



NSRIT

AUTONOMOUS

ACADEMIC RULES & REGULATIONS

2020

M. TECH.

www.nsr.it.edu.in



**Nadimpalli Satyanarayana Raju Institute of
Technology**
(An Autonomous Institute)

Academic rules and Regulations of Two year M.Tech. Regular degree programme applicable for the student batches admitted from the Academic Year 2020 – 2021

1.0 Introduction:

Nadimpalli Satyanarayana Raju Institute of Technology (NSRIT) aims at achieving academic excellence by implementing new initiatives in Teaching-Learning and Evaluation processes. Based on the directions of the University Grants Commission (UGC), New Delhi, All India Council for Technical Education (AICTE), New Delhi and Jawaharlal Nehru Technological University Kakinada (JNTUK) Kakinada, NSRIT introduced the Choice Based Credit System (CBCS) in both the under-graduate and post-graduate programmes offered from the academic year 2020 – 2021. Keeping in view of the standardization of the higher education system in India, NSRIT is continuing the implementation of CBCS ahead.

2.0 Short Title, Application and Commencement:

- ✦ These regulations shall be called as the “NSRIT M.Tech. Choice Based Credit System (CBCS) Academic Regulations, 2020”. In short, it shall be referred as ‘NSRIT M.Tech. R20 Regulations’.
- ✦ The regulations are quite comprehensive and include definitions of key terms, semester system, credit system, grading system and other relevant details.
- ✦ The regulations detailed herein shall apply to all the regular and professional under-graduate programmes offered by the Institute.
- ✦ These regulations shall be applicable and come into force to the student batches admitted from the academic year 2020-2021 onwards.
- ✦ The Institute may revise, amend or change the regulations, scheme of examinations and syllabi, from time to time, if found necessary and on approval by the Academic Council of the Institute, keeping the recommendations of the BoS in view.
- ✦ Any or all such amendments shall be effective from such date and to such batches of students including those already undergoing the programme, as may be approved through Academic Council of the Institute.

3.0 Choice Based Credit System(CBCS):

- ✦ The Choice Based Credit System (CBCS) enables a student to obtain a degree by accumulating the required number of credits prescribed for that degree. Under the

CBCS, the requirement for awarding a degree is prescribed in terms of number of credits to be completed by the students. The number of credits earned by the student reflects the knowledge or skill acquired by him / her.

- ✦ Each course is assigned with a fixed number of credits based on the contents to be learned. The student also has choice in selecting the courses out of those offered by the various departments. The grade points earned for each of the course reflects the student's proficiency in that course.
- ✦ The CBCS provides the student flexibility in duration to complete a programme of study. The CBCS facilitates transfer of credits earned in different departments or institutions of higher education in India.
- ✦ The CBCS permits students to:
 1. Choose electives from a wide range of elective courses offered by the departments.
 2. Undergo additional courses of interest.
 3. Adopt an interdisciplinary approach in learning.
 4. Make the best use of expertise of the available faculty.

4.0 Abbreviations:

Abbreviation	Full Form
AC	Academic Council
AICTE	All India Council for Technical Education
B.Tech.	Bachelor of Technology
BIE	Board of Intermediate Education
BT	Bloom's Taxonomy
BoS	Board of Studies
C	Credit
CBCS	Choice Based Credit System
CGPA	Cumulative Grade Point Average
CIE	Continuous Internal Evaluation
CO	Course Outcomes
CoE	Controller of Examinations
CP	Credit Point
D	Drawing
DoA	Dean of Academics
GO	Government Order

GP	Grade Point
HoD	Head of the Department
JNTUK	Jawaharlal Nehru Technological University Kakinada
L	Lecture
MOOC	Massive Open Online Course
NBA	National Board of Accreditation
NPTEL	National Programme on Technology Enhanced Learning
NSRIT	Nadimpalli Satyanarayana Raju Institute of Technology
OBE	Outcome Based Education
P	Practical
PG	Post-Graduate
Ph.D.	Doctor of Philosophy
PO	Programme Outcomes
PSO	Programme Specific Outcomes
SEE	Semester End Examination
SGPA	Semester Grade Point Average
T	Tutorial
UG	Under-Graduate
UGC	University Grants Commission

5.0 Organization:

S. No.	Keywords	Definition
1.	Academic Council	Highest academic body of the Institute and is responsible for the maintenance of standards of instruction, education and examination within the Institute. Academic Council is an authority as per the AICTE / UGC regulations and has the right to take decisions on all academic matters including academic and research.

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2.	Academic Plan	A document defining the course contents and complete details of plan of delivery of the course viz. Course title, Course code, Pre- requisite, Credit structure, Team of instructors, Course objectives, Course outcomes, Mapping of course outcomes and programmes outcomes, relevant syllabus, textbook(s) and reference books, Course session plan and delivery plan, evaluation method, course notices and other course related aspects.
3.	Academic Year	A period that is necessary to complete courses of study. It consists of two consecutive (one odd + one even) semesters.
4.	Admission Procedure	As prescribed by the Government of Andhra Pradesh.
5.	Audit Course	A course of study which has neither evaluation component nor a grade.
6.	Autonomous Institute	An Institute designated as 'Autonomous' by University Grants Commission (UGC), New Delhi in concurrence with the affiliating University i.e., Jawaharlal Nehru Technological University, Kakinada and Andhra Pradesh State Government.
7.	Backlog Course	A course is considered to be a backlog course if the student has obtained a Fail (F) grade.
8.	Basic Science Courses	Courses of foundational nature in the areas of Mathematics, Physics, Chemistry, Biology etc.
9.	Betterment	Betterment is a way that contributes towards improvement of the students' grade in any course(s). It can be done by either (a) re- appearing or (b) re-registering for the course.
10.	Board of Studies	An authority, as defined in UGC regulations, constituted by the Principal for each of the department separately. The board is responsible for curriculum design and update in respect of all the programmes offered by a department.
11.	Branch	A discipline or specialization of a degree programme like Civil Engineering, Mechanical Engineering etc.
12.	Certificate Course	A course that makes a student gain hands-on expertise and skills required for holistic development. It is a mandatory, non-credited course for the award of degree.

13.	Choice Based Credit System (CBCS)	A system which provides choice for students to select from the prescribed courses.
14.	Compulsory Course	Course required to be undertaken for the award of the degree as per the programme.
15.	Course	A course offered for learning in a particular semester by the Institute. These could be theory / laboratory / project work / mini project / internship etc. and may comprise of lectures / tutorials / practicals / assignments / examination / viva-voce etc. All the courses need not carry the same weightage. A course is defined through course objectives and course outcomes.
16.	Course Outcomes (CO)	Statements describing essential skills that each and every student need to acquire at the end of a course. They can be from 3 to 5 for all the courses.
17.	Course Registration	Process of enrolling into a set of courses in a semester of the programme.
18.	Credit	A unit by which the course work is measured. It determines the number of hours of instructions required per week. One credit is equivalent to one lecture hour of teaching (lecture or tutorial) or two hours of practical / field-work per week.
19.	Credit Point	A product of grade point and number of credits for a course.
20.	Credit Transfer	The procedure of granting credit(s) to student for courses under taken online through MOOC
21.	Cumulative Grade Point Average (CGPA)	A measure of overall cumulative performance of a student over all semesters. It is the ratio of total credit points secured by a student in various courses in all semesters and the sum of the total credits of all courses in all the semesters. It is expressed up to two decimal places.
22.	Curriculum	Curriculum incorporates all the courses that are offered in a specific discipline. It also indicates the planned interaction of students with instructional content, materials and resources.
23.	Degree	A student who fulfills all the programme requirements is eligible to receive a degree.
24.	Department	An academic entity that conducts relevant curricular and co-curricular activities, involving both teaching

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		and non-teaching staff and other resources.
25.	Detention	Student who does not secure minimum required attendance in AGGREGATE shall be detained OR Student who does not secure minimum credits required for promotion from one year to the next shall be detained.
26.	Dropping of Courses	A student who doesn't want to register certain courses should do so in writing in a prescribed format within the time frame as mentioned in these regulations.
27.	Evaluation	Evaluation is the process of judging the academic work done by the student in his / her courses. It is done through a combination of continuous internal evaluation and semester end examinations.
28.	Grade Point	A numerical weight allotted to each letter grade on a 10-point scale.
29.	Industrial Visit	Visit to a company / firm as per the academic requirement.
30.	Internship	A period of training / work experience offered by an industry / research organization / academic institution for a limited period of time as specified in these regulations.
31.	Laboratory based Course Projects	A student-centric learning methodology wherein students work as individuals or in teams in a laboratory for design, problem- solving, decision making, and investigative activities.
32.	Massive Open Online Courses (MOOC)	Open access online courses aimed at providing ways to learn new skills.
33.	Outcome Based Education	An educational theory wherein each part of an educational system is based around goals (outcomes). Each student should have achieved the goal by the end of the educational experience.
34.	Professional Core Courses	Courses that are fundamental constituents of the respective engineering discipline.
35.	Professional Elective Courses	Courses those are discipline-specific.
36.	Open Elective Courses	Courses of interdisciplinary nature offered to all the students of various programmes across the Institute.

37.	Programme	A set of courses offered by the department leading to the award of degree in that programme.
38.	Programme Outcomes (PO)	Statements describing the essential skill sets that each and every student need to possess at the time of graduation. These skill sets based on the graduate attributes as defined by the National Board of Accreditation (NBA) are in the areas of employability, entrepreneurial, social and behavioral aspects. They are 12 in number for a specific programme and are subjected to modification from time to time as defined by the NBA.
39.	Programme Specific Outcomes (PSO)	Statements that describe what the graduates of a specific programme should be able to do. They can be 3 to 5 in number for a specific programme.
40	Regulations	The rules and regulations contained herein that are common to all the B.Tech. Programmes offered by the Institute and designated as “NSRIT R20 CBCS Regulations”

6.0 Post-Graduate Degree Programmes on offer:

NSRIT offers 2-Year (4 semesters) Master of Technology (M. Tech.) degree programme, under Choice Based Credit System (CBCS), in the branches as shown in the Table

M.Tech. programmes of study on offer

S. No.	Branch	Specialization
1	Mechanical Engineering	Thermal Engineering
2	Electrical and Electronics Engineering	Power System Control & Automation

7.0 Eligibility for admission:

Admission to the M. Tech Programme shall be made subject to the eligibility, qualifications and specialization prescribed by the A.P. State Government/University from time to time. Admissions shall be made either on the basis of the merit rank obtained by the student in the common entrance examination conducted by the A.P. Government/University or on the basis of any other order of merit approved by the A.P. Government/University, subject to reservations as prescribed by the Government/University from time to time.

The eligibility criteria for admission into engineering programmes offered at NSRIT shall be as prescribed by the Government of Andhra Pradesh/University.

8.0 Medium of Instruction:

The medium of instruction shall be **English** for all the courses including their content delivery and examinations, seminars, presentations and project evaluation as prescribed in the programme curriculum.

9.0 AWARD OF M. Tech DEGREE:

- ✦ 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.
- ✦ **The student shall register for all 68 credits and secure all the 68 credits.**
- ✦ The minimum instruction days in each semester are 90.

10.0 Attendance

- ✦ 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.
- ✦ 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.
- ✦ Shortage of Attendance **below** 65% in aggregate shall not be condoned and not eligible to write their end semester examination of that class.
- ✦ Students whose shortage of attendance is not condoned in any semester are not eligible to write their end semester examination of that class.
- ✦ A prescribed fee shall be payable towards Condonation of shortage of attendance.
- ✦ 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.

11.0 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.

- ✦ 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).

- ✦ 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.
- ✦ 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.
- ✦ Students going for Projects in III Semester, can complete their courses through MOOCs (Massive Open Online Courses) by registering and participating in 12 weeks courses in NPTEL / SWAYAM etc. with the approval of the Head of the Department. The Head of the Department shall appoint one mentor for each of the MOOCs offered. During the course, the mentor monitors the student's assignment submission at the end of every week. The student needs to submit all the assignments given and needs to take final exam at the proctor center. The student needs to earn a certificate by passing the examination. The student will be awarded the credits given in the curriculum only upon submission of the certificate.
- ✦ 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.
- ✦ 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 reregistration the candidates have to apply to the college by paying the requisite fees and get approval from the College before the start of the semester in which re-registration is required.

- ✦ 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.
- ✦ 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 College from the panel of examiners submitted by the respective department.
- ✦ The End examination shall be conducted by the concerned teacher and external examiner appointed by the Principal from a panel of three examiners submitted by HOD.

12.0 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.

- ✦ A Project Review Committee (PRC) shall be constituted with Head of the Department and two other senior faculty members in the department.
- ✦ 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.
- ✦ 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).
- ✦ 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.
- ✦ Continuous assessment of Dissertation-I and Dissertation-II during the Semester(s) will be monitored by the PRC.
- ✦ A candidate shall submit his status report in two stages to the PRC, at least with a gap of 3 months between them.
- ✦ 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.

- ✦ Four copies of the Project Thesis certified by the supervisor shall be submitted to the College/School/Institute.
- ✦ The thesis shall be adjudicated by one examiner selected by the College. 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.
- ✦ 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 reregister for the project and complete the project within the stipulated time after taking the approval from the College.
- ✦ The Head of the Department shall coordinate and make arrangements for the conduct of Viva-Voce examination.
- ✦ 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.
- ✦ 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 College.
- ✦ A student should publish / present his research findings of his Project work in the form of research paper to a National or International Peer Reviewed Journal / at an International Conference with due permission from the Supervisor after getting Plagiarism check.
- ✦ A student shall submit his status report at least with 4 reviews conducted by the PRC. The Sessional Evaluation shall be made on the basis of reviews and on the progress of the work evaluated by PRC.
- ✦ The external examiner shall be appointed by the Principal from the panel of three examiners, who are eminent in that particular field given by the Head of the Department.

13.0 RE-REGISTRATION FOR IMPROVEMENT OF SESSIONAL MARKS:

Following are the conditions to avail the benefit of improvement of Sessional marks.

- ✦ A student shall be given one chance to re-register for each course provided the Sessional marks secured by a student are less than 50% and has failed in the End examination.

- ✚ For re-registration, the student has to get approval from the Principal and has to pay the requisite fee which is of one third of the semester tuition fee before the start of the semester in which re-registration is required.
- ✚ At any time, a student is permitted to re-register for a maximum of two courses in addition to the regular semester.
- ✚ In the event of the student taking re-registration, his Sessional marks and End examination marks obtained in the previous attempt stand cancelled in that course(s). The attendance shall be calculated separately for the re-registered courses.
- ✚ If the student gets required minimum attendance in any re-registered course(s), he shall be eligible for writing the End examination in that course(s). Otherwise, he shall not be permitted to write the End examination in that course(s). He shall reregister again in that course(s) when next offered.

13.0 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

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
- ✚
$$SGPA (S_i) = \sum (C_i \times G_i) / \sum C_i$$
- ✚ 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.
- ✚ $CGPA = \sum (C_i \times S_i) / \sum C_i$
 - ✚ 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 = $(CGPA - 0.75) \times 10$

14.0 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.

15.0 Withholding Of Results:

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

16.0 Transitory Regulations:

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

17.0 General:

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