules, the decision of the Vice-Chancellor is final.
- 11.4 The University 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 University.


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