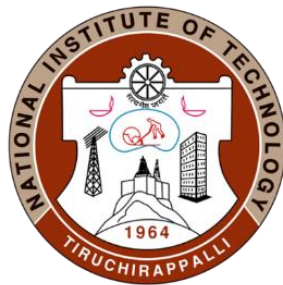# REGULATIONS

## Bachelor of Technology

*(Academic Year 2019 – 20 Onwards)*



## NATIONAL INSTITUTE OF TECHNOLOGY
### TIRUCHIRAPPALLI – 620 015
### TAMILNADU, INDIA

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## B. Tech. REGULATIONS

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**B.1.0   Admission**

Qualification for admission will be as per the criteria specified by the admission authority of the Government of India.

**B.2.0   Structure of B.Tech. Program**

The following are the B.Tech. programs of study offered:

- Chemical Engineering
- Civil Engineering
- Computer Science and Engineering
- Electrical and Electronics Engineering
- Electronics and Communication Engineering
- Instrumentation and Control Engineering
- Mechanical Engineering
- Metallurgical and Materials Engineering
- Production Engineering

**B.2.1**  Every B.Tech program will have a curriculum with a syllabi consisting of General Institute Courses, respective programme theory of core, elective and laboratory as given below:

List of General Institute Courses:

| | |
|---|---|
| Mathematics | Professional Ethics |
| Physics | Engineering Graphics |
| Physics laboratory | Engineering Practice |
| Chemistry | Basic Engineering |
| Chemistry laboratory | Introduction to computer |
| Industrial Economics and Foreign Trade | Programming |
| English for Communication | Branch Specific Course |
| Language laboratory | Summer Internship |
| Energy and Environmental Engineering | Comprehensive viva |
| | Industrial Lecture |
| | NSS/NCC/NSO |

**B.2.2**  Weightage distribution of Course category

| Course Category | Courses | No. of Credits | Weightage (%) |
|---|---|---|---|
| General Institute Courses (IR) | 22 | 50 | 31.25 |
| Program Core (PC) | 15* | 49 – 55 | 32.50 |
| Electives (PE&OE) | 14** | 42 | 26.25 |
| Program Laboratory  (PL) | 2 per semester (3rd to 6th  semester) | 16 | 10.00 |
| **Total** | | **160 ±3** | **100** |

*Out of 15 PC, four courses should be of 4 credits each.

**Out of 14 elective courses, eight should be Program Elective courses (PE). Out of the remaining six electives, a student can opt for Project Work instead of two electives equivalent to 6 credits

**B.2.3**  A student should satisfactorily complete the prescribed NCC/NSO/NSS Program.

**B.2.4**  The curriculum of any branch of B.Tech. Program is designed to have a requirement of 160±3 credits.

**B.2.5** Normally a semester shall have six theory courses and two laboratory courses. From the fourth semester onwards, students can register one additional theory course excluding minor/honours course.

**B.2.6** The department Board of Studies (BoS) shall approve the list of online courses (OC) offered by reputed external agencies. While listing the on-line courses, the BoS shall consider the following points:

- The course evaluation is carried out by the same external agency.
- Equivalent grading mechanism to be arrived at by the department.

A student can register a maximum of 12 credits as online courses during the entire program of study. These shall be treated as Open Elective courses. Students are allowed to register online courses starting from $3^{rd}$ semester onwards.

**B.2.7** B.Tech. (Honours) students must earn 15 credits in addition to the credits specified by the department for B.Tech degree. They can register an additional course from the $5^{th}$ semester from the basket of honours courses offered by the department concerned.

**B.2.8** A student can earn 15 credits, in addition to the credits specified by the department for B.Tech degree, as optional courses from the basket of minor electives offered by single department from the $3^{rd}$ semester.

**B.2.9** The medium of instruction, examination, and project reports shall be English.

**B.2.10** One credit indicates an effort of 50 minutes (1 credit-hour) per working week.

- A one credit-hour supervised session with no effort required outside should count for one credit.
- An afternoon (2 hours 30 minutes) laboratory session, where the student runs an experiment, collects data, interprets it and writes a report should be awarded 2 credits.

**B.3.0 Board of Studies (BoS)**

The curriculum content for each programme is finalized by the Board of Studies (BoS) constituted as per B.3.1. BOS functions will include framing the content of various courses, reviewing and updating the content and introducing new courses of study.

**B.3.1** The composition of the Board of Studies is as below:

    i. The Head of the Department/ /senior Professor as Chairperson.
    ii. All Professors / Associate Professors / Assistant Professors of the Department.

The following members nominated by the Dean (Academic)/ Director on the recommendation of the Head of department concerned.

    iii. One senior faculty from physics, chemistry, mathematics, humanities and allied department nominated by respective Head of the Department.
    iv. One subject expert from IISc/IITs/NITs.
    v. One subject expert with at least 5 years of experience in the relevant field from Central/ State Organization/ R&D labs or from the reputed Industry
    vi. One Alumni with at least 5 years of experience in the relevant field from reputed R&D / INDUSTRY.

**B.3.2** The BoS shall be constituted by the department for a period of two years. The meetings of the BoS shall be arranged at least once a year.

The Board of Studies shall have a power to prepare, revise or update content of courses as per the guidelines stipulated by the senate.

**B.3.3** It is recommended that the percentage of syllabus covered by the industrial experts shall be limited to 25% for a given course. Prior approval must be obtained from the designated committee.

**B.3.4** In case of exigency, the Chairman (BoS) / Head of the department may obtain the opinion of the members of BoS by circulation of any proposal. Such opinion together with the action taken thereon shall be communicated to all the members of BoS and to the Senate.

**B.4.0 Academic Mentor**

To help the students in planning their courses of study and to render general advice regarding the academic program, the Head of the Department concerned, will assign every batch of students, a faculty member who will be called as Academic Mentor. The set of students thus assigned will continue to be under the guidance of the Mentor till they complete the program until otherwise changed.

**B.5.0 Class Committee**

For every class, a class committee shall be constituted by the Head of department, as given below:

- Chairperson - A senior faculty member generally not teaching that particular class.
- Members- Faculty of all the courses of study and the mentor
- A minimum of six student members from both genders.

**B.5.1** The class committee shall meet thrice during the semester. The first meeting will be held within two weeks from the date of commencement of the semester and the course plan will be finalized in which the nature of the broad assessment procedure for the different courses will be discussed. The course plan in the specified format will be uploaded in the website: courseplan.nitt.edu. The second and third meetings will be held six weeks and ten weeks respectively from the commencement of a semester to meaningfully interact and express opinions and suggestions to improve the effectiveness of teaching - learning process and analyze the performance of the students in the assessments. The Chairperson of the class committee, immediately after the class committee meetings, should send the minutes of the class committee meetings to the students, the Dean (Academic) through the Head of the Department.

**B.6.0 Enrolment and Registration**

From the second semester onwards, all students have to enroll in the first week of a semester. A student will be eligible for enrolment only if he / she satisfies B.6.2 and will be permitted to enroll only if he/she has cleared all dues to the Institute, Hostel, Library and the NCC Unit up to the end of the previous semester, provided he / she is not debarred from enrolment, on disciplinary grounds.

**B.6.1** Late registration/enrolment will be permitted with a fine as decided from time to time up to two weeks from the last date specified for registration.

**B.6.2** The student makes the choice of courses subject to having fulfilled the 'prerequisite' conditions in consultation with Academic Mentor. A student is considered to have completed a 'prerequisite' subject if he or she has fulfilled the attendance requirement.

**B.6.3** The B.Tech. students are also eligible to take additional regular courses apart from the courses prescribed in the curriculum, viz, one course in 5th, 6th, 7th semesters and not

more than two courses in the $8^{th}$ semester, provided a student has a CGPA of 7.0 & above, at the end of the previous semester. Students taking extra courses should obtain the prior approval of the Dean (Academic) with the consent of Head of the department.

**B.6.4** Students should not have more than 22 credits in backlog courses to register for courses from the $5^{th}$ semester onwards. They should complete the required number of backlog courses before proceeding further.

**B.7.0 Registration Requirement**

The number of credits that a student can register in a semester is 28 credits, excluding Honours, Minor and Online Courses.

**B.7.1** If a student finds his/her academic/course load heavy in any semester, or for any other valid reason, he/she may drop courses if the student maintains a minimum attendance in that case till the date of application, within three weeks from the commencement of the semester through workflow with the approval of mentor and Course Faculty.

**B.8.0 Attendance**

All courses shall have a common attendance policy.

- At least 75% attendance in each course is mandatory. A maximum of 10% shall be allowed under On Duty (OD) / Medical Grounds.

**B.9.0 Internship/Industrial Training**

Students should undergo industrial training/internship for a minimum period of six weeks during the summer vacations. Registration for this course shall be along with the courses for the $7^{th}$ semester. A report is to be submitted to the Head of the Department and evaluation (2 credit) will be based on the report and viva-voce examination. The examiners for the viva-voce examination shall be the Head of the Department and the program coordinator or their nominees.

**B.9.1** Students are permitted to visit other higher ranking Universities with English as medium of instruction during $7^{th}$ or $8^{th}$ semester. The student should not repeat the courses that they have studied in NIT Tiruchirappalli.

**B.9.2** A course based on industrial lectures shall be offered for 1 credit. A minimum of five lectures of two hours' duration by industry experts will be arranged by the Department. The evaluation methodology, will in general, be based on quizzes at the end of each lecture. Due weightage shall be given to attendance also. However, the HoD or her/his nominee may devise a suitable methodology for evaluation and the same should be informed to the students before the commencement of the semester.

**B.10.0 System of Tests**

Each course will have tailor-made assessment models viz. group tasks, assignments, report on field visit, quizzes, open book tests, laboratory exercises, mini-project and end of semester summative assessment etc. The number of assessments for a theory course shall range from 4 to 6. The number of assessments for a laboratory course shall range from 2 to 6.

**B.10.1** Only one instance of absence in continuous assessment is permitted. Only one compensation assessment for absentees in continuous assessments will be conducted.

**B.10.2** The details of weightage of marks for these assessments have to be announced to the students in consultation with the Class Committee in the beginning of semester along with the course plan. The office of the Dean (Academic) should be informed of the scheme of evaluation at the beginning of the semester.

**B.10.3** The comprehensive examination in the final year of study shall have two objective tests of 25 marks each. The final examination shall have 50 marks. The examination will be of objective type similar to the GATE examination. A department committee comprising the Head of the Department or his/her nominee and two faculty members of the department shall conduct the examinations.

**B.11.0 Weightages**

The following will be the weightages for different subjects:

| | | |
|---|---|---|
| a) | Assessments during the semester | 50 - 70% |
| b) | Final assessment (Entire Syllabus) | 30 - 50% |
| | **Total** | 100% |

The Class Committee will finalize the weightages in any course and announce the students within 2 weeks from the commencement of semester. The Class Committee can approve specific requirement for a course appropriately.

**B.11.1** The markings for all tests, tutorial assignments (if any), laboratory work and examinations will be on an absolute basis. The final percentages of marks are calculated in each subject as per the weightages given in B.11.0.

**B.12.0 Final Assessment**

Every theory/laboratory course should have a final assessment on the entire syllabus with at least 30% weightage conducted for duration of three hours. A student must score a minimum of 20% in the final assessment (for all courses) to complete the course.

**B.12.1** Students should submit feedback on the course twice in a semester through online.

**B.13.0 Project Evaluation**

The project evaluation shall be carried out by a Project evaluation committee comprising the Head of the Department or his/her nominee (Chairperson), Project coordinator (Professor / Associate Professor) and the project guide(s).

**B.13.1** The continuous assessment of the project work is as follows:

| Assessment | % weightage | Semester Schedule |
|---|---|---|
| Preliminary Review | 10 | End of $2^{nd}$ week |
| Review I | 20 | End of $3^{rd}$ Week |
| Review II | 20 | End of $10^{th}$ Week |
| Final assessment | 50 | End of semester |

**B.13.2** At the completion of a project, the student will submit a project report which will be evaluated by duly appointed internal examiner(s). The evaluation will be based on the report and a Viva-voce examination on the project.

**B.14.0 Grading of courses**

All assessment of a course will be done on the basis of marks. The Performance Analysis Committee shall finalise the grades for all courses as per the guidelines (B.29.0).

**B.14.1** Based on the performance, each student is awarded a final letter grade at the end of the semester, in each subject. The letter grades and the corresponding grade points are as follows:

| Grade | S | A | B | C | D | E | F | X | V |
|---|---|---|---|---|---|---|---|---|---|
| **Grade Point** | 10 | 9 | 8 | 7 | 6 | 5 | 0 | 0 | 0 |
| **Remarks** | | | | | | | Fail | Absent in Final Assessment | Prevented for insufficient Attendance |

## B.15.0 Method of Awarding Letter Grades

The class committee along with HOD excluding the student members will be constituted as Performance Analysis Committee (PAC). The meeting of the PAC is to be held within seven days from the last day of the Final Assessment to analyse the performance of the students in all courses of study and finalize the grade ranges for each course. The PAC, by collective wisdom, should ensure that the clustering / grading / pass-fail decisions are reasonable.

**B.15.1** Awarding of grades is carried out using relative grading system (B.29.0).

**B.15.2** The passing minimum for all the courses shall be 35% or Class Average/2, whichever is maximum.

## B.16.0 Declaration of Results

The statement of grades along with duly filled attendance registers of all the courses shall be forwarded to the office of Dean (Academic) after the PAC meeting by the Head of the Department. The results will be placed in the senate and will be declared. In case of discrepancy the Chairperson (Senate) is authorized to take appropriate action.

## B.17.0 Grade Cards

The grade cards issued at the end of the semester to each student will contain the following:

The course number, name of the course and the credits for each course registered in that semester.

- The letter grade obtained in each course
- The total number of credits earned by the student up to the end of that semester in each of the course categories
- The Cumulative Grade Point Average (CGPA) of all the courses taken from the first semester.

**B.17.1** GPA is the ratio of the sum of the products of the number of credits of a course ($C_i$) and the grade points scored in that course ($GP_i$), taken for all the courses, to the sum of the number of credits of all the courses (n) in the semester; On successful completion of the program, the CGPA will be calculated taking into consideration of total number of courses (N) as follows

$$GPA = \frac{\sum_{i=1}^{n} C_i^* GP_i}{\sum_{i=1}^{n} C_i} \qquad\qquad CGPA = \frac{\sum_{i=1}^{n} C_i^* GP_i}{\sum_{i=1}^{N} C_i}$$

**B.17.2** The classification of award of degree based on the CGPA and fulfilment of B.26.0:
- Students who complete the Program within eight consecutive semesters getting a CGPA of 8.5 and above, passing all the courses in the first appearance will be

declared to have passed in first class with distinction. For this purpose, an authorized break of study (B.23.0) shall not be counted.

- Students who get a CGPA of 6.5 and above, but below 8.5 and complete the course within 9 semesters plus authorized break will be declared to have passed in first class.
- Students who get a CGPA of below 6.5 and who complete the course within the maximum prescribed period after joining the Institute will be declared to have passed in second class.
- Students who complete the Program with the requirements as per B 27.0 shall be awarded B.Tech. (Honors) degree.

**B.18.0 Supplementary Examination**

Students who get "F" or "X" grade and satisfactory attendance in core courses are eligible for Supplementary Examination.

**B.18.1** The Supplementary Examination will normally be held during a specific week of the subsequent semesters. The supplementary examination shall be scheduled by the Office of the Dean Academic.

**B.18.2** The Supplementary Examination will be conducted by the course teacher who offered the course or a faculty member nominated by the HoD.

**B.18.3** For taking Supplementary Examinations, the students have to register all the failed courses with prescribed examination fee.

**B.18.4** The weightage for the supplementary examination shall be 100%. Absolute grading system with a passing minimum of 35% shall be followed.

**B.18.5** In case a student fails in the Supplementary Examination he/she has to reappear till the student passes the course.

**B.19.0 Contact Courses and Formative Assessment**

A Contact course may be offered during the regular semester or during summer by a Department, after 6$^{th}$ semester for those students who have not completed the core courses. The course will be offered only on the recommendation of the department, with the mutual agreement of the student and the teacher.

**B.19.1** No student should register for more than two contact courses during the semester or summer period.

**B.19.2** The contact course cannot be offered if the same subject is offered as a regular course during that period.

**B.19.3** Such students, who wish to take contact course(s), should apply to the Dean, (Academic) before the commencement of the semester or summer as the case may be, in which the contact course is to be taken.

**B.19.4** The assessment procedure for a contact course will be similar to that of the regular semester course.

**B.19.5** Withdrawal from a contact course is not permitted.

**B.19.6** Formative assessment is applicable to those students who could not complete the core courses by regular or supplementary examinations or contact courses within 7 semesters.

**B.19.7** The formative assessment will be administered by the respective Head of the Department to the students in rare cases as per the prevailing Senate guidelines with consent of office of Dean (Academic).

**B.20.0 Course Repetition**

A student who earns a V grade in a core course has to repeat it compulsorily when the course is offered subsequently. A student securing a V grade in an elective course may repeat it or may opt other elective course to complete the requirements.

**B.21.0 Revaluation and retention of Answer Papers**

Students can review all his/her the valued answer scripts of the assessments (excluding laboratory examinations, comprehensive examination, internship, industrial lecture and project work), and can get them retotaled / revalued by the faculty member concerned. This may or may not change the grades. The teacher shall forward a revised grade, to the Dean (Academic) through the Head of the Department and the Chairperson, Performance Analysis Committee, if such a necessity arises.

However, if there is any grievance in the valuation of an assessment task, which is not settled by the Faculty in charge of the course / Head of the Department, the Dean (Academic) after verifying whether the grievance is genuine can recommend to the Chairperson of the Senate for appropriate remedial measures.

The entire revaluation process has to be completed within 2 weeks after reopening of the institution for the next semester. Any request by the students after this period will not be considered.

**B.21.1** The answer scripts (final assessment) shall be retained with the faculty members at least for two academic years to facilitate academic audit. Afterwards the material will be disposed-off /destroyed permanently by the faculty member.

**B.22.0 Maximum Duration of the Program**

A student is expected to complete the B.Tech. Program in eight semesters. In any case a student shall not be permitted more than 12 semesters. This excludes the authorized break of study.

**B.23.0 Temporary Withdrawal from the Program**

A student may be permitted by the Dean (Academic) to withdraw courses from the Program for maximum of two semesters from second year onwards for reasons of ill health or other valid reasons duly recommended by the Head of the Department.

**B.24.0 NCC / NSO / NSS Requirements**

All students admitted to the B.Tech. Program will have to take either NCC or NSO or NSS as a non-credit extra-curricular Program.

**B.24.1** NCC Program is not available for foreign nationals.

**B.24.2** The NCC / NSO / NSS requirement should be completed within the four two semesters.

**B.24.3** NSS/ NCC/ NSO will include:

    i. Practical / Field activities / Extension lectures. The activities shall be beyond class hours.

    ii. The student participation shall be for a minimum period of 45 hours per semester during the first year.

    iii. The activities will be monitored by the respective faculty in charge and the First Year Coordinator.

**B.24.4** If a student falls short of the attendance requirements she/he should make up the deficiency as noted below:

- If the absence is on valid grounds, the deficiency will be made up through extra classes.

- If the absence is unauthorized, the deficiency will have to be made up during the following year. The deficiency in NCC will have to be made up in NSO / NSS Programs at the rate of four times the deficiency, i.e., each NCC class missed will be made up by four NSS/NSO classes.
- The deficiency in NSO / NSS classes will have to be made up at the rate of two classes for each class missed.

**B.25.0 Scholarships and Tuition Fee Exemption**

The tuition fee revision/exemption will be based on the recommendation of NIT Council and directions of Ministry of HRD. The award of scholarships and other benefits will be in accordance with the rules framed by the Government of India.

**B.25.1** The criteria for the institute medal winner is based on the student who obtain highest CGPA in the class graduating with the regular period. Students having highest CGPA with authorized break shall not be considered for the purpose of award of the institute Medal.

**B.26.0 Eligibility for Award of B.Tech. Degree**

A student shall be declared to be eligible for award of the B.Tech. degree if he/she has

a) successfully completed all the required courses.

b) successfully acquired the minimum required credits as specified in the curriculum corresponding to the branch of his/ her study within the stipulated time.

c) earned the specified credits in all the categories of courses.

d) completed the NCC / NSO / NSS requirements.

e) secured a CGPA of 5.0 and above.

f) no dues to the Institute, Hostels, Libraries, NCC / NSS / NSO etc. and

g) no disciplinary action is pending against him / her.

**B.27.0 Eligibility for Award of B.Tech. (Honours) Degree**

- Fulfilled the conditions as specified in B.26.0.
- Students should not have obtained "V" or" X" grade in any course.
- Continued to maintain the CGPA of 8.5 in all semesters excluding honours courses.
- Completed additional theory courses for 15 credits from the basket of honors generally in the level of P.G. courses offered by the department, maintaining an aggregate of at least B grade in Honours courses.

**B.28.0 Discipline**

Every student is required to observe discipline and decorous behavior both inside and outside the campus and not to indulge in any activity which will tend to bring down the prestige of the Institute.

**B.28.1** General conduct of students in the examination halls / laboratories

Students should abide by the restrictions imposed by the institute.

- Possessing a mobile phone, carrying bits of paper, talking to other students, copying from others during an assessment will be treated as punishable dishonesty.

- Zero mark to be awarded for the offenders. For copying from another student, both students get the same penalty of zero mark.
- The malpractice and the award of the punishment shall be reported through the Head of the Department to the Office of the Dean Academic.

**B.28.2** Any act of indiscipline of a student will be referred to a Discipline and Welfare Committee constituted by the Senate. The Committee will enquire into the charges and recommend suitable punishment as per the student code of conduct approved the senate if the charges are substantiated. The Senate will consider the recommendation of the Discipline and Welfare Committee for appropriate action. The committee will report the action taken at the next meeting of the Senate.

**B.28.3** The student may appeal to the Chairperson, Senate.

**B.28.4** Ragging of any dimension is a criminal and non-bailable offence in India. The current State and Central legislations provide for stringent punishment, including Imprisonment. Once the involvement of a student is established in ragging, the offending student will be dismissed from the Institution and will not be admitted into any other Institution. Avenues also exist for collective punishment, if individuals cannot be identified in this inhuman act. Every senior student of the Institute, along with the parent, shall give an undertaking every year in this regard and this should be submitted at the time of enrolment.

**B.29.0 Guidelines for Grading**

The institute follows the relative grading system for all courses including Project Work.

**B.29.1** The passing minimum for all the courses may generally be the Class Average/2 or 35% whichever is maximum.

**B.29.2** Absolute grading policy shall be incorporated if the number of students is less than 10 in theory courses.

**B.29.3** In general, the 'S' grade is restricted to a maximum of 10% of the total number of students appeared for the theory courses.

**B.29.4** The award of 'S' grade for laboratory courses and Project work for UG programs is restricted to 20% of the total number of students appeared for the course. This is applicable for all batches.

**B.30.0 Power to Modify**

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