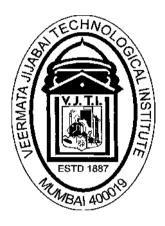# VEERMATA JIJABAI TECHNOLOGICAL INSTITUTE
(VJTI)
MATUNGA, MUMBAI 400 019

(Autonomous Institute affiliated to University of Mumbai)

Manual of Rules

For

Four Year Undergraduate Programmes Leading to
Bachelor of Technology (B Tech) Degree

Implemented from the batch admitted in Academic Year 2019-20

VEERMATA JIJABAI TECHNOLOGICAL INSTITUTE

(Autonomous Institute affiliated to University of Mumbai)

Manual of Rules
For

Four Year Undergraduate Programmes Leading to
Bachelor of Technology (B Tech)
In

- ° 101 Civil Engineering

- ° 102 Mechanical Engineering

- ° 103 Electrical Engineering

- ° 104 Production Engineering

- ° 105 Textile Technology

- ° 106 Electronics Engineering

- ° 107 Computer Engineering

- ° 108 Information Technology

- ° 109 Electronics & Telecommunication Engineering

INTRODUCTION

VJTI provides engineering and technology education with a view to producing quality engineers. The curriculum provides broad based knowledge and builds a path for the life long process of learning and exploring. At the undergraduate level, a student needs to do compulsory core courses in the areas of basic sciences, humanities and engineering sciences apart from departmental requirements. Further, students offer open electives to develop broad inter-disciplinary knowledge in an area outside their parent discipline.

This manual sets out the rules, procedures and requirements of the undergraduate programmes of study that fall under the purview of Academic Council of VJTI.

The rules and regulations described in this manual are applicable to undergraduate autonomous programmes listed below:

        101 Civil Engineering
        102 Mechanical Engineering
        103 Electrical Engineering
        104 Production Engineering
        105 Textile Technology
        106 Electronics Engineering
        107 Computer Engineering
        108 Information Technology
        109 Electronics & Telecommunication Engineering

1. Admissions

Admissions to the first year of all the programmes is made before the start of each academic year as per the procedure finalized by the Competent Authority appointed by Government of Maharashtra state, from time to time. A limited number of students having a Diploma in relevant branch of engineering are admitted at the second year of all the programmes under the lateral entry scheme procedure finalized by the Competent Authority appointed by Government of Maharashtra state.

The Institute reserves the right to revoke the admission made to a candidate, if it is found at any time after admission that she/he does not fulfill all the requirements stipulated in the offer of admission.

The Institute also reserves the right to cancel the admission of any student and discontinue her/his studies at any stage of studentship for unsatisfactory academic performance and/or indiscipline.

2. Academic Calendar and Course Registration

The academic activities of the Institute are regulated by an Academic Calendar approved by the Academic Council, and released at the beginning of each year. It is mandatory for students and faculty to strictly adhere to the academic calendar for completion of academic activities. Academic Calendar can be seen on Institute website (http://www.vjti.ac.in). There are two Semesters (Terms) in an academic year (Odd semester – July to Nov; and Even semester – January to May) during which all courses specified for various degree programmes are offered. There is one additional Semester during summer vacations, called the Summer Semester. The summer semester (term) is **optional** and is only for students of the first year and final year, who have failed in the previous odd and / or even semesters and would like to repeat course(s). Courses for summer term are offered by the departments only on availability of faculty to conduct the courses. For the summer term, a course is offered in classroom mode if more than ten students register for a course, otherwise it is offered in self-study mode under guidance of a faculty.

All eligible students have to carry out course registration as indicated in the Academic Calendar. Late registration may be permitted by the DAC on genuine grounds till the end of second week from the start of the semester on payment of the necessary fine. If any student fails to register as per the given schedule, the student will be solely responsible for any further loss. Such students will not be allowed to register later and may lose a year.

3. Attendance

Attendance in the class is compulsory and is continuously monitored. The Institute expects 100% attendance. However, due to ill-health or other emergency situations, absence up to 20% is considered on case to case basis on production of documentary proof. In case of a student whose attendance falls short by more than 20% at the end of a semester, the Department Academic Committee (DAC) shall forward details of the same along with specific recommendation to Dean (Academic Programs) for further action. A student not having 80% attendance is likely to be debarred from appearing in the semester-end examination and given a "RR" grade. Such a student is required to re-register for the same course in a subsequent semester, when the course is offered next. In case a student is unable to attend classes for more than four weeks in a semester, she/he may apply to the Dean (Academic Programs) through the DAC, for withdrawal from the semester, which means, withdrawal from all the registered

courses in the semester. However such application should be made as early as possible and latest before the start of End Semester Examination. The attendance requirement is applicable to summer term courses also. Any application on medical grounds should be accompanied with a medical certificate from a registered medical practitioner containing the registration number of the practitioner.

4. Programme Structure

All students admitted to any of the undergraduate programmes, undergo a four year - eight-semester programme. Every B. Tech. programme has a prescribed course structure which in general is termed as the Curriculum. It prescribes all the theory courses, laboratory courses and other requirements for the degree and sets out the nominal sequence semester-wise. It also gives the course contents and a list of textbooks and reference books for each course.

4.1: Course Credit Structure

In general, a certain quantum of academic work measured in terms of credits is laid down as the requirements for the B. Tech. degree. A student earns credits by satisfactorily passing courses and carrying other academic activities every semester. The amount of credits associated with a course is dependent upon the number of hours of instruction per week in that course. Similarly, the credits associated with any of the other activities, as defined in scheme of instruction, are dependent upon the quantum of work expected to be put in for each of the other activity per week.

4.2: Theory and Laboratory Courses

Courses are broadly classified as Theory courses and Laboratory Courses. Theory courses consist of lecture (L) and tutorial (T) hours. Laboratory courses consist of practical hours. Credit (C) for a course is dependent on the number of hours of instruction per week in that course, and is obtained by using a multiplier of one (1) for lecture and tutorial hours, and a multiplier of zero point five (0.5) for laboratory hours. Thus, for example, a theory course having three lectures and one tutorial per week throughout the semester carries a credit of four (4). Similarly, a laboratory course having two laboratory hours per week throughout semester carries a credit of 1.0. Typical pattern of contact hours and credits for a semester is as indicated below:

Lecture	Tutorial	Practical	Co-Curricular	Total Hours	Total Credits
14-16	02-03	06-08	0-3	27-30	20-22

4.3: Project:

Project is a course wherein, under the guidance of a faculty member assigned by the Department, a student or a group of students, with not more than four students in a group, is required to do some novel work with the application of knowledge gained while undergoing various courses in the earlier semesters. The student is expected to do a survey of literature, work out a project plan and carry it out through experimentation and/ or modeling / computation. Through the project work a student has to exhibit skills for both analysis and synthesis. In case of group project, role of every individual should be clearly defined.

The undergraduate project carries 06 credits. The project is evaluated in two stages. The first stage evaluation will be done at the end of seventh semester by a committee of institute faculty comprising a minimum of two internal examiners including the guide. The final project report should be submitted in the prescribed format at least one week prior to the end of final semester or by the prescribed date and second stage assessment shall be done in the week earmarked for practical / oral examinations or otherwise as indicated in the Academic Calendar. The second stage assessment is carried out by a committee comprising a minimum of two examiners including the guide and an external examiner.

The undergraduate project stage I carries two (02) credits and stage II carries four (04) credits. In case a student is awarded FF grade, the student has to submit the project report afresh (even if the Project is a group project) and undergo the stage assessment again. Students submitting the reports late or those who have to re-submit the report due to a fail grade will have a mention "Project I / II passed in second attempt" on their grade sheet.

The student should submit two soft bound printed copies for the first stage assessment and three soft bound printed copies for the second stage assessment. After successfully completing second stage assessment, the student /group should submit one hardbound copy to the Department for record and a softcopy for archival in library.

4.4: Audit Courses:

A student with a CPI of 6.0 and above at end of semester II is considered eligible to register for any course in parent department or other department, from semester III onwards as an Audit course. Only one audit course is permitted to a student per semester. The student has to carry out

all term work for the course. A Student has to maintain CPI of 6.0 and above in further semesters also to continue availing this facility.

4.5 : Mandatory Non Credit Courses:

Certain courses, both theory and laboratory based, are termed as Mandatory Non Credit (MNC) courses. These courses do not have any credits associated with them but unlike Audit courses, students have to compulsory register for the course and pass the course.

4.6 Earning additional credits:
A Student securing CPI of 8.0 and above at end of Semester IV of B.Tech program is considered eligible to register for extra credits from parent department or other department from Semester V onwards. Students can select only one theoretical credit course from the available curriculum of any B.Tech. program in the institute. A Student has to maintain CPI of 8.0 and above in further semesters also to continue availing this facility. Student must have successfully passed all the previous semesters in a single attempt. These courses shall be over and above the student's core branch courses. The parent department will provide No Objection Certificate before registration for extra courses and Host department will permit such students to register.

These course credits earned shall not be considered for calculating CPI, but a separate statement of additional credits earned shall be issued at the end of B.Tech. programme.

4.7 Value Added Courses:

  Individual departments at their discretion and on availability of faculty may float Value Added (VA) Courses on specific areas of emerging technologies. These courses are optional and interested students may opt for these courses on payment basis. A VA course may be offered with credits or it could only be an audit course.

For credit based VA courses, the course credits earned shall not be considered for calculating CPI, but a separate statement of additional credits earned shall be issued at the end of B.Tech. programme.

4.8 Internship

All students have to undergo an internship of a minimum of six weeks in an industry, research institute or laboratory or any organization during their third year of studies. The internship should give exposure to the practical aspects of the student's discipline of graduation. In

addition, the student may also work on a specified task or project which may be assigned to him/her. The outcome of the internship should be presented in the form of a report. Internship carries three (03) credits. In case a student is awarded FF grade, the student has to submit the internship report afresh. The evaluation will be done at the beginning of seventh semester by a committee of institute faculty comprising a minimum of two internal examiners.

5. Examination / Assessment:

5.1: Modes of Evaluation

Semester wise performance assessment of every registered student is done through various modes of examination. These include quizzes, class tests, home assignments, group assignments, viva-voce, Mid-Semester Examination and End-Semester Examination. The course teacher will announce the modes of evaluation and distribution of weightage for each of the assessments at the beginning of the course for term work assessment. Various modes of assessment for theory and laboratory courses along with the recommended relative weightage of various components are given in this section.

5.1.1: Modes of Evaluation for Theory Courses

The Institute follows a continuous evaluation system. A typical theory course evaluation shall have term-work assessment (TA) carried by the course teacher, Mid-semester test (MST) and an End-semester examination (ESE). The term-work assessment (TA) will be carried out by the course teacher on the basis of at least three components like attendance, quiz, assignments, problems, paper or report on a topic, seminar etc.

The Mid-semester test will be conducted for forty marks. The end semester examination will conducted for 100 marks. The weightage assigned to each of the evaluation components for each course is indicated along with the scheme of evaluation. The weightages for term work assessment, mid-semester test and end-semester examination for a theory course is 20%, 20% and 60 % respectively. The course teacher shall continuously grade the performance of the student in various components of the term-work. At least five sample copies of the term-work of all courses, on the basis of which the term work assessment is done, has to be preserved in the department for a period of at least three academic years. If a student misses the MST due to

personal illness, accident or any untoward incident, the student should apply to the Head of the department within five days of the end of the test, for permission to appear for Make-up test.

Attendance in the end semester examination is compulsory. If a student misses the ESE due to personal illness, accident or any untoward incident, the student should apply to the Head of the department within five days of the end of the examination, for permission to appear for next examination. If the student fails to produce the necessary proofs, the student will be deemed to be failed in those courses and will be awarded RR grade. The student is then required to repeat the course. The end semester examination covers full syllabus of the course.

Evaluated end-semester examination answer books will be shown to the students before declaration of the final result. End semester answer-books should be preserved by the department for a period of at least one academic year. At least five sample copies of the end semester answer-books of all courses, has to be preserved in the department for a period of at least three academic years.

For the Mandatory Non Credit (MNC) theory courses, course evaluation shall have term-work assessment carried by the teacher (TA), Mid-semester test (MST) and an end-semester examination (ESE), the pattern remaining the same as a credit based course.

5.1.2: Modes of Evaluation for Laboratory Courses

The assessment in a laboratory course is based on turn-to-turn supervision of the student's work, her/his performance in viva-voce examinations and group discussions, the quality of their work as prescribed through laboratory journals and a semester-end practical or oral examination. It is obligatory to maintain a laboratory journal as prescribed by the course teacher. The weightages are 60% and 40% for term work assessment and end-semester examination respectively.

For the Mandatory Non Credit (MNC) Laboratory courses, course evaluation shall have term-work assessment carried by the teacher (TA) and an end-semester examination (ESE), the pattern remaining the same as a credit based course.

5.2: Grading

The Institute follows a relative grading system. Based on the combined performance in all assessments, the student is awarded a letter grade in every course taken by her/him in a particular semester as per the curriculum. The grade awarded to a student depends not on her /

his absolute performance but her / his performance relative to other students in her / his class. These letter grades not only indicate a qualitative assessment of the student's performance but also carry a quantitative (numeric) equivalent called the Grade Point. The letter grades and their equivalent grade points are given as follows

Grading Scheme		
Letter Grade	Grade Points	Indicative degree of mastery
AA	10.0	Outstanding
AB	9.0	Excellent
BB	8.0	Very good
BC	7.0	Good
CC	6.0	Satisfactory
CD	5.0	Average
DD	4.0	Marginal
FF	0.0	Very weak

Letter Grade	Explanation
AU	Audit
PP / NP	Passed / Not Passed
A / NA	Attended / Not Attended
II	Incomplete due to non-appearance in end semester examination on valid grounds.
RR	Fail due to lack of attendance during the semester or non-appearance in end semester examination without valid reason. Student is required to repeat the course.
The above grades do not have any grade points associated with them.	

A student passes a credit course if she/he scores any grade from AA to DD, grade FF is the fail grade.

The II (Incomplete) grade is awarded due to non-appearance in end semester examination on valid grounds. The student has to appear for the end semester examination for the course when it is conducted next.

The RR grade is awarded if the student fails to have minimum attendance for the classes (including laboratory courses) or if the student fails to attend the end-semester examination

without having any valid reasons. Such a student has to repeat that course whenever it is offered next. The option of summer term is not available to the student.

A student has to pass a course in not more than two end-semester examinations, including any re-examination (repeat examination) conducted for the course. If the student fails to do so, she/he has to repeat the course whenever it is offered next. Regular students who have been promoted to the next year, but have not been able to clear a course in two attempts are permitted to repeat the course in self-study mode under guidance of a faculty allotted by the DAC. All other students have to repeat the course in classroom mode only. For courses of semester VII and semester VIII, any student may repeat the course in self-study mode under guidance of a teacher if permitted by the DAC. The weightages for term work assessment, mid-semester test and end-semester examination for a theory course during end semester re-examination is 20%, 0% and 80 % respectively.

If a student fails to appear for any of the end-semester examination due to reasons beyond control, the student should inform the Head of the department or First year In-charge immediately but not later than five days of last examination.

For MNC courses, the students are required to pass the course and the grade awarded will be PP. Students failing MNC courses will be awarded grade NP. Such failed students have to appear for the end semester examination when it is offered next.

A student will have a maximum of two attempts to pass any credit or MNC course. For the second attempt, the student's grade sheet will indicate "Passed in second attempt".

If a student repeats a course, his grade sheet will indicate "course repeated".

The most recent grade for the course is taken into account for the computation of CPI. There is no provision for improvement of grades in individual courses.

For Audit courses, the course teacher at the end of the course will certify successful completion of term work. The student grade sheet will indicate successful completion of audit course by award of AU grade. Non successful completion of audit course will result in no indication of the audit course on the grade sheet.

5.4: Academic Malpractice

Academic malpractices are severely dealt with. In case of malpractice during any evaluation like assignments, quizzes, tests, and examinations, or any other malpractice, the case is referred to Unfair Means Committee formed for the purpose. A student is suitably punished if the unfair means committee prima facie finds the student has resorted to malpractice or any other unfair means.

5.5: Performance Indices

5.5.1: Semester Performance Index (SPI)

The performance of a student in a semester is indicated by a number called Semester Performance Index, SPI. The SPI is the weighted average of the grade points obtained in all the courses registered by the student during the semester. For example, if a student appears for five courses (Theory/labs/Projects/ etc.) in a semester with credits c1, c2, c3, c4 and c5 and her/his grade points in these courses are g1, g2, g3, g4 and g5 respectively, then her/his SPI is equal to:

$$SPI = \frac{c1g1 + c2g2 + c3g3 + c4g4 + c5g5}{c1 + c2 + c3 + c4 + c5}$$

The SPI is calculated to two decimal places.

The SPI for any semester will take into consideration the RR/II grades awarded in that semester. For example if a student has failed in course 4 with FF grade, the SPI will then be computed as:

$$SPI = \frac{c1g1 + c2g2 + c3g3 + c4*0 + c5g5}{c1 + c2 + c3 + c4 + c5}$$

5.5.2 Cumulative Performance Index (CPI)

An up to date assessment of the overall performance of a student from the time she/he entered the Institute is obtained by calculating a number called the Cumulative Performance Index, CPI, in a manner similar to the calculation of SPI. The CPI therefore considers all the courses registered by the student, towards the minimum requirement of the degree she/he has enrolled for, since she/he entered the Institute. The CPI is calculated at the end of every semester to two decimal places and is indicated in semester grade reports.

A CPI of 6.75 or above will be considered as equivalent to First Class (60%).

6. Programme duration

A student who fails to graduate within eight years from the date of first registration to the programme shall be terminated from the programme.

7. Promotion to next year for UG Programme

A student will be promoted and allowed to register for the second year if she/he has acquired minimum of 28 credits in first year.

A student will be promoted and allowed to register for the third year if she/he has earned a minimum of 28 credits of second year and has a backlog of one course only in the first year.

A student will be promoted and allowed to register for the final year if she/he has earned a minimum of 28 credits of third year and a backlog of one course only in either first year or second year.

8. Change of Branch

Students admitted in first year are eligible to apply for change of branch after completing the first two semesters. Branch change at the end of first year shall be followed strictly as per merit based on CPI at the end of first year and as per rules framed by Competent Authority, Government of Maharashtra from time to time. Due to transfers, strength of a branch cannot be more than sanctioned strength.

9. CPI to percentage conversion

The institute follows relative grading system for evaluating student performance, hence grades obtained by students are relative to performance of other students in class over and above their own performance hence percentage equivalency cannot be certified.

However, for the benefit of the students who require to fulfill requirements of various competitive examinations, higher admissions and placements, the institute has adopted the AICTE model of conversion of CPI into equivalent percentage as follows:

Equivalent Percentage = (CPI -0.75) X 10

10. Credits Transfer

Students in semester V, and VI with a CPI of 6.0 and above in their immediate previous semester, are permitted to take a full semester of course work at another college / university with which VJTI has a formal MOU or a college / university which has higher ranking than VJTI from latest NIRF rankings declared by Ministry of Human Resources Development, Government of India, on the recommendation of the DAC and approval of Dean (Academic Programs). The credits and SPI (SPGA) from college / university awarded will be transferred and merged into the VJTI grading system appropriately.

11. Eligibility for the Award of Degree

The names of the students who satisfy below mentioned requirements shall be forwarded to the University of Mumbai for award of Bachelor of Technology degree in the relevant discipline.

- The student should have studied and passed all the courses and acquired necessary number of credits as per the requirements of a particular degree programme and as prescribed by the Institute from time to time within eight years from date of first registration to programme.
- The student should have paid all the Institute fees and dues including the dues of Department, Hostels, Library and other units.
- The student should have obtained a CPI of at least 4.0 at the end of the semester in which she/he completes all the requirements for the award of Degree;
- No case or disciplinary action is pending against her/him.

12. Improvement in CPI

If a student has graduated, but wishes to improve her / his CPI, she / he will have to appear for end semester examination of at least three courses as recommended by DAC (except for the project) of Semester VII and Semester VIII within two years of graduation by paying the required examination fees. Only one attempt is provided for such improvement. For exceptional cases, permission may be granted to appear for end semester examination of at most two courses from Semester VI. The result of such examination will be declared only if there is improvement in CPI over earlier CPI.

Amendments made to these rules by Academic Council of VJTI from time to time will be binding on the students.