

# **REGULATIONS**

**for the**

**B. Tech. Degree Programmes (except Marine Engineering)**

**offered under Faculty of Engineering**

**(With effect from 2023 Admissions)**

**COCHIN UNIVERSITY OF SCIENCE AND TECHNOLOGY**

**COCHIN-682022**

# **REGULATIONS FOR THE B. TECH. DEGREE PROGRAMMES** **UNDER FACULTY OF ENGINEERING**

The following regulations are made applicable to all the B.Tech. programmes offered by the University under Faculty of Engineering except Marine Engineering with effect from the academic year 2023-24.

## **1. B. Tech. Programme**

The duration of the B. Tech. programme shall be eight semesters spanning over four academic years. Each semester shall consist of 15 weeks.

### **1.1 Programmes**

- a) Civil Engineering
- b) Computer Science and Engineering
- c) Electrical and Electronics Engineering
- d) Electronics and Communication Engineering
- e) Information Technology
- f) Mechanical Engineering
- g) Safety and Fire Engineering

### **1.2 Structure of the B.Tech. Programme**

1.2.1. The programme of instruction will consist of the following:

- a) General (common) core courses comprising basic sciences, mathematics, and basic engineering.
- b) Engineering core courses introducing the student to the foundations of engineering in the respective programme.
- c) Elective courses enabling the student to opt and undergo a set of courses of interest to him/her.
- d) Professional practice including project, seminar, and industrial training and internship in industry/higher educational institutions of national eminence; and
- e) Humanities courses on soft skills.
- f) Mandatory courses comprising environmental sciences, induction program, Indian Constitution, essence of Indian Knowledge Tradition.

1.2.2. Every B.Tech. programme will have a curriculum and syllabus for the courses approved by the Academic Council.

1.2.3. The B.Tech. programmes offered by the University Departments/Schools/Cochin University College of Engineering, Kuttanad shall follow the credit system.

1.2.4. The curriculum of any B.Tech. programme shall have a total of 170 credits as minimum.

### **1.3 Course Registration**

It is mandatory for the students to register for the course in each semester.

Before registration, the students should

- a) Clear all dues including any fees to be paid and should not have any disciplinary issues pending.
- b) Meet the requirements regarding the minimum number of credits for promotion stipulated in clause 1.10.

The dates for registration will be announced by the School/College in their academic calendar. Late registration will be allowed up to 7 working days from the commencement of the semester with late registration fee.

#### **1.4 Mode of Evaluation**

1.4.1. The performance of the students in theory courses will be evaluated based on continuous assessment and semester end examination. In the case of laboratory courses, the evaluation will be based on continuous assessment and semester end assessment carried out internally by the division concerned.

1.4.2. For theory courses, there will be 50% weightage for continuous assessment and 50% weightage for semester end examination. For practical courses, continuous assessment and semester end assessment will carry 50% weightage each.

1.4.3. For theory courses, the assessment pattern will be as follows:

##### **Continuous Assessment:**

- |                                       |           |
|---------------------------------------|-----------|
| a) First Periodical Test              | :15 marks |
| b) Second Periodical Test             | :15marks  |
| c) Tutorials/Assignments/Mini project | :15marks  |
| d) Attendance Maximum marks           | :5marks   |
| Total:                                | 50 Marks  |

##### **Semester End Examination**

- Exam shall be of 3hours duration.
- Maximum marks: 50

1.4.4. For laboratory courses, the assessment pattern will be as follows:

##### **Continuous Assessment:**

The marks may be awarded based on the performance of the student in the laboratory sessions. The break-up of marks for continuous assessment of laboratory courses shall be:

- |                                  |          |
|----------------------------------|----------|
| a) Practical records and Outputs | :10marks |
| b) Lab work                      | :10marks |
| c) Attendance (Maximum marks)    | :5marks  |
| Total:                           | 25marks  |

##### **Semester End Examination**

The semester end assessment for laboratory courses will consist of an examination carrying 18 marks and a viva voce carrying 7 marks. Maximum marks for semester end examination: 25

1.4.5 The split up of maximum marks for attendance for theory and laboratory courses as given in 1.4.3 (d) and 1.4.4 (c) shall be:

Attendance less than 75%	0 marks
Attendance of 75% and above, but less than 80%	1 mark
Attendance of 80% and above, but less than 85%	2 marks
Attendance of 85% and above, but less than 90%	3 marks
Attendance of 90% and above, but less than 95%	4 marks
Attendance of 95% and above	5 marks

1.4.6. At the end of the semester, semester end examination will be conducted in all the theory courses offered in the semester and they will be of three hours duration unless otherwise specified. The Controller of Examinations will make necessary arrangements for setting the question papers and valuation of answer books for the semester end examination of theory courses.

1.4.7. The semester end assessment for the laboratory courses shall be conducted by the respective department/division with at least two faculty members as examiners.

1.4.8. In the case of project work/internship activities, the project guide/faculty mentor concerned shall make the continuous assessment. A committee consisting of the Project/Internship Coordinator (nominated by the Head of the Department/Division), project guide/faculty mentor, and at least one senior faculty member at the level of Associate Professor or above will carry out the final review.

The weightages for the assessment of project work/internship activities shall be as follows:

Continuous assessment	:40 percent
Project Report/Report of Internship	:20 percent
Final Review	:40 percent

1.4.9. The Viva-voce examination at the end of VIII semester will be conducted by a panel of three examiners consisting of the Head of the Department/Division or his/her nominee and one senior faculty at the level of Associate Professor or above of the Department/Division and preferably, one external expert.

1.4.10. A candidate shall not be allowed to improve the continuous assessment marks in theory/laboratory courses. A candidate who desires to improve his/her marks in the semester end examination in theory courses shall be permitted to do so in the next available chance. This facility will be available only once for a theory course.

## **1.5 Course Completion and Earning of Credits.**

Students registered for a course have to attend the course regularly and meet the attendance rules of the University and appear for all the internal evaluation procedures for the completion of the course. However, credits can be earned only on completion of the semester end examination and on getting a pass grade. Students, who have completed a course, but could not write the semester end examination for valid reasons, are permitted to write the examination at the next available chance and earn the credits without undergoing the course again.

## **1.6 Eligibility to Appear for the Semester End Examination**

1.6.1. A candidate who has fulfilled the following conditions shall be deemed to have satisfied the requirements for the completion of a semester.

A student shall secure not less than 75% of overall attendance in a semester considering the total number of periods in all courses attended by the candidate as against the total number of periods in all courses offered during that particular semester.

1.6.2. The Principal/Head of the School/College shall have the power to condone shortage of attendance up to 5% (between less than 75% and 70%) in a particular semester due to medical reasons (hospitalization/accident/specific illness) duly verified and recommended by the Head of the Division/Department and on production of medical certificate from a registered medical practitioner endorsed by the University Medical Officer and on payment of the required fee. However, such condonation for shortage of attendance shall be given only twice during the entire duration of the B.Tech. Programme.

1.6.3. The Vice Chancellor shall have the power to condone shortage of attendance up to additional 5% (between less than 70% and 65%) in a particular semester due to medical reasons (hospitalization/accident/specific illness) duly verified and recommended by the Principal/Head of the School/College and on production of Medical Certificate from a registered medical practitioner endorsed by the University Medical Officer and on payment of the required fee. However, such condonation for shortage of attendance shall be given only twice during the entire duration of the B.Tech. Programme.

1.6.4. Candidates who secure overall attendance of less than 65% (subject to clauses 1.6.2 and 1.6.3 above) will not be permitted to write the semester end examinations and will not be permitted to go to next/subsequent semester. They are required to repeat the incomplete semester in the next academic year.

## **1.7 Eligibility to Write the Supplementary Examination**

Failed candidates and those who could not write the semester end examination due to health reasons or other contingencies, that are approved by the Head of the School or College, can register for the supplementary examination. Those who wish to improve their performance in the semester end examination can also register for the same, subject to the provisions of clause 1.4.10. Grades awarded in the supplementary examination will be taken as semester grades in these subjects and will be based on the semester examination grading pattern in that subject. In

the case of candidates appearing for improvement of marks, the higher marks obtained will be considered for the purpose of grading.

A candidate who fails to obtain a pass in courses having only continuous assessment component (other than laboratory courses) will be permitted to repeat the course along with the junior batches.

### **1.8 Revaluation**

A candidate can apply for revaluation of his/her semester end examination answer paper in a theory course, within 2 weeks from the declaration of results, on payment of a prescribed fee along with prescribed application to the Controller of Examinations through the Head of Department/School/College. The Controller of Examination will arrange for the revaluation and the results will be intimated to the candidate concerned through the Head of the Department/School/College. Revaluation is not permitted for laboratory courses, courses having only continuous assessment, seminar, project work, internships, and Viva voce.

### **1.9 Pass Requirements**

A candidate has to obtain a minimum of 50% marks for continuous assessment and semester end examination put together with a minimum of 40% marks in the semester end examination for a pass in theory and laboratory courses.

In the case of theory/laboratory courses having only continuous assessment, a candidate has to obtain a minimum of 50% marks in continuous assessment for a pass.

### **1.10 Promotion to Higher Semesters**

A student will be given one regular chance and one supplementary chance for the semester end examination of a particular semester in both theory and practical courses to obtain a pass grade before he/she is assessed for promotion to higher semesters.

Promotion to III, V and VII semesters shall be subject to the following conditions:

<b>Promotion to</b>	<b>Minimum number of credits to be earned</b>
III semester	11 credits of Semester I
V semester	32 credits of Semester I to III 11 credits of semester III for Lateral Entry students
VII semester	54 credits of Semester I to V 32 credits of semester III to V for Lateral Entry students

### **1.11 Grading**

1.11.1. Grades shall be awarded to the students in each course based on the total marks obtained in continuous assessment and at the end semester examination and as per the provisions of clause 1.4.1.

The grading pattern shall be as follows:

Range of Marks obtained* (Percentage)	Grade	Grade points (G <sub>i</sub> )
90 and above	S (Outstanding)	10
80 – 90*	A (Excellent)	9
70 – 80*	B (Very good)	8
60 – 70*	C (Good)	7
50 – 60*	D (Satisfactory)	6
< 50	F (Fail)	0

(\* where X-Y range denotes 'X' inclusive and 'Y' exclusive)

1.11.2 A student is considered to have credited a course or earned credits in respect of a course if he/she secures a grade other than F for that course.

### 1.11.3 Semester Grade Point Average

The academic performance of a student in a semester is indicated by the mandatory Semester Grade Point Average (SGPA).

$$SGPA = \frac{G_1C_1 + G_2C_2 + G_3C_3 + \dots + G_nC_n}{C_1 + C_2 + C_3 + \dots + C_n}$$

Where 'G<sub>i</sub>' refers to the grade point and 'C<sub>i</sub>' refers to the credit value of the i<sup>th</sup> course undergone by the student in the semester excluding the credits earned by the student for his/her Minor and/or Honours programme.

The Semester Grade Point Average (SGPA) for each semester will be calculated only for those students who have passed all the registered courses of that semester. Similarly, Cumulative Grade Point Average (CGPA) up to any semester will be calculated only for those students who have passed all courses up to that semester.

### 1.11.4 Grade Card

The Grade Card issued at the end of the semester to each student by the Controller of Examinations will contain the following:

- a) The code, title, number of credits of each course registered in the semester for the B.Tech. programme,
- b) The marks and letter grade obtained,
- c) The total number of credits earned by the student up to the end of that semester,
- d) SGPA for each semester
- e) CGPA obtained by the candidate will be mentioned in the grade card for the VIII semester in addition to the SGPA for that semester.
- f) In the case of Minor and Honours programmes, the title of the courses successfully completed, and the corresponding number of credits earned by the student in a particular semester will be mentioned in the grade card for that semester.
- g) The total number of credits earned by the student for his/her Minor/Honours Programme will be given in the VIII semester grade card only if he/she fulfills all the requirements of the Minor/Honours programme.

### 1.11.5 Classification

On successful completion of the programme, mandatory CGPA will be calculated as follows:

$$CGPA = \frac{C_1SGP_1 + C_2SGP_2 + C_3SGP_3 + \dots + C_nSGP_n}{C_1 + C_2 + C_3 + \dots + C_n}$$

Where ' $SGP_j$ ' refers to the Semester Grade Point Average (SGPA) and ' $C_j$ ' refers to the total number of credits obtained by a student in the  $j^{\text{th}}$  semester excluding the credits earned by the student for his/her Minor and/or Honours programme.

The classification based on CGPA is as follows:

CGPA 8 and above : First Class with distinction

CGPA 6.5 and above, but less than 8 : First Class

CGPA 6 and above, but less than 6.5: Second Class

### 1.11.6. Conversion of SGPA or CGPA to percentage marks

The following formula shall be used to convert the SGPA or CGPA obtained by a student to percentage of marks.

$$\text{Percentage marks} = (\text{SGPA or CGPA} - 0.5) \times 10$$

## 1.12 Electives

**1.12.1** The curriculum for each programme consists of a minimum of four Professional Electives and two Open Electives. The student shall select at least one Open Elective from among the courses offered in that semester by a Division/Department other than his/her Division/Department.

**1.12.2** Every student shall undergo a minimum number of elective course/s under MOOC offered by CUSAT or national agencies like NPTEL/SWAYAM, recommended by the concerned Division and with the approval of the Board of Studies concerned, during the programme (preferably before the final semester), as per the Regulations for MOOC prescribed by the University from time to time. The candidate shall produce the certification issued by the agency conducting the MOOCs in proof of credit attainment. The assessment and certification of the MOOCs shall be as per the prescribed norms of the MOOCs approved by the University.

## 1.13 B. Tech with Minor

1.13.1 A minor is intended for a student to gain expertise in an area outside his/her major B.Tech. discipline. A Department/Division may offer a Minor in a discipline in which it offers a major UG/PG programme.

1.13.2 All B.Tech. students shall be eligible to register for Minor Programmes.



- 1.13.3 The registration for Minor programmes shall be along with the registration of the 3rd semester. The selection of candidates for a minor programme shall be based on the SGPA obtained by the candidate in Semester – I. **The selection of the Lateral Entry students for a minor programme shall be based on the CGPA obtained by the candidate in his/her diploma/equivalent examination.**
- 1.13.4 **In the event of any tie during the seat allotment for a minor, the concerned department/division shall conduct a test/interview on the prerequisite subjects of the minor and final decision shall be taken.**
- 1.13.5 To offer a minor programme in engineering, the number of candidates shall be at least 20% of the sanctioned strength of the corresponding major program. The number of seats available for the minor programme shall be decided and announced by the Division/Department concerned at the end of the second semester.
- 1.13.6 The student shall earn a minimum of 18 additional credits to be eligible for the award of B.Tech. Degree with Minor.
- 1.13.7 For CGPA calculation of B.Tech. programme as per the provision of 1.11, the credits earned by the student for his/her Minor programme will not be considered.
- 1.13.8 There is no transfer of credits from courses of Minor programme to regular B. Tech. programme and vice versa.
- 1.13.9 The Department/Division offering a Minor programme would enlist a set of courses from its curriculum and prescribe a requirement for Minor taking at least six courses from this set. No major and minor courses can overlap by more than two courses, and this shall be ensured by the corresponding Departments/Divisions concerned while designing and offering a Minor program.
- 1.13.10 Out of the 18 credits, 9 credits shall be earned by undergoing a minimum of two theory courses and a mini project offered by the Department/Division concerned, during the specified period. The remaining 9 credits could be acquired through courses offered by the Department/Division concerned or MOOCs approved by the Board of Studies concerned.
- 1.13.11** The maximum number of additional credits a student can register (course registration) in a semester is limited to 12 credits in excess of the mandatory credits allotted in the curriculum for that semester.
- 1.13.12 **The attendance in each semester of regular B. Tech Courses and minor courses shall be computed separately. The attendance for the minor courses shall not be considered for computing the semester attendance.**
- 1.13.13 **A student shall be permitted to write the end semester examination/s of the minor only if he/she has fulfilled the eligibility criteria to appear for the end semester examination for the regular B. Tech programme for the corresponding semester as given in clause 1.6.**
- 1.13.14 The assessment of the courses other than the MOOCs and earning of credits shall be as per the provisions of the **clauses 1.4** and 1.11 respectively. The assessment and certification of the MOOCs shall be as per the prescribed norms of the MOOCs. The candidate shall produce the certification issued by the agency conducting the MOOCs in proof of credit attainment.

1.13.15 If a student fails in any course of the minor, he/she shall not be eligible to continue the B. Tech Minor. However, the additional credits and grades thus far earned by the student shall be included in the grade card.

1.13.16 The Undergraduate Degree with minor shall be awarded by the University to the students who fulfill all the academic eligibility requirements for the B.Tech. programme with Minor.

#### **1.14 B. Tech (Honours)**

1.14.1 Honours is an additional credential a student may earn if he/she opts for the extra 18 credits needed for this in his/her own major B. Tech. discipline. B. Tech students with a minimum CGPA of 8.0 and above obtained in the first attempt in the first and second semesters combined are eligible to register for B.Tech. (Honours). **For lateral entry students with a minimum CGPA of 8.0 and above for the diploma/equivalent examination are eligible to register for B.Tech (Honours).**

1.14.2 The CGPA of the candidate at the end of eighth semester shall be 8.0 or higher to be eligible for the award of B. Tech. (Honours).

1.14.3 The B.Tech. (Honours) registration shall be along with the registration of the 4<sup>th</sup> semester.

1.14.4 If a student fails in any course of the B.Tech. programme or the courses chosen for B.Tech. (Honours), he/she shall not be eligible to continue the B.Tech. (Honours). However, the additional credits thus far earned by the student shall be included in the grade card.

1.14.5 The student shall earn a minimum of additional 18 credits from the courses chosen for B.Tech. (Honours), to be eligible for the award of B.Tech. (Honours) Degree.

1.14.6 For CGPA calculation of B.Tech. programme as per the provision of 1.11, the credits earned by the student for his/her Honours programme will not be considered.

1.14.7 There is no transfer of credits from courses of Honours programme to regular B. Tech. programme and vice versa.

1.14.8 Out of the 18 credits, 9 credits shall be earned by undergoing minimum three specified B.Tech.(Honours) Elective courses of the respective discipline. Credits for the B.Tech.(Honours) Elective courses are deemed to be earned only on getting at a “C” grade or better as per the provisions of the clause 1.11.1. A student shall not be permitted to select the normal elective courses of the respective B. Tech programmes for attaining the credit requirements of B.Tech. (Honours). The remaining 9 credits could be acquired through courses offered by the Department/Division concerned or MOOCs of the respective disciplines approved by the Board of Studies concerned.

1.14.9 The maximum number of additional credits a student can register (course registration) in a semester is limited to 12 credits in excess of the mandatory credits allotted in the curriculum for that semester.

**1.14.10 The attendance in each semester of regular B. Tech Courses and honours courses shall be computed separately. The attendance for the honours courses shall not be considered for computing the semester attendance.**

**1.14.11 A student shall be permitted to write the end semester examination/s of the honours only if he/she has fulfilled the eligibility criteria to appear for the end semester**

examination for the regular B.Tech programme for the corresponding semester as given in clause 1.6.

1.14.12 The assessment of the courses other than the MOOCs and earning of credits shall be as per the provisions of the clauses 1.4 and 1.11 respectively. The assessment and certification of the MOOCs shall be as per the prescribed norms of the MOOCs. The candidate shall produce the certification issued by the agency conducting the MOOCs in proof of credit attainment.

1.14.13 B.Tech. (Honours) Degree shall be awarded by the University to the students who fulfill all the academic eligibility requirements for the B.Tech. (Honours) programmes.

#### **1.15 B.Tech. (Honours) with Minor:**

A student has the choice to register for, either a Minor programme or an Honours programme or both Minor and Honours programmes, satisfying the clauses 1.13 and 1.14 related to Minor and Honours programmes, respectively. However, the maximum number of credits a student can register for, in a semester, is limited to 12 credits in excess of the mandatory credits allotted in the curriculum for that semester as given in the clauses 1.13 and 1.14.

#### **1.16 Faculty Advisor**

To help the students in planning their course of study and for general advice on the academic programme, the Head of the Department will attach a certain number of students to a teacher of the Department who shall function as Faculty Advisor for these students throughout their period of study. Such Faculty Advisor shall advise the students and monitor the courses taken by the students, check the attendance and progress of the students attached to him/her and counsel them periodically. If necessary, the Faculty Advisor may also discuss with or inform the parents about the progress/performance of the students concerned.

#### **1.17 Class Committee**

A class committee consists of teachers of the class concerned, student representatives and a chairperson who does not handle any subject for the class. It is like the 'Quality Circle' (more commonly used in industries), with the overall goal of improving the teaching learning process. The functions of the class committee include:

- a. Solving problems experience by students in the classroom and in the laboratories in consultation with Head of the Division/Principal/Director.
- b. Clarifying the regulations of the degree programme and the details of rules therein.
- c. Informing the student representatives, the academic schedule including the dates of assessments and the syllabus coverage for each assessment.
- d. Informing the student representatives, the details of regulations regarding weightage used for each assessment.
- e. Discussing in the class committee meeting the breakup of marks for each experiments/exercise/module of work, in case of practical course (laboratory/drawing/project work/seminar/internships etc.) and informing the students.
- f. Analyzing the performance of the students of the class after each test and finding ways and means of improving the performance of the students.

- g. Identifying the students who are low achievers or weak in their subjects if any, and requesting the teachers concerned to provide some additional help or guidance or coaching to such students.

The class committee is normally constituted by the Head of the Division. However, if the students of different programmes are mixed in each class, the class committee is to be constituted by the Principal/Director. The class committee shall be constituted within a week from the date of commencement of a semester. At least 4 student representatives from the respective class (usually 2 boys and 2 girls) shall be included in the class committee. The student representatives shall be nominated based on their academic performance since the first semester of the B. Tech. programme. In the case of first and second semesters, the rank obtained in the Common Admission Test (CAT) shall be the criterion for nominating the student representatives. The Chairperson of the class committee may invite the Faculty Advisor(s) and the Head of the Division to the meeting of the class committee. The Chairperson of the class committee is required to prepare the minutes of every meeting, submit the same to the Head of the Division within two days of the meeting and arrange to circulate the same to among students concerned and teachers. If there are some points in the minutes requiring action by the University, the same shall be brought to the attention of the Principal/Director and the Registrar.

The first meeting of the class committee shall be held within fifteen days from the date of commencement of the semester. The nature and weightage of internal assessments shall be decided in the first meeting, within the framework of the regulations and the same shall be communicated to the students. Two or three subsequent meetings in a semester may be held at suitable intervals. During these meetings, the student members representing the entire class, shall meaningfully interact and express their opinions and suggestions of the class to improve the effectiveness of the teaching-learning process.

### **1.18 Course Committee for Common Courses**

Each common theory course offered to more than one discipline or group of discipline shall have a "Common Course Committee" comprising all the teachers teaching the common course with one of them nominated as Common Course Coordinator. The nomination of the Course Coordinator shall be made by the Principal/Director in consultation with Heads of Divisions from among the teachers teaching the common courses. The "Common Course Committee" shall meet as often as possible and ensure uniform evaluation of internal assessments after arriving at a common scheme of evaluation for the tests. Wherever feasible, the common course committee shall prepare a common question paper for the test(s).

### **1.19 Discipline**

Every student is required to observe the discipline and decorous behavior both inside and outside the campus and refrain from any activity which may tarnish the image of the University as per the provisions of the Cochin University Students' (Conduct and Disciplinary) Code - 2005. Any act of indiscipline, misbehavior including unfair practice in examinations will be referred to the authorities of the University that will make a detailed enquiry on the matter and decide on the course of action to be taken.

### **1.20 Amendment to Regulations**

Notwithstanding all that has been stated above, the University has the right to modify any of the above regulations from time to time.