# 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

## BACHELOR OF TECHNOLOGY (B.Tech.)

## R-20 ACADEMIC REGULATIONS

### UNDER AUTONOMOUS STATUS

B.Tech. Regular Four Year Degree Programme
(for the batches admitted from the academic year 2020 - 21)

&

B.Tech. (Lateral Entry Scheme)
(for the batches admitted from the academic year 2021 - 22)

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# 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

## B.Tech. Regular Four Year Degree Programme
### (For the batches admitted from the academic year 2020 - 21)
### &
## B.Tech. (Lateral Entry Scheme)
### (For the batches admitted from the academic year 2021 - 22)

**NOTE:** The below framed academic regulations 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 B.Tech. Undergraduate degree to candidates who are admitted to the Bachelor of Technology Programmes and fulfill all the requirements for the award of the degree.

# 1. PRELIMINARY DEFINITIONS AND NOMENCLATURE

**Academic Council (AC):** The Academic Council is the 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 UGC regulations and it has the right to take decisions on all academic matters including academic research.

**Academic Autonomy:** Means freedom to an institute in all aspects of conducting its academic programmes, granted by UGC for Promoting Excellence.

**Academic Year:** It is the period necessary to complete an actual course of study within a year. It comprises of two semesters (Odd and Even).

**AICTE:** All India Council for Technical Education, New Delhi.

**Autonomous Institute:** An institute designated as autonomous by University Grants Commission (UGC), New Delhi in concurrence with affiliating University (Jawaharlal Nehru Technological University Anantapur, Ananthapuramu) and State Government.

**Backlog Course:** A course is considered to be a backlog course if the student has obtained a failure grade (F) in that course.

**Basic Sciences& Humanities (BS&H):** The courses offered in the areas of Mathematics, Physics, Chemistry, English etc., are considered to be foundational in nature.

**Board of Studies (BoS):** BoS is an authority as defined in UGC regulations, approved by Academic Council for each of the departments separately. They are responsible for curriculum design and updation in respect of all the programmes offered by a department.

**Branch:** Means specialization in programmes like B.Tech. degree in Mechanical Engineering, B.Tech. degree in Computer Science and Engineering etc.

**Choice Based Credit System (CBCS):** means a system, which provides an opportunity for the students to choose courses from the prescribed courses comprising core, elective/minor or skill, based courses.

**Core Course:** The courses that are relevant to a particular branch of engineering

**Course:** A course is a subject offered by a department for learning in a particular semester.

**Course Outcomes:** The essential skills that need to be acquired by every student through a course.

**Credit:** A unit by which the course work is measured (Numerical weightage given to the course). It determines the number of hours of instructions required per week. One credit is equivalent to one hour of teaching (Either lecture or tutorial) or two hours of practical works/field work per week.

| Credits: | |
|---|---|
| 1 Hour Lecture (L) per week | 1 credit |
| 1 Hour Tutorial (T) per week | 1 credit |
| 1 Hour Practical (P) / Drawing (D)per week | 0.5 credit |

**Cumulative Grade Point Average (CGPA):** It is a measure of cumulative performance of a student over all the completed semesters.

**Curriculum** (Course Structure)**:** The subjects comprising a branch of study.

**Elective Course:** A course that can be chosen from a set of courses. An elective can be Professional Elective and/or Open Elective.

**End Semester Examinations:** It is an examination conducted for all courses offered in a semester at the end of the semester.

**Evaluation:** Evaluation is the process of assessing the academic performance of the student in a particular course.

**Grade:** It is an index of the performance of the students in a said course. Grades are indicated by alphabets.

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

**Institute:** Means Siddharth Institute of Engineering & Technology, Puttur, Chittoor District, Andhra Pradesh.

**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, E and F.

**Mandatory course:** Means a compulsory course required to be undertaken for the award of the degree as per the list suggested by AICTE/APSCHE.

**Massive Open Online Course (MOOC):** MOOC courses inculcate the habit of self-learning. It provides an affordable and flexible way to learn new skills through online mode.

**Open Elective Course (OEC):** It is an interdisciplinary course offered by other branch of engineering for learning awareness and job oriented benefits. Students have to choose one among the listed open elective courses.

**Pre-requisite:** A course, the knowledge that is required to study the higher-level course.

**Professional Elective Course (PEC):** It is also a core course, which allows the students to develop more specialized understanding of the contents. Students have to choose one among the listed core courses.

**Programme:** Means, UG degree programme: Bachelor of Technology (B.Tech) / PG degree programme: Master of Technology (M.Tech) / Master of Business Administration (MBA) / Master of Computer Applications (MCA).

**Project work:** It is a design or research based work that gives a chance to demonstrate the knowledge acquired during the study. It is a credit-based course to be taken up during the final year.

**Regulations:** are the rules / process of the institute framed for the stake holders The regulations, common to all B.Tech. programmes offered by the Institute are designated as "R20 Regulations" and are binding on all the stakeholders.

**Semester:** It is a period of study consisting of 15 to 18 weeks of academic work equivalent to normally 90 working days. The odd Semester starts usually in July and even semester in December.

**Semester Grade Point Average (SGPA):** It is a measure of performance of a student in a particular semester

**University:** Means the Jawaharlal Nehru Technological University Anantapur, Ananthapuramu.

## 2.   ELIGIBILITY FOR ADMISSION

The total seats available as per the approved intake are grouped into two categories viz., category A and Category B with a ratio of 70:30 as per the state government guidelines.

**2.1**   The admissions for category A and B seats shall be as per the guidelines of Andhra Pradesh State Council for Higher Education (APSCHE) in consonance with government reservation policy.

❖ Under Category A: 70% of the seats are filled through EAMCET counselling.

❖ Under Category B: 30% seats are filled based on the guidelines of APSCHE.

**2.2**   Admission eligibility-Under Lateral Entry Scheme Students with diploma qualification have an option of direct admission into II year B.Tech., **(Lateral entry scheme)**. Under this scheme **10% seats** of sanctioned intake will be available in each Programme. Admissions to this three year B.Tech., lateral entry Programme will be through ECET.

## 3.   DURATION OF PROGRAMME

The course duration for the award of the Degree in **Bachelor of Technology** will be four academic years, with two semesters in each year. However, if a student is unable to complete the course within Four years, he/ she can do so by giving more attempts but within eight consecutive academic years (double the programme duration) from the date of admission. However for the maximum period to complete B. Tech. under lateral entry scheme is six consecutive academic years (double the program duration) from the date of joining.

## 4.   MEDIUM OF INSTRUCTION

The medium of instruction shall be English for all courses, examinations, seminar presentations and project work.

## 5. BRANCH OF STUDY

| S. No. | Name of the Branch | Branch Code |
|--------|--------------------|-------------|
| 1 | Civil Engineering | 01 |
| 2 | Electrical & Electronics Engineering | 02 |
| 3 | Mechanical Engineering | 03 |
| 4 | Electronics & Communications Engineering | 04 |
| 5 | Computer Science and Engineering | 05 |
| 6 | Computer Science & Information Technology | 06 |
| 7 | Agricultural Engineering | 07 |
| 8 | CSE( Artificial Intelligence and Machine Learning) | 09 |
| 9 | CSE (Internet of Things and Cyber security Including Block Chain Technology) | 10 |
| 10 | CSE(Artificial Intelligence & Data Science) | 11 |
| 11 | CSE with Specialization in Cloud Computing | 12 |
| 12 | CSE(Artificial Intelligence) | 14 |

Any other branch as approved by the authorities of statutory bodies of the institute from time to time.

## 6. EVALUATION METHODOLOGY

The performance of a student in each semester shall be evaluated through internal evaluation and /or an external evaluation (end-semester examination) conducted semester wise. Performance evaluation in each course (theory/ practical/drawing) shall be based on a total of 100 marks, of which the relative weightage for internal evaluation and end- semester examination shall be 40% and 60% respectively.

### 6.1 Internal Evaluation

The total internal weightage for all theory courses is 40 marks with the following distribution:

a) 30 marks for Mid-term tests
b) 10 marks for Assignments/Drawing sheets

### 6.1.1. Procedure for evaluating Mid-term tests for 30 marks

(i) For all theory courses there shall be two mid-term tests in each semester. First mid-term test shall be conducted for 50% of the syllabus and second mid-term test for the remaining syllabus. The duration of mid-term test shall be 1 hour 50 minutes of which, 90 minutes will be for descriptive test and 20 minutes for objective test.

(ii) For theory courses consisting of two parts of different courses, for example, Basic Electrical & Electronics Engineering shall have the following pattern:

a. Question paper shall be in two parts viz., Part A and Part B.
b. Each part consists of three units.
c. The syllabus for first mid-term test will be Part-A and Part-B for the second mid-term test.

The descriptive test consists of 3 questions, one question from each unit, with individual choice ('either', 'or' type) for 10 marks each. Later, the total marks (30) shall be scaled down to 20 marks. The objective test consists of 20 objective questions for 10 marks. Together, the maximum marks for each mid-term test shall be 30.

A student's performance (marks obtained) in mid-term tests will be computed by considering 80% of marks from the better performance and 20% of marks from the other. The final mid-term marks will be the addition of these two.

**Example**:

If a student scores 27 marks and 19 marks in one mid-term and another mid-term tests respectively,

Then Weighted Average Marks (final mid-term marks)

= (Maximum marks x 0.8) + (Minimum marks x 0.2)

= (27 x 0.8) + (19 x 0.2) = 21.6+3.8 =25.4, rounded to 26 Marks.

**Note 1**: Marks of any fraction shall be rounded to the next higher mark.

**Note 2**: If the student is absent for the mid-term test, no retest shall be conducted and marks for that test shall be considered as zero.

### 6.1.2. Procedure for evaluating Assignments for 10 marks

Student performance in assignments shall be evaluated for 10 marks as below:

(i) For all theory courses, 10 marks shall be allotted for assignments based on the evaluation of 2 assignments (5 marks each) relevant to that particular course.

(ii) For theory courses consisting of two parts of different course, each part shall have one assignment for 5 marks totaling to 10 marks.

### 6.1.3. Procedure for evaluating Design/Drawing courses

**Case (i):** For Engineering Graphics course, there shall be two mid-term tests in each semester. The first mid-term test shall be conducted for 50% of the syllabus and the second mid-term test for the remaining syllabus. The duration of mid-term test shall be for 2 hours. Each mid-term test consists of 3 questions, one question from each unit, with individual choice ('either', 'or' type) for 10 marks each totaling to 30 marks. No objective test shall be conducted for this course.

10 marks shall be allotted for assignments based on the day to day evaluation of drawing sheets.

**Case (ii):** For Design and Drawing of Irrigation Structures course, there shall be two mid-term tests in each semester. The first mid-term test shall be conducted for first 2 units and the second mid-term test for the remaining 3 units. The duration of mid-term test shall be for 2 hours.

Each mid-term test consists of 2 questions; one question shall be answered and evaluated for 30 marks (10 marks for Design & 20 marks for Drawing). No objective test shall be conducted for this course.

10 marks shall be allotted for assignments based on the day to day evaluation of drawing sheets.

### 6.1.4  For Practical (Lab) Courses

For practical courses, there shall be a continuous evaluation during the semester for 40 internal marks and the end-semester examination shall be for 60 marks.

❖ Internal evaluation for 40 marks shall be based on day-to-day assessment by the laboratory teacher concerned.

❖ In a practical course consisting of two parts (for example, Engineering and IT workshop Lab), the internal examination shall be evaluated for 40 marks in each part and final internal marks shall be arrived at by considering the average of marks obtained in the two parts.

## 6.2  End-Semester Examination

### 6.2.1  For Theory Courses

❖ The examination shall be conducted for 60 marks and it is of 3 hour duration.
❖ There shall be 5 questions, one question from each unit ('either', 'or' type), and all questions are compulsory.
❖ Each question carries 12 marks.
   o The end-semester examination for theory courses consisting of two parts of different courses such as Basic Electrical & Electronics Engineering shall have the following pattern:

❖ Question paper shall be in two parts viz., Part A and Part B with equal weightage.
❖ In each part there shall be 3 questions with individual choice ('either', 'or' type) for 10 marks each totalling to 60 marks for two parts.

### 6.2.2  For Practical (Lab) Courses

The end-semester examination for 60 marks shall be conducted by the laboratory faculty concerned and one senior faculty of the same department nominated by the Principal.

In a practical course consisting of two parts (for example, Engineering and IT workshop Lab), the end-semester examination shall be conducted for 60 marks in each part and final marks shall be arrived at by considering the average of marks obtained in the two parts.

### 6.3 Audit Courses

There is only internal evaluation for Audit Courses. The Internal evaluation is same as that of the theory courses. The student has to complete audit courses with a minimum of 40% of marks in internal examination for the award of the degree and there will be no external examination. However, attendance in the audit course shall be considered while calculating aggregate attendance. In case the student fails, he/she shall reappear as and when subsequent end-semester supplementary examinations are conducted.

### 6.4 Evaluation of Project

Out of the total 200 marks for the Project, 80 marks shall be for internal evaluation and 120 marks for the external evaluation (Viva-voce). The student is deemed to be failed, if he/she secures less than 40% of 200 marks allotted.

The evaluation method of the Project is as follows:

#### Internal Evaluation (80 marks)

Project Supervisor shall evaluate for 40 marks and the remaining 40 marks shall be evaluated by Internal Department Committee (IDC) based on two reviews (each review of 20 marks), one at the mid of semester and the other before submitting the project report.

#### External Evaluation (120 marks)

The external project viva-voce shall be conducted by the internal examiner (HOD concerned) and External examiner nominated by the Principal.

### 6.5 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.

However, Advanced Supplementary examinations will be conducted for IV-II semester examinations.

## 7. CURRICULAR FRAMEWORK FOR MANDATORY INTERNSHIPS

Students shall undergo mandatory summer internships for 2 weeks/60 hours duration and 4 weeks/120 hours duration at the end of second and third year of the Programme respectively.

- ❖ First Summer Internship with a minimum of 2 weeks/60 hours duration, done at the end of second year and Second Summer Internship with a minimum of 4 weeks/120 hours duration, done at the end of third year, respectively is mandatory. The internship can be done by the students at local industries, Govt. Organizations, construction agencies, Industries, Hydel and thermal power projects and also in software MNCs.

- ❖ Evaluation of the summer internships shall be through the IDC. A student will be required to submit a summer internship report to the concerned department and appear for an oral presentation before the committee. The report and the oral presentation shall carry 40% and 60% weightages respectively for a total of 100 marks.

- ❖ A student shall acquire the required credits assigned, when he/she secures minimum 40% of 100 marks. In case, if a student fails, he/she shall reappear as and when the subsequent semester supplementary examinations are conducted.

- ❖ Completion of internships is mandatory, if any student fails to complete internship, he/she will not be eligible for the award of degree. In such cases, the student shall repeat and complete the internship.

## 8. ATTENDANCE REQUIREMENTS

**8.1** A student is eligible to write the end examinations if he/she acquires a minimum of 50% in each subject and 75% of attendance in aggregate of all the subjects.

**8.2** However, Condonation of shortage of attendance in aggregate up to 10% (>= 65%and <75%) in any semester with valid reasons may be granted by the College Academic Committee (CAC) to write the end examinations.

**8.3** Shortage of attendance below 50% in any subject or below 65% in aggregate shall **NO** case be condoned and he/she will not be eligible to write the end semester examinations.

**8.4** 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 in the next academic year.

**8.5** A stipulated fee shall be payable towards Condonation for shortage of attendance to the Institute as decided by the College Academic Committee.

# 9. MINIMUM ACADEMIC REQUIREMENTS

The following academic requirements have to be satisfied in addition to the attendance requirements mentioned in Section No.8

**9.1** A student shall be deemed to have satisfied the minimum academic requirements and earned the credits allotted to each theory, practical, design, drawing subject or project, if he/she secures not less than 35% of marks in the end-semester examination and a minimum of 40% of marks in the total of the internal evaluation and end-semester examination taken together. In case of the audit course he/she should secure 40% of the internal marks.

**9.2** A student shall be promoted from II to III year only if he/she acquires 40% of credits up to II year I semester from the following examinations, irrespective of whether the student takes the end-examinations or not as per the normal course of the study

    I year B.Tech I Sem - one regular and two supplementary

    I year B.Tech II Sem - one regular and one supplementary

    II year B.Tech I Sem - one regular only

**9.3** A student shall be promoted from III to IV year only if he/she acquires 40% of credits up to III year I semester from the following examinations, irrespective of whether the student takes the end-examinations or not as per the normal course of the study

    I year B.Tech I Sem - one regular and four supplementary

    I year B.Tech II Sem - one regular and three supplementary

    II year B.Tech I Sem - one regular and two supplementary

    II year B.Tech II Sem - one regular and one supplementary

    III year B.Tech I Sem - one regular only

**9.4** In case if a student is detained for want of credits for particular academic year as per Section 9.2 and 9.3 above, the student may make up the credits through supplementary examinations and only after securing the required credits he/she shall be permitted to join in the III or IV year I semester as the case may be.

**9.5** A student shall register and put up minimum attendance in all 160/163* credits and earn all the 160/163* credits. Marks obtained in all 160/163* credits shall be considered for the calculation of aggregate percentage of marks obtained.

**9.6** Students who fail to earn 160/163* credits as indicated in the course structure withineight academic years from the year of their admission shall forfeit their seat in B.Tech. Course and their admission shall stand cancelled.

 * Applicable for the students joined in 2021-22 academic year and onwards

## 10. WITH–HOLDING OF RESULTS

If the candidate has any dues to the Institute or indiscipline or malpractice is pending against him/her, the result of the candidate shall be withheld and he/she will not be allowed/promoted to the next semester. The award of degree is liable to be withheld in such cases.

## 11. GRADING

After each subject is evaluated, the percentage of marks obtained in each subject will be converted to a corresponding letter grade as given in Table 1.

**Table 1: Conversion into Grades and Grade Points**

| Range in which the % of marks fall | Level | Letter Grade | Grade Points Assigned |
|---|---|---|---|
| $\geq 90$ | Outstanding | S | 10 |
| 80-89 | Excellent | A | 9 |
| 70-79 | Very Good | B | 8 |
| 60-69 | Good | C | 7 |
| 50-59 | Fair | D | 6 |
| 40-49 | Satisfactory | E | 5 |
| $< 40$ | Fail | F | 0 |
| - | Absent | Ab | 0 |

i. A student obtaining Grade F shall be considered failed and will be required to reappear for that subject as and when the next supplementary examination is offered.

ii. However, for audit courses grading shall be given but will not be counted for the computation of SGPA/CGPA.

## 11.1. *Semester Grade Point Average (SGPA) and Cumulative Grade Point Average (CGPA)*

### 11.1.1. *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.,

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

Where $C_i$ is the number of credits of the $i^{th}$ course and $G_i$ is the grade point scored by the student in the $i^{th}$ course.

### 11.1.2. *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.,

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

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

- 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.

**EXAMPLE**: Computation of SGPA and CGPA

**Illustration for SGPA**

| Course | Credit | Grade letter | Grade point | Credit Point (Credit x GradePoint) |
|---|---|---|---|---|
| Course-I | 3 | S | 10 | 3x10 = 30 |
| Course-II | 3 | A | 9 | 3x9 = 27 |
| Course-III | 3 | B | 8 | 3x8 = 24 |
| Course-IV | 3 | D | 6 | 3x6 = 18 |
| Course-V | 2 | B | 8 | 2x8 = 16 |
| Course-VI | 1 | C | 7 | 1x7 = 7 |
| | 15 | | | 122 |

Thus, SGPA = 122/15 = 8.14

**Illustration for CGPA**

| Semester 1 | Semester 2 | Semester 3 | Semester 4 |
|---|---|---|---|
| Credit : 19.5 SGPA: 6.8 | Credit : 19.5 SGPA: 6.9 | Credit : 21.5 SGPA: 7.3 | Credit : 21.5 SGPA: 6.8 |
| Semester 5 | Semester 6 | Semester 7 | Semester 8 |
| Credit : 21.5 SGPA: 6.8 | Credit : 21.5 SGPA: 7.3 | Credit : 23 SGPA: 7 | Credit : 12 SGPA: 7 |

Thus, $\text{CGPA} = \dfrac{(19.5 \times 6.8) + (19.5 \times 6.9) + (21.5 \times 7.3) + (21.5 \times 6.8) + (21.5 \times 6.8) + (21.5 \times 7.3) + (23 \times 7) + (12 \times 7)}{163} = 6.99$

## 12. AWARD OF CLASS

After a student has satisfied the requirement prescribed for the completion of the program he/she is eligible for the award of B.Tech. degree and shall be placed in one of the following four classes based on the CGPA secured:

| Class Awarded | CGPA Secured |
|---|---|
| First Class with Distinction | $\geq 7.5$ |
| First Class | $\geq 6.5 < 7.5$ |
| Second Class | $\geq 5.5 < 6.5$ |
| Pass Class | $\geq 4.5 < 5.5$ |

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

For example, student got CGPA = 7.31, he /she secures equivalent of percentage of marks

$= (7.31-0.5)*10 = 68.1\%$

## 13. GAP YEAR

Concept of Student Entrepreneur in Residence shall be introduced and outstanding students who wish to pursue entrepreneurship are allowed to take a break of one year at any time after II year to pursue entrepreneurship fulltime. This period may be extended to two years at the most and these two years would not be counted for the time of the stipulated maximum time for graduation. Such proposal submitted by the students to the Principal will be evaluated. An evaluation committee shall be constituted by the Principal to evaluate the proposal submitted by the student and the committee shall decide whether or not to permit the student(s) to avail the Gap Year.

## 14. TRANSITORY REGULATIONS

Discontinued, detained, or failed candidates are eligible for readmission as and when the semester is offered after fulfillment of academic regulations. Candidates who have been detained for want of attendance or not fulfilling academic requirements or who have failed after having undergone the course in earlier regulations or have discontinued and wish to continue the course are eligible for admission in to the unfinished semester from the date of commencement of class work with the same or equivalent subjects as and when subjects are offered, subject to Section No.3 and they will be in the academic regulations into which they get re-admitted.

Candidates who were permitted with Gap Year shall be eligible for rejoining into the succeeding year of their B.Tech from the date of commencement of class work, subject to Section No.3 and they will be in the academic regulations into which the candidate is presently rejoining.

## 15. MASSIVE OPEN ONLINE COURSES (MOOCS)

The college in line with the developments in Learning Management Systems (LMS) intends to encourage the students to do online courses in MOOCs. The main intention to introduce MOOCs is to obtain enough exposure through online tutorials, self-learning at one's own pace, attempt quizzes, discuss with professors from various universities and finally obtain certificate of completion for the course from the MOOCs providers. The regulations for MOOCs are as follows:

15.1 The respective departments shall give the existing relevant programme course (not less than 12 weeks duration) list from the SWAYAM/NPTEL, from II year I semester onwards whose credentials are endorsed by the HOD.

15.2 Each department shall appoint Coordinators/Mentors and allot the students to them who shall be responsible to guide students in selecting online courses and provide guidance for the registration, progress and completion of the same.

15.3 The students must register and submit pass certificate of MOOC course before the end-semester examinations of the semester where the MOOC course is listed. Otherwise student shall be treated as failed in that course.

15.4 The award of grading for 100 marks as per the regulations is based on the percentage of marks obtained in the MOOC course.

15.5 The Provisional Certificate (PC) and/or Consolidated Grade Sheet (CGS) shall be issued only to those students, who have submitted proof of completion of MOOC, for the course they have registered with.

**Note:** Institute will not conduct any Internal/External examinations for the above MOOC course.

## 16. VIRTUAL LABS

With the help of Virtual Labs the student will be given additional exposure to laboratory practice. This helps in better understanding the concepts and practical significance of engineering.

## 17. MINOR DEGREE IN A DISCIPLINE

❖ Students who are desirous of pursuing their special interest areas other than the chosen discipline of Engineering may opt for additional courses in minor specialization groups offered by a department other than their parent department. For example, If Mechanical Engineering student selects subjects from Civil Engineering under this scheme, he/she will get Major degree of Mechanical Engineering with minor degree of Civil Engineering

Student can also opt for Industry relevant tracks of any branch to obtain the Minor Degree, for example, a B.Tech Mechanical student can opt for the industry relevant tracks like Data Mining track, IOT track, Machine learning track etc.

❖ The BoS concerned shall identify as many tracks as possible in the areas of emerging technologies and industrial relevance / demand. For example, the minor tracks can be the fundamental courses in CSE, ECE, EEE, CE, ME etc or industry tracks such as Artificial Intelligence (AI), Machine Learning (ML), Data Science (DS), Robotics, Electric vehicles, Robotics, VLSI etc.

❖ The list of disciplines/branches eligible to opt for a particular industry relevant minor specialization shall be clearly mentioned by the respective BoS.

❖ There shall be no limit on the number of programs offered under Minor. The Institution can offer minor programs in emerging technologies based on expertise in the respective departments or can explore the possibility of collaborating with the relevant industries/agencies in offering the program.

❖ The concerned BoS shall decide on the minimum enrolments for offering Minor program by the department. If a minimum enrolments criterion is not met, then the students may be permitted to register for the equivalent MOOC courses as approved by the concerned Head of the department in consultation with BoS.

❖ A student shall be permitted to register for Minors program at the beginning of 4th semester subject to a maximum of two additional courses per semester, provided that the student must have acquired 7.5 SGPA (Semester Grade point average) upto the end of 2nd semester without any history of backlogs. It is expected that the 3rd semester results may be announced after the commencement of the 4th semester. If a student fails to acquire 7.5 SGPA upto 3rd semester or failed in any of the courses, his registration for Minors program shall stand cancelled. An SGPA of 7.5 has to be maintained in the subsequent semesters without any backlog in order to keep the Minors registration active.

- A student shall earn additional 20 credits in the specified area to be eligible for the award of B. Tech degree with Minor. This is in addition to the credits essential for obtaining the Under Graduate Degree in Major Discipline (i.e. 160/163* credits).
  * Applicable for the students joined in 2021-22 academic year and onwards

- Out of the 20 Credits, 16 credits shall be earned by undergoing specified courses listed by the concerned BoS along with prerequisites. It is the responsibility of the student to acquire/complete prerequisite before taking the respective course. If a course comes with a lab component, that component has to be cleared separately. A student shall be permitted to choose only those courses that he/she has not studied in any form during the Programme.

- In addition to the 16 credits, students must pursue at least 2 courses through MOOCs. The courses must be of minimum 8 weeks in duration. Attendance will not be monitored for MOOC courses. Student has to acquire a certificate from the agencies approved by the BoS with grading or marks or pass/fail in order to earn 4 credits. If the MOOC course is a pass/fail course without any grades, the grade to be assigned as decided by the university/academic council.

- Student can opt for the Industry relevant minor specialization as approved by the concerned departmental BoS. Student can opt the courses from Skill Development Corporation (APSSDC) or can opt the courses from an external agency recommended and approved by concerned BoS and should produce course completion certificate. The Board of studies of the concerned discipline of Engineering shall review such courses being offered by eligible external agencies and prepare a fresh list every year incorporating latest skills based on industrial demand.

- An IDC evaluate the grades/marks given by external agencies to a student which are approved by concerned BoS. Upon completion of courses the departmental committee should convert the obtained grades/marks to the maximum marks assigned to that course. The controller of examinations can take a decision on such conversions and may give appropriate grades.

- If a student drops (or terminated) from the Minor program, they cannot convert the earned credits into free or core electives; they will remain extra. These additional courses will find mention in the transcript (but not in the degree certificate). In such cases, the student may choose between the actual grade or a "pass (P)" grade and also choose to omit the mention of the course as for the following: All the courses done under the dropped Minors will be shown in the transcript. None of the courses done under the dropped Minor will be shown in the transcript.

- In case a student fails to meet the CGPA requirement for B.Tech degree with Minor at any point after registration, he/she will be dropped from the list of students eligible for degree with Minors and they will receive B. Tech degree only. However, such students will receive a separate grade sheet mentioning the additional courses completed by them.

- Minor must be completed simultaneously with a major degree program. A student cannot earn the Minor after he/she has already earned bachelor's degree.

## 18. SKILLED ORIENTED COURSES

❖ For skill oriented/skill advanced course, one theory and 2 practical hours or two theory hours may be allotted as per the decision of concerned BoS.

❖ Out of the five skill courses two shall be skill-oriented courses from the same domain and shall be completed in second year. Of the remaining 3 skill courses, one shall be necessarily be a soft skill course and the remaining 2 shall be skill-advanced courses either from the same domain or Job oriented skill courses, which can be of inter disciplinary nature.

❖ A pool of interdisciplinary job-oriented skill courses shall be designed by a common Board of studies by the participating departments/disciplines and the syllabus along with the pre requisites shall be prepared for each of the laboratory infrastructure requirements. The list of such courses shall be included in the curriculum structure of each branch of Engineering, so as to enable the student to choose from the list.

❖ The student shall be given an option to choose either the skill courses being offered by the college or to choose a certificate course being offered by industries/Professional bodies/APSSDC or any other accredited bodies as approved by the concerned BoS.

❖ The Board of studies of the concerned discipline of Engineering shall review the skill advanced courses being offered by eligible external agencies and prepare a fresh list every year incorporating latest courses based on industrial demand.

❖ If a student chooses to take a Certificate Course offered by industries/Professional bodies/APSSDC or any other accredited bodies, in lieu of the skill advanced course offered by the Department, the credits shall be awarded to the student upon producing the Course Completion Certificate from the agency/professional bodies as approved by the Board of studies.

❖ If a student prefers to take a certificate course offered by external agency, the department shall mark attendance of the student for the remaining courses in that semester excluding the skill course in all the calculations of mandatory attendance requirements upon producing a valid certificate as approved by the concerned Board of Studies, the student is deemed to have fulfilled the attendance requirement of the course and acquire the credits assigned to the course.

❖ The evaluation procedure is as similar to that of regular lab courses.

❖ IDC shall evaluate the grades/marks given for a course by external agencies and convert to the equivalent marks/grades of the institute.

## 19. HONORS DEGREE IN A DISCIPLINE

- ❖ Students of a Department/Discipline are eligible to opt for Honors Programme offered by the same Department/Discipline.

- ❖ A student shall be permitted to register for Honors program at the beginning of 4th semester provided that the student must have acquired a minimum of 8.0 SGPA upto the end of 2nd semester without any backlogs. In case of the declaration of the 3rd semester results after the commencement of the 4th semester and if a student fails to score the required minimum of 8 SGPA, his/her registration for Honors Programme stands cancelled and he/she shall continue with the regular Programme.

- ❖ Students can select the additional and advanced courses from their respective branch in which they are pursuing the degree and get an honors degree in the same. e.g. If a Mechanical Engineering student completes the selected advanced courses from same branch under this scheme, he/she will be awarded B.Tech. (Honors) in Mechanical Engineering.

- ❖ In addition to fulfilling all the requisites of a Regular B.Tech Programme, a student shall earn 20 additional credits to be eligible for the award of B. Tech (Honors) degree. This is in addition to the credits essential for obtaining the Under Graduate Degree in Major Discipline (i.e. 163 credits).

- ❖ Of the 20 additional Credits to be acquired, 16 credits shall be earned by undergoing specified courses listed as pools, with four courses, each carrying 4 credits. The remaining 4 credits must be acquired through two MOOCs, which shall be domain specific, each with 2 credits and with a minimum duration of 8/12weeks as recommended by the Board of studies.

- ❖ It is the responsibility of the student to acquire/complete prerequisite before taking the respective course. The courses offered in each pool shall be domain specific courses and advanced courses.

- ❖ The concerned BoS shall decide on the minimum enrolments for offering Honors program by the department. If minimum enrolments criteria are not met then the students shall be permitted to register for the equivalent MOOC courses as approved by the concerned Head of the department in consultation with BoS.

- ❖ Each pool can have theory as well as laboratory courses. If a course comes with a lab component, that component has to be cleared separately. The concerned BoS shall explore the possibility of introducing virtual labs for such courses with lab component.

- ❖ MOOC courses must be of minimum 8 weeks in duration. Attendance will not be monitored for MOOC courses. Students have to acquire a certificate from the agencies approved by the BoS with grading or marks or pass/fail in order to earn 4 credits. If the MOOC course is a pass/fail course without any grades, the grade to be assigned will be as decided by the university/academic council.

❖ The concerned BoS shall also consider courses listed under professional electives of the respective B. Tech programs for the requirements of B. Tech (Honors). However, a student shall be permitted to choose only those courses that he/she has not studied in any form during the Programme.

❖ If a student drops or is terminated from the Honors program, the additional credits so far earned cannot be converted into free or core electives; they will remain extra. These additional courses will find mention in the transcript (but not in the degree certificate). In such cases, the student may choose between the actual grade or a "pass (P)" grade and also choose to omit the mention of the course as for the following: All the courses done under the dropped Minors will be shown in the transcript. None of the courses done under the dropped Minor will be shown in the transcript.

❖ In case a student fails to meet the CGPA requirement for Degree with Honors at any point after registration, he/she will be dropped from the list of students eligible for Degree with Honors and they will receive regular B.Tech degree only. However, such students will receive a separate grade sheet mentioning the additional courses completed by them.

❖ Honors must be completed simultaneously with a major degree program. A student cannot earn Honors after he/she has already earned bachelor's degree.

**Note:** The student can opt either the Minor or Honor Degree.

## 20. STUDENT TRANSFERS

Student transfers shall be as per the guidelines issued by the Government of Andhra Pradesh from time to time.

## 21. GENERAL

21.1 The academic regulations should be read as a whole for purpose of any interpretation.

21.2 Malpractices rules-nature and punishments are appended.

21.3 Where the words "he", "him", "his", occur in the regulations, they also include "she", "her", "hers", respectively.

21.4 In case of any doubt or ambiguity in the interpretation of the above rules, the decision of the Principal is final.

21.5 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.

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# AcademicRegulations (R20)
## for
### B.Tech (Lateral Entry)

*(Effective for the students admitted into II year from the Academic Year 2021-22 onwards)*

**NOTE: All the regulations adopted for B.Tech (Regular-Full Time) programme are applicable to lateral entry students in addition to the following:**

## 1. Award of B.Tech. Degree

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

i. Pursue a course of study for not less than three academic years and in not more than six academic years (double the duration) from the year of admission. However, for the students availing 'gap year' facility, this period shall be extended by two years at the most, and in such a case, the maximum period for graduation will be extended by the period of gap availed by the student.

ii. Registers for 121/124* credits and secures all 121/124* credits.
   * Applicable for the students joined in 2021-22 academic year and onwards

iii. Students, who fail to fulfill all the academic requirements for the award of the degree within the stipulated maximum duration from the year of admission, shall forfeit their seats in B.Tech. Course and their admission stands cancelled.

## 2. Minimum Academic Requirements

Students need to acquire necessary credits to get promoted to the subsequent academic year, in addition to the attendance requirements mentioned above.

2.1 A student shall be promoted from III to IV year only if he/she acquires 40% of credits up to III year I semester from the following examinations, irrespective of whether the candidate takes the end-semester examinations or not as per the normal course of the study

   II year B.Tech I Sem - one regular and two supplementary
   II year B.Tech II Sem - one regular and one supplementary
   III year B.Tech I Sem - one regular only

2.2 In case if a student is detained for want of credits for particular academic year as per Section No. 2.1 above, the student may make up the credits through supplementary examinations and only after securing the required credits he/she shall be permitted to join in the IV year I semester.

## 3. Course Pattern

3.1 The entire course of study is for three academic years. All years shall be in semester pattern.

3.2 A student eligible to appear for the end-semester examination in a subject, but absent or has failed in the end-semester examination may appear for that subject at the next supplementary examination whenever notified.

3.3 When a student is detained due to lack of credits/shortage of attendance he may be re-admitted when the semester is offered  after fulfillment  of academic regulations. In such case, he/she shall be in the academic regulations into which he/she is readmitted.

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# 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 if the entire candidate is involved. In case of an outsider, he/she will be handed over to the police and a case will be 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 connection with the examination | The candidate who has impersonated shall be expelled from examination hall. The Candidate is also debarred for four consecutive semesters from class work and all end-semester examinations. The continuation of the course by the candidate is subject to the academic regulations in connection with for feature 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) that were 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-semester examinations if his involvement is established. Otherwise the candidate is debarred for two consecutive semesters from class work and all end-semester 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. |
| 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, | 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 |

| | during or after the examination. | 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-semester 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 | 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. |

| | 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. | |
|---|---|---|
| 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 end-semester 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 there maining 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.