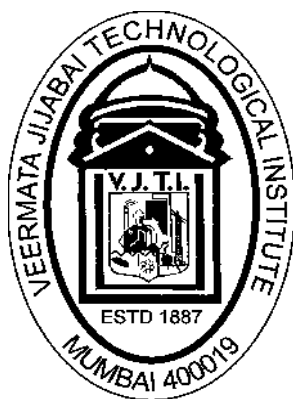


VEERMATA JIJABAI TECHNOLOGICAL INSTITUTE
(VJTI)
MATUNGA, MUMBAI 400 019



Manual of Rules
For

Two Year Post Graduate Programmes Leading to

Master of Technology (M.Tech.) &

Master of Computer Application (MCA)

Implemented from the batch admitted in Academic Year 2023-24

VEERMATA JIJABAI TECHNOLOGICAL INSTITUTE

(Autonomous Institute affiliated to University of Mumbai)

Manual of Rules

For

201 Two Year Master of Computer Applications Programme (MCA)

And

Two Year Post Graduate Programmes Leading to
Master of Technology (M.Tech.)

in

- 202 Civil Engineering (with specialization in Environmental Engineering)
- 203 Civil Engineering (with specialization in Construction Management)
- 204 Civil Engineering (with specialization in Structural Engineering)
- 205 Computer Engineering
- 206 Electrical Engineering (with specialization in Power Systems)
- 207 Electrical Engineering (with specialization in Control Systems)
- 209 Mechanical Engineering (with specialization in Machine Design)
- 210 Mechanical Engineering (with specialization in Automobile Engineering)
- 211 Mechanical Engineering (with specialization in CAD/CAM & Automation)
- 212 Production Engineering
- 215 Electronics & Telecommunication Engineering
- 218 Mechanical Engineering (with specialization in Thermal Engineering)
- 219 Computer Engineering (with specialization in Software Engineering)
- 220 Project Management
- 221 Defence Technology
- 222 Internet of Things (IoT)
- 223 Technical Textiles
- 224 Computer Engineering (with specialization in AI & DS)

INTRODUCTION

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

The rules and regulations described in this manual are applicable to two years “Master of Computer Applications” Programme and two year Master of Technology programmes listed below:

| | |
|-----|--|
| 202 | Civil Engineering (with specialization in Environmental Engineering) |
| 203 | Civil Engineering (with specialization in Construction Management) |
| 204 | Civil Engineering (with specialization in Structural Engineering) |
| 205 | Computer Engineering |
| 206 | Electrical Engineering (with specialization in Power Systems) |
| 207 | Electrical Engineering (with specialization in Control Systems) |
| 209 | Mechanical Engineering (with specialization in Machine Design) |
| 210 | Mechanical Engineering (with specialization in Automobile Engineering) |
| 211 | Mechanical Engineering (with specialization in CAD/CAM & Automation) |
| 212 | Production Engineering |
| 215 | Electronics & Telecommunication Engineering |
| 218 | Mechanical Engineering (with specialization in Thermal Engineering) |
| 219 | Computer Engineering (with specialization in Software Engineering) |
| 220 | Project Management |
| 221 | Defence Technology |
| 222 | Internet of Things (IoT) |
| 223 | Technical Textiles |
| 224 | Computer Engineering (with specialization in AI & DS) |

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 are admitted at the second year of MCA programme 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 undisciplined conduct.

2. Academic Calendar

The academic activities of the Institute are regulated by the Academic Calendar approved by the Chairman, 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/>).

3. Attendance

Attendance in the class is compulsory and is monitored every four weeks. The Institute expects 100% attendance. However, due to ill-health or other emergency situations, absence up to 25% is considered on case to case basis on production of documentary proof. Any application on medical grounds should be accompanied with a medical certificate from a registered medical practitioner containing the registration number of the practitioner. In case, attendance of a student falls short by more than 25%, the course instructor shall warn the student in writing every four weeks and keep the Programme coordinator / Head of Department informed. In case of a student whose attendance falls short by more than 25% 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 75% attendance will 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 Chairman, DAC, for withdrawal from the semester, which shall mean, 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 Examinations. Second year students working in industry for their project are exempted from this rule, provided their application is recommended by project guide and Head of Department and approved by Office of Dean (Academics).

4. Programme Structure

All students admitted to any of the postgraduate programmes, undergo two year - four-semester studies. Every 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 syllabi 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 MCA / M. Tech. degree. A student earns credits by satisfactorily passing courses/carrying out 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, is 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 two lectures and one tutorial per week throughout the semester carries a credit of 3. Similarly, a laboratory course having two laboratory hours per week throughout semester carries a credit of 1.0. The M.Tech project is carried out in semester III and IV and carries 22 credits, while the MCA project is carried out in semester IV and carries 12 credits. General pattern of the contact hours and credits for a typical semester is as indicated below:

| Lecture | Tutorial | Practical | Co-Curricular | Total Hours | Credits |
|---------|----------|-----------|---------------|-------------|---------|
| 18 | 2 | 6 | 2 | 26 | 24 |

The scheme is prescribed in following format:

| Course Name | Hours/Week | | | Credits | Examination Scheme (Evaluation in % Weightage) | | | | |
|------------------|------------|---|---|---------|---|-----|-----|-------|---------------------|
| | L | T | P | | TA | MST | ESE | Total | ESE (W) (hrs) |
| Theory Course 1 | 3 | - | - | 3 | 20 | 20 | 60 | 100 | 3 |
| Theory Course 2 | 3 | 1 | - | 4 | 20 | 20 | 60 | 100 | 3 |
| Theory Course 3 | 3 | - | - | 3 | 20 | 20 | 60 | 100 | 3 |
| Program Elective | 3 | - | - | 3 | 20 | 20 | 60 | 100 | 3 |
| Program Elective | 3 | 1 | - | 4 | 20 | 20 | 60 | 100 | 3 |
| Open Elective | 3 | - | - | 3 | 20 | 20 | 60 | 100 | 3 |
| Total | 18 | 2 | - | 20 | | | | | |

| Course Name | Hours/Week | | | Credits | Examination Scheme (Evaluation in % Weightage) | | | |
|------------------|------------|---|---|---------|---|-------------|-------|------------------|
| | L | T | P | | TA | ESE (O / P) | Total | ESE (P) (hrs) |
| Lab Course 1 | - | - | 2 | 1 | 60 | 40 | 100 | - |
| Lab Course 2 | - | - | 2 | 1 | 60 | 40 | 100 | - |
| Lab Course 3 | - | - | 2 | 1 | 60 | 40 | 100 | - |
| Liberal Learning | - | - | 2 | 1 | 100% CIE | | 100 | - |
| Total | - | - | 8 | 4 | | | | |

4.3: Project:

Project is a course wherein, under the guidance of a faculty member assigned by the Department, a student is required to do some innovative work with the application of knowledge gained while undergoing various courses in the earlier year. The student is expected to do a survey of literature in the subject, work out a project plan and theoretical analysis, experimental investigation, a prototype design, analysis of data and development of new relationships, fabrication and set up of new equipment etc. Through the project, the student has to exhibit both the analytical and practical skills.

The M.Tech. project is evaluated in four stages. The first stage, second stage and third evaluation is done by a committee of institute faculty (at least two faculty members including project guide). The first stage and second stage evaluation is done at the beginning and end of pre-final semester respectively. The third stage evaluation is done at the mid of the final semester and the stage four is done at the end of final semester. A committee comprising a minimum of two examiners including the guide and an external examiner carries out the fourth stage evaluation at the end of final semester.

After the third stage evaluation, one copy of the synopsis of the project work done and name of external examiner duly endorsed by the DAC is sent to Examination Section for approval of Dean

(AP). The student has to submit the Synopsis at least one month prior to the prescribed last date of submission of project report. The student has to submit the Dissertation on or before the prescribed date mentioned in the Academic Calendar. Those students, who are unable to submit by the due date, will have to apply for extension with justification before the last date of submission of synopsis. The guide should forward the application through Head of the Department, with a recommendation of period of extension to Dean (Academic Programs) for final decision on the application.

Student has to submit two soft-bound copies of the dissertation to the Programme Coordinator or a faculty duly authorized by DAC, who will forward the same to the examiners.

After the fourth stage evaluation, if the Project work is accepted by the Examiners, student should submit one hardbound copy (after making corrections, if any, as suggested by examiners) to the department. This copy is to be maintained in the Department for record. One soft copy on a CD has to be submitted for record of the Central Library.

During the fourth stage evaluation, 25% weightage shall be given for the initiative, interest, effort and sincerity shown by the student during the entire project work. Another 50% weightage shall be given for the depth of knowledge depicted and level of analytical skills shown in the report and during viva. 25% weightage shall be given to the presentation of report and seminar.

The M.Tech. project carries twenty two (22) credits. The first, second and third stage assessments carry five (5) credits each. Seven credits are given to final stage evaluation.

The MCA project is evaluated in a single stage at the end of the final semester. It carries 12 credits. Students submitting the project reports late or those who have to re-submit the report due to fail grades shall be entitled to a maximum grade of BB.

4.4: Seminar

Seminar is a course where in under the guidance of a faculty member, a group of students is expected to survey published technical literature, understand different aspects of the problem and arrive at a report. While doing a seminar course, the student is expected to critically analyze research work of various authors, learn the investigation methodologies, study concepts, techniques and the results presented in these papers, and present a seminar report. It is mandatory to give a seminar presentation before the seminar guide.

4.5: Self learning courses

Along with project, students have to earn additional 2 credits from the 2 self-learning courses. Department may also allow the students to register for SWAYAM/NPTEL courses. For

SWAYAM/NPTEL courses, a 4 week course may be selected for 1 credits.

4.6: Mandatory Non-Credit Requirement:

All students promoted to second year of the two year M.Tech. programme have to undergo a mandatory non-credit course in third semester of the programme. No credits are awarded for this course, but a PASS (grade of P) in this course is essential for award of the Degree.

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 Semester-End Examination. The Course Instructor will announce the modes of evaluation and distribution of weightage for each of the assessments at the beginning of the course. 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), Mid-semester tests (MST) and an end-semester examination (ESE). The term-work assessment will be carried out by the course instructor on the basis of at least four components like attendance, quiz, assignments, problems, paper or report on a topic, seminar etc.

The Mid semester test will be of forty marks. Score for Mid Semester Test will be given 30% weightage and 20 % weightage will be given to the Term Work assessment and End semester examination will be of 100 marks and will carry 50% weightage. The weightage assigned to each of the evaluation components for each course is indicated along with the scheme of evaluation which is part of curriculum. The weightages for term work assessment, mid-semester test and end-semester examination for each course is 20:30:50. The course instructor shall continuously grade the performance of the student in various components of the term-work and the student shall be kept informed about the performance. Sample copies (at least three) of the term-work of all courses, on the basis of which the term work assessment is done, shall be preserved in the department for a period of at least three academic years. Evaluated mid-semester examination answer books will be shown to the students after the end of mid-semester

examination. 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. Make-up test may be permitted by the Department Academic Committee (DAC) on genuine grounds. Make-up test may be conducted in the second last week of the semester on the complete syllabus of the course.

Attendance in the end semester examination is compulsory. If a student misses the examination due to personal illness, accident or any untoward incident, student should apply to the Controller of Examinations through the DAC within three days for a 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 shall then be required to repeat the courses. Evaluated end-semester examination answer books shall be preserved by the examination section for a period of at least one academic year. The end semester examination shall cover full syllabus of the course.

5.1.2 : Modes of Evaluation for Laboratory Courses

The assessment in a laboratory course will be 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 instructor. The weightages are 60:40 for term work assessment and end-semester examination.

5.1.3 : Modes of Evaluation for Liberal Learning courses

All students admitted to the two year M.Tech. programme have to take Liberal Learning courses at first and second semester. Since these courses have credit, department/institute will conduct an examination for these courses for evaluation and award of grade.

5.1.4 : Modes of Evaluation for Self Learning courses

All students promoted to second year of the two year M.Tech. programme have to take two self - leaning courses decided by the department. Since these courses have credit, department will conduct an examination for these courses for evaluation and award of grade.

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 below

| Grading Scheme | | |
|----------------|-------------|------------------------------|
| Letter Grade | Grade Point | 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 |
| EE | 2.0 | Unsatisfactory |
| FF | 0.0 | Very weak |

| Letter Grade | Explanation |
|---|---|
| PP / NP | Passed / Not Passed |
| A / NA | Attended / Not Attended |
| II | In complete due to non-appearance in end semester examination on health grounds. |
| RR | Fail due to lack of attendance or non-appearance in end semester examination, should repeat the course. |
| The above grades do not have any grade points associated with them. | |

The student passes the course if she/he scores any grade from AA to DD, grades EE and FF being fail grades.

The II (Incomplete) grade is awarded due to non-appearance in end semester examination on health 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 again.

A student has to pass a course in not more than three end-semester examinations, including any re-examination conducted for the course. If the student fails to do so, she/he shall have to repeat the course whenever it is offered next.

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 within three days of start of examination.

A student will have a maximum of three attempts to pass a course. For the second/third attempt, the student's grade sheet will indicate "Passed in second/third attempt"

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

5.4: Academic Malpractice

Academic malpractices are severely dealt with. In case of malpractice during any evaluation like assignments, quizzes, tests, and examinations, the case should be referred to Unfair Means Committee formed for the purpose. A student shall be 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 (SGPA)

The performance of a student in a semester is indicated by a number called Semester Performance Index, SGPA. The SGPA 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 c_1 , c_2 , c_3 , c_4 and c_5 and her/his grade points in these courses are g_1 , g_2 , g_3 , g_4 and g_5 respectively, then her/his SGPA is equal to:

$$SGPA = \frac{c_1g_1 + c_2g_2 + c_3g_3 + c_4g_4 + c_5g_5}{c_1 + c_2 + c_3 + c_4 + c_5}$$

The SGPA is calculated to two decimal places.

The SGPA 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 SGPA will then be computed as:

$$SGPA = \frac{c_1g_1 + c_2g_2 + c_3g_3 + c_4 * 0 + c_5g_5}{c_1 + c_2 + c_3 + c_4 + c_5}$$

5.5.2 Cumulative Grade Point Average (CGPA)

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 Grade Point Average, CGPA, in a manner similar to the calculation of SGPA. The CGPA 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 CGPA is calculated at the end of every semester to one decimal place and is indicated in semester grade reports. In the semester where the student has failed in course(s), her/his grade sheet will not indicate any CGPA.

A CGPA of 6.75 or above will be considered as equivalent to First Class (60%) of similar programmes of the University. The institute may issue a separate certificate mentioning first class to only those candidates acquiring CGPA 6.75 or above.

6. Programme duration

A student of two year post graduate degree programme who fails to graduate within four years from date of admission to programme shall be terminated from the programme.

7. Promotion to next year for PG Programme

A student will be promoted and allowed to register for the Second year if she/he has acquired minimum of 36 credits in first year. A student who fails to earn a CGPA of 5.0 at the end of first year can repeat the course/s in which she / he has failed or earned a grade of 'DD', provided the course/s is offered, on the recommendation of DAC and approval of Dean (AP).

8. 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 MCA or M. Tech. 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 the stipulated time from date of first registration to programme.
- The student should have paid all the Institute and University dues including the dues of Department, Hostels, Library and other units.
- Obtained a CGPA of at least 5.00 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.

9. Improvement in CGPA

9.1: M.Tech / Programme

If a student has graduated, but wishes to improve her / his CGPA, she / he will have to appear for end semester examination of courses of Semester I and Semester II as per recommendation of DAC within two years of graduation by paying the required examination fees. Only one attempt is provided for such improvement. The result of such examination will be declared only if there is improvement in CGPA over earlier CGPA.

9.2 MCA Programme

If a student has graduated, but wishes to improve her / his CGPA, she / he will have to appear for end semester examination of courses (except for the project) of Semester I to Semester IV as per recommendation of DAC within two years of graduation by paying the required examination fees. Only one attempt is provided for such improvement. The result of such examination will be declared only if there is improvement in CGPA over earlier CGPA.

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