ACADEMIC REGULATIONS

(R-22)

For the

Bachelor of Technology

(B. Tech)

With effect from the Academic year 2022-23

VIDYA JYOTHI INSTITUTE OF TECHNOLOGY

Aziznagar Gate, Chilkur Balaji Road,

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Definitions of Key Words

Academic Year: An academic year is referred to as the period consisting of two consecutive semesters, each with 16 -18 weeks (90 instructional days) followed by semester examinations.

Course: A plan of study of a particular subject leading to an examination. All the courses need not carry the same weightage. A course may be designed to comprise of lectures/ tutorials/ laboratory work/ field work/ outreach activities/ project work/viva/ seminars/ assignments/ presentations etc. or a combination of some of these.

Choice Based Credit System (CBCS): Choice Based Credit System (CBCS) is the programme in which the students have a choice to choose from the prescribed courses and the entire assessment is graded based on a credit system.

Letter Grade: It is an index of the performance of students in a said course. Grades are denoted by letters O, A+, A, B+, B, C and F.

Grade Point: It is a numerical weight allotted to each letter Grade on a 10-point scale.

Credit: A unit of measurement of course work. It determines the number of hours of instructions required per week. One credit is equivalent to one hour of teaching (lecture or tutorial) or two hours of practical work/ field work per week.

Credit Point: It is the product of Grade Point and Number of Credits for a course.

Semester Grade Point Average (SGPA): SGPA stands for Semester Grade Point Average, a score awarded to students based on how well they have fared in their course work at the end of each semester .It is the ratio of total credit points secured by a student in the courses registered in a semester and the total course credits of that semester. It shall be expressed up to 2nd decimal place.

Cumulative Grade Point Average (CGPA): It is a measure of overall cumulative performance of a student in all the semesters. CGPA is the ratio of total credit points secured by a student in various courses in all semesters and the sum of the total credits of all courses in all the semesters. It is expressed up to 2nd decimal place.

Programme: An Educational Programme leading to the award of a Degree.

B. Tech. with Minor degree:

A student will be eligible to get B. Tech. with Minor Degree, if he/she acquires 18 additional credits.These should be acquired through registered courses offered by the Institution or through MOOCs as equivalent to the courses offered by the Institute.

B.Tech(Honors)

The B. Tech. (Honors) programs are proposed to choose for an area of specialization among various emerging technologies in order to be a domain expert. A student will be eligible for B. Tech. (Honors) Degree, if he/she acquires an additional 20 credits. These should be acquired through registered courses as per the respective courses offered by the Department/Institute or through SWAYAM MOOCs as equivalent to the courses offered by the Institute.

Transcript or Grade Card: Based on the grades earned, a grade certificate shall be issued to all the registered students after every semester. The grade card will be displaying the course details (code, title, number of credits, grade secured) along with SGPA of that semester and CGPA earned till that semester.

Types of Courses: The Courses in/under B. Tech Program may be of three kinds' viz., Core, Elective and Mandatory.

a) Core Course: -

There may be a Core Course in every semester and are to be compulsorily studied by a student and is essential requirement for a given Programme.

b) Elective Course: -

Elective Course is a course which can be chosen by the students from a pool of Courses. In general, the elective course is:

- Supportive to the discipline of study
- Provides an expanded scope of the core courses
- Nurtures student's proficiency/skill

In case an elective is "Discipline centric" and is offered by the student's department itself, the elective is called **Professional elective**. On the contrary, if the elective is offered by other departments wherein the students are at liberty to choose a course of their interest, the elective is called an "**Open Elective**."

c) Mandatory Courses (Non-Credit Courses)

AICTE considers that the Course work pertaining to certain subjects is essential and a' **pass** in those subjects is compulsory as such for the award of B.Tech degree. Such types of courses are referred to as Mandatory **courses**. As AICTE feels that familiarity with the subject content of these courses is sufficient, but essential, only a pass in each of these courses is required. Therefore, these subjects are included in the curriculum as non-Credit courses.

VIDYA JYOTHI INSTITUTE OF TECHNOLOGY

(An Autonomous Institution)

Aziznagar Gate, C.B. Post, Hyderabad - 500 075, Telangana

ACADEMIC REGULATIONS FOR B.Tech.

WITH EFFECT FROM ACADEMIC YEAR 2022-23 (R22)

1 **Under-Graduate Degree Programme in Engineering: Vidya Jyothi Institute of Technology** offers a 4 Year (8 Semesters) **Bachelor of Technology** (B.Tech.) Degree programme, under Choice Based Credit System (CBCS) in the following Branches of Engineering.

S. No	Branch
1.	Civil Engineering
2.	Electrical and Electronics Engineering
3.	Mechanical Engineering
4.	Electronics and Communication Engineering
5.	Computer Science and Engineering
6.	Information technology
7.	Artificial Intelligence
8.	Computer Science and Engineering (Data Science)
9.	Artificial Intelligence &Data Science
10.	Computer Science & Engineering(AI&ML)

*Regulations applicable to any new courses introduced in later years

2   **ELIGIBILITY FOR ADMISSION**

Admission to the Under Graduate (UG) program shall be made either on the basis of the merit rank obtained by the candidate in the entrance test conducted by the Telangana State Government (TS EAMCET) and on the basis of any other order of merit approved by the Government from time to time, including admissions under Management/NRI Category.

The Government orders with regard to the admissions in vogue shall prevail.

The candidate should have passed the prescribed qualifying examination before the date of Admission.

The medium of instruction is **English**.

3 B.Tech PROGRAMME STRUCTURE

A student after securing admission shall complete the B.Tech programme in a minimum period of **four** academic years (8 semesters), and a maximum period of **eight** academic years (16 semesters) starting from the date of commencement of First year First semester, failing which the student shall forfeit seat in B.Tech Programme. Each student shall secure

160 credits (with CGPA $\geq$ 5), required for the completion of the Under Graduate Programme and the award of the B.Tech. Degree.

UGC/ AICTE specified definitions/ descriptions are adopted appropriately for various terms and abbreviations used in these academic regulations/ norms are listed below.

Semester Scheme

All Under Graduate Programme is of 4 academic years (8 semesters). Every academic year shall be divided into two regular semesters known as the first semester and the second semester. Every Semester has - 'Continuous Internal Evaluation (CIE)' and 'Semester End Examination (SEE)' under Choice Based Credit System (CBCS)as indicated by UGC, and the Curriculum/ Course structure as suggested by AICTE are followed.

Credit Courses

All Subjects/Courses are to be registered by the student in a semester to earn credits which shall be assigned to each Subject/Course in a L: T: P: C (lecture periods: tutorial periods: practical periods: credits) structure based on the following general pattern.

- One credit for one hour/ week/ semester for one Theory/ Lecture (L) courses or Tutorials (T) and,
- One credit for two hours/ week/ semester for laboratory/ practical (P) Courses.

Courses like Gender Sensitization, Environmental Science, Induction Program are mandatory courses. These courses will not carry any credits.

Subject/ Course Classification

The College has followed almost all the guidelines issued by AICTE/ UGC. All Subjects/Courses offered for the UG Programmes in Engineering (B.Tech.) are broadly

classified as follows.

The groups of the subjects shall be as given in the table here under as suggested by AICTE.

S. No.	Subject Categories
1	Humanities and Social Sciences (HS) Subjects: English, Management and the Courses dealing with Personality Development
2	Basic Sciences (BS) Subjects including Mathematics, Physics and Chemistry
3	Engineering Sciences (ES): Engg. Workshop, Drawing, Fundamentals of Computer Science and Courses dealing with the basics of Electrical/Electronics/Mechanical Engineering
4	Professional Core (PC) Subjects: Includes core courses related to the parent discipline / department / branch of Engineering
5	Professional Elective (PE) Subjects: Includes elective courses related to the parent discipline / department / branch of engineering. Students has an option to select amongst the offered courses
6	Open Elective (OE) Subjects: Elective courses which include inter – disciplinary courses or courses in an area outside the parent discipline /
7	Project Work, Seminar and/or Internship in Industry or elsewhere along with Mini project.
8	Mandatory Courses (MC): Mandatory non-credit courses
9	**Minor/ Honors Courses** **Honors**: To facilitate the students to choose additional courses by deep dive into emerging areas in their own discipline. The Honors program shall be offered by the parent department. **Minor**: Students, who are desirous of pursuing their special interest areas other than their branch of engineering, may opt for additional courses in

B. Tech Year Wise distribution of credits

S.No.	Year	Semester	Regular Curriculum	
			Credits	Total Credits
1	1st Year	I	20	40
		II	20	
2	2nd Year	I	20	40
		II	20	
3	3rd Year	I	20	40
		II	20	
4	4th Year	I	20	40
		II	20	
Total No. of Credits				**160**

4 COURSE REGISTRATION/DROPPING

Each student has to compulsorily register for course work at the beginning of each semester as per the schedule mentioned in the academic calendar. It is absolutely necessary for the student to register for Courses in time.

A student would be allowed to register for an Additional Course only if the student satisfies the prerequisites.

Departments will notify at the time of registration about the minimum number of students to be enrolled for a particular Open Elective to be offered.

Any student may be barred from registering for any course on disciplinary grounds.

Open Electives: The students have to choose three Open Electives (OE-I, II& III) from the list of open electives given. However, the student cannot opt for an Open Elective Subject offered by his own (parent) department.

Professional Electives:

Students have to register from the list of professional elective courses as prescribed in the

course structure of the programme.

5 ELECTIVE COURSES TO BE OFFERED

An Elective Course may be offered to the students, only if a minimum of 30 students opt for it.

More than one faculty member may offer the same subject (lab/ practical may be included with the corresponding theory subject in the same semester) in any semester.

6 ATTENDANCE REQUIREMENTS

A student shall maintain a minimum required attendance of 75% in AGGREGATE. He/She is eligible to write the Semester End Examinations only if the student acquires a minimum of 75% of attendance in class work aggregate of all the Subjects/Courses in that Semester.

Shortage of attendance in aggregate up to 10% (65% and above, and below 75%) in each semester may be condoned by the college academic council on genuine medical grounds, based on the student's representation with supporting evidence. Student shall submit the same as and when such requirement arises but not at the end of semester.

A stipulated fee shall be payable towards condonation of attendance shortage.

Shortage of attendance below 65% in aggregate shall in no case be condoned.

Students, whose shortage of attendance is not condoned, are not eligible to appear for Semester End Examinations of that semester. Such students are detained and their registration for the examination stands cancelled.

A student detained due to shortage of attendance in a semester may seek re-admission into that semester, as and when offered, within four weeks from the date of the commencement of class work. Academic regulations applicable to the semester in which re-admission is sought shall be applicable to the re-admitted student. In case if there are any professional electives and/or open electives, the same may also be re-registered if offered. However, if those electives are not offered in the later semesters, then alternate electives may be chosen from the same set of elective courses offered under that category.

7 ACADEMIC REQUIREMENTS

The following academic requirements have to be satisfied, in addition to the attendance requirements mentioned in item no.6

A student shall be deemed to have satisfied the academic requirements and earned the credits allotted to each subject/ course, if a student secures not less than 35% (14 marks out of 40 marks in the **Continuous Internal Evaluation**, not less than 35% (21 marks out of 60 marks) in the semester end examination, and a minimum of 40% (40 marks out of

100 marks) in the sum total of the CIE (Continuous Internal Evaluation) and SEE (Semester End Examination) taken together; in terms of letter grades, this implies securing 'C' grade or above in that subject/ course.

A student shall be deemed to have satisfied the academic requirements and earned the credits allotted to Real-time Research Project (or) Field Based Research Project (or) Industry Oriented Mini Project (or) Internship (or) Seminar, if the student secures not less than 40% of marks in each of them.

The student is deemed to have failed, if he (i) does not submit a report on Industry Oriented Mini Project/Internship, or (ii) not make a presentation of the same before the evaluation committee as per schedule, or (iii) secures less than 40% marks in Real-time Research Project (or) Field Based Research Project (or) Industry Oriented Mini Project (or) Internship evaluations.

A student may reappear once for each of the above evaluations, when they are scheduled again; if the student fails in such 'one reappearance' evaluation also, the student has to reappear for the same in the next subsequent semester, as and when it is scheduled.

Promotion rules

S. No.	Promotion	Conditions to be fulfilled
1	First year first semester to First year second semester	Regular course of study of First yearfirst semester and shall satisfy attendance requirements.

2	First year second semester to Second year first semester	**(i)** Regular course of study of First year second semester and shall satisfy attendance requirements. **(ii)** Must have secured at least 20 credits out of 40 credits i.e., 50% credits up to First year second semester from all the relevant regular and supplementary examinations, whether the student takes those examinations or not.
3	Second year first semester to Second year second semester	Regular course of study of Second year first semester and shall satisfy attendance requirements.
4	Second year second semester to Third year first semester	**(i)** Regular course of study of Second year second semester and shall satisfy attendance requirements. **(ii)** Must have secured at least 48 credits out of 80 credits i.e., 60% credits up to Second year second semester from all the relevant regular and supplementary examinations, whether the student takes those examinations or not.
5	Third year first semester to Third year second semester	Regular course of study of Third year first semester and shall satisfy attendance requirements.
6	Third year second semester to Fourth year first semester	**(i)** Regular course of study of Third year second semester shall satisfy attendance requirements. **(ii)** Must have secured at least 72 credits out of 120 credits i.e., 60% credits up to Third year second semester from all the relevant and supplementary examinations, whether the student takes those examinations or not.
7	Fourth year first semester to Fourth year second semester	Regular course of study of Fourth year first semester and shall satisfy attendance requirements.

A Student (i) shall register for all Courses/Subjects covering 160Credits as specified and listed in the course structure, (ii) fulfils all the attendance and academic requirements for 160 credits, (iii) earn all 160 credits by securing SGPA ≥5.0 (in each semester), and

CGPA (at the end of each successive semester) ≥5.0, (iv) **passes all the mandatory courses**, to successfully complete the under graduate programme. The performance of the student in these 160 credits shall be taken into account for the calculation of 'the final CGPA (**at the end of under graduate programme**), and shall be indicated in the grade card / marks memo of IV-year II-semester.

If a student register for '**extra subjects**' (in the parent department or other department / branches of Engineering) other than those listed subjects totaling to 160 credits as specified in the course structure of his/her department, the performances in those '**extra subjects**' (although evaluated and graded using the same procedure as that of the required 160 credits) will not be considered while calculating the SGPA and CGPA. For such '**extra subjects**' registered, percentage of marks and letter grade alone will be indicated in the grade card as a performance measure, subject to completion of the attendance and academic requirements as stated in regulations Items 6 and 7.1 – 7.4 above.

A student eligible to appear in the Semester End Examination for any subject/ course, but absent for it or failed (thereby failing to secure 'C' grade or above) may reappear for that subject/ course in the supplementary examination as and when conducted. In such cases, internal marks (CIE) assessed earlier for that subject/ course will be carried over, and added to the marks obtained in the SEE supplementary examination for evaluating performance in that subject.

A student detained in a semester due to shortage of attendance may be re-admitted in the same semester in the next academic year for fulfillment of academic requirements. The academic regulations under which a student has been readmitted shall be applicable. However, no grade allotments or SGPA/ CGPA calculations will be done for the entire semester in which the student has been detained.

A student detained due to lack of Credits in any year, may be readmitted after fulfillment of the Academic Requirements, with the Academic Regulations of the Batch into which he gets readmitted. If there are any Professional Electives/Open Electives, the same may also be re-registered if offered. However, if those Electives are not offered in later Semesters, then alternate Electives may be chosen from the same set of Elective Subjects offered

under that category.

A student detained due to lack of credits, shall be promoted to the next academic year only after acquiring the required number of academic credits. The academic regulations under which the student has been readmitted shall be applicable to him.

Student, who fails to earn 160 credits as indicated in the course structure within eight academic years from the year of his/her admission, shall forfeit the seat in B. Tech. course and admission stands cancelled.

A student with a final CGPA (at the end of the UGP) < 5.00 will not be eligible for the Award of the Degree.

8 EVALUATION- DISTRIBUTION AND WEIGHTAGE OF MARKS

The performance of a student in every subject/course (including Practicals and Project Stage – I & II) will be evaluated for 100 marks each, with 40 marks allotted for CIE (Continuous Internal Evaluation) and 60 marks for SEE (Semester End-Examination).

In CIE, for theory subjects, during a semester, there shall be two mid-term examinations. Each Mid-Term examination consists of two parts i) Part – A for 10 marks, ii) Part – B for 20 marks with a total duration of 2 hours as follows:

1. Mid Term Examination for 30 marks:

   a. Part - A : Objective/quiz paper for 10 marks.

   b. Part – B : Descriptive paper for 20 marks.

The objective/quiz paper is set with multiple choice, fill-in the blanks and match the following type of questions for a total of 10 marks. The descriptive paper shall contain 6 full questions out of which, the student has to answer 4 questions, each carrying 5 marks.

While the first mid-term examination shall be conducted on 50% of the syllabus, the second mid-term examination shall be conducted on the remaining 50% of the syllabus.

The remaining 10 marks of Continuous Internal Assessment (out of 40) are distributed as:

1. Assignment for 5 marks. (Average of 2 Assignments each for 5 marks).

   Five (5) marks are allocated for assignments (as specified by the subject teacher concerned). The first assignment should be submitted before the conduct of the first mid-term examination, and the second assignment should be submitted before the conduct of the second mid-term examination. The average of the two assignments shall be taken as the final marks for assignment (for 5 marks).

2. Subject Viva-Voce/Poster Presentation/Participatory Learning/Group Activities/Case Study on a topic in the concerned subject for 5 marks before II Mid-term Examination.

   The Student, in each subject, shall have to earn 35% of marks (i.e. 14 marks out of 40 marks) in CIE 35% of marks (i.e. 21 marks out of 60) in SEE and however overall 40% of marks (i.e.40 marks out of 100 marks) both CIE and SEE marks put together.

   The student is eligible to write Semester End Examination of the concerned subject, if the student scores $\geq$ 35% (14 marks) of 40 Continuous Internal Examination (CIE) marks.

   In case, the student appears for Semester End Examination (SEE) of the concerned subject but not scored minimum 35% of CIE marks (14 marks out of 40 internal marks), his performance in that subject in SEE shall stand cancelled inspite of appearing the SEE.

   The details of End semester question paper pattern is as follows :

   The Semester End Examinations (SEE), for theory subjects, will be conducted for 60 marks consisting of two parts viz. i) Part- A for 10 marks, ii) Part - B for 50 marks.

   - Part-A is a compulsory question which consists of ten sub-questions from all units carrying equal marks

   - Part-B consists of five questions (numbered from 2 to 6) carrying 10 marks each. Each of these questions is from each unit and may contain sub-questions. For each question there will be an "either" "or" choice, which means that there will be two questions from each unit and the student should answer either of the two questions.

   - The duration of Semester End Examination is 3 hours.

   For the subject, Computer Aided Engineering Graphics, the Continuous Internal Evaluation (CIE) and Semester End Examinations (SEE) evaluation pattern is same as for other theory subjects.

   For practical subjects there shall be a Continuous Internal Evaluation (CIE) during the semester for 40 marks and 60 marks for semester end examination. Out of the 40 marks

for internal evaluation:

1. A write-up on day-to-day experiment in the laboratory (in terms of aim, components/procedure, expected outcome) which shall be evaluated for 10 marks

2. 10 marks for viva-voce (or) tutorial (or) case study (or) application (or) poster presentation of the course concerned.

3. Internal practical examination conducted by the laboratory teacher concerned shall be evaluated for 10 marks.

4. The remaining 10 marks are for laboratory project which consists of the Design (or) Software/Hardware model Presentation (or) App Development or Prototype Presentation submission which shall be evaluated after completion of laboratory course before the semester end Practical examinations.

The Semester End Examination shall be conducted with an external examiner and the laboratory teacher. The external examiner shall be appointed from other colleges which will be decided by the examination branch of the College.

In the Semester End Examination held for 3 hours, total 60 marks are divided and allocated as shown below:

1. 10 marks for write-up

2. 15 for experiment/program

3. 15 for evaluation of results

4. 10 marks for presentation on another experiment/program in the same laboratory course and

5. 10 marks for viva-voce on concerned laboratory course

- The student, in each subject, shall have to earn 35% of marks (i.e. 14 marks out of 40 marks) in CIE, 35% of marks (i.e. 21 marks out of 60) in SEE and Overall 40% of marks (i.e. 40 marks out of 100 marks) both CIE and SEE marks put together.

- The student is eligible to write Semester End Examination of the concerned subject, if the student scores $\geq$ 35% (14 mark out of 40 marks) in Continuous Internal Examination (CIE).

- In case, the student appears for Semester End Examination (SEE) of the concerned subject but not scored minimum 35% of CIE marks (14 marks out of 40 internal marks), his performance in that subject in SEE shall stand cancelled inspite of appearing the SEE.

The evaluation of courses having ONLY internal marks in I Year II Semester and II Year II Semester is as follows:

I Year I Semester course (ex., Elements of CE/ME/EEE/ECE/CSE): The internal evaluation is for 50 marks and it shall take place during I Mid-Term examination and II Mid-Term examination. The average marks of two Mid-Term examinations are the final for50 marks. Student shall have to earn 40%, i.e 20 marks out of 50 marks from average of the two examinations. There shall be NO external evaluation. The student is deemed to have failed, if he (i) is absent as per schedule, or (ii) secures less than 40% marks in this course.

For CSE/IT and allied branches the Continuous Internal Evaluation (CIE) will be for 50 marks. Each Mid-Term examination consists of two parts i) Part – A for 20 marks, ii) Part – B for 20 marks with a total duration of 2 hours.

Part A: Objective/quiz paper is set with multiple choice, fill-in the blanks and match the following type of questions for a total of 20 marks. **Part B:** Descriptive paper shall contain 6 full questions out of which, the student has to answer 4 questions, each carrying 5 marks.

The remaining 10 marks of Continuous Internal Evaluation are for Assignment (5 marks) and Subject Viva-Voce/PPT/Poster Presentation/ Case Study (5 marks) and the evaluation pattern will remain same as for other theory subjects.

For all other branches, the Continuous Internal Evaluation (CIE) will be for 50 marks. Out of the 50 marks for internal evaluation:

a) A write-up on day-to-day experiment in the laboratory (in terms of aim, components/procedure, expected outcome) which shall be evaluated for 10 marks

b) 10 marks for viva-voce (or) tutorial (or) case study (or) application (or) poster presentation of the course concerned.

c) Internal practical examination conducted by the laboratory teacher concerned shall be evaluated for 15 marks.

d) The remaining 15 marks are for Laboratory Report/Project and Presentation, which

consists of the Design (or) Software / Hardware Model Presentation (or) App Development (or) Prototype Presentation submission which shall be evaluated after completion of laboratory course and before semester end practical examination.

II Year II Semester Real-Time (or) Field-based Research Project course: The internal evaluation is for 50 marks and it shall take place during I Mid-Term examination and II Mid-Term examination. The average marks of two Mid-Term examinations is the final for 50 marks. Student shall have to earn 40%, i.e 20 marks out of 50 marks from average of the two examinations. There shall be NO external evaluation.

The student is deemed to have failed, if he (i) does not submit a report on the Project, or does not make a presentation of the same before the internal committee as per schedule, or(ii) secures less than 40% marks in this course

In case, a few students are absent due to health reasons or any other unavoidable circumstances, or if a student wish to improve his/her performance in the internal marks a third mid-term examination will be conducted on payment of fees fixed by the examination branch. The test will be conducted in all the units of the subject.

There shall be an Industry training / Internship / Skill Development Courses / Paper presentation in reputed journal / Industry Oriented Mini Project in collaboration with an industry of their specialization. Students shall register for this immediately after II-Year II Semester Examinations and pursue it during summer vacation/semester break & during III Year without effecting regular course work. Internship at reputed organization / Skill development courses / Paper presentation in reputed journal / Industry Oriented Mini Project shall be submitted in a report form and presented before the committee in III-Year II semester before End Semester Examination. It shall be evaluated for 100 external marks. The committee consists of an External Examiner, Head of the Department, Internal Supervisor and a Senior Faculty Member of the Department. There shall be NO internal marks for Industry Training (or) Internship (or) Mini-Project (or) Skill Development Courses (or) Paper Presentation in reputed journal (or) Industry Oriented Mini Project

Design and Drawing

For the subject having design and/ or drawing, (such as Engineering Graphics, Engineering Drawing, and Machine Drawing), the distribution shall be 40 marks for Internal Evaluation (20 marks for day-to-day work and 20 marks for internal tests) and 60 marks for Semester End Examination. There shall be two internal tests in a semester and average of two examinations shall be considered for the award of marks for internal examination.

The UG project shall be initiated at the end of the IV Year I Semester and the duration of the project work is one semester. The student must present Project Stage – I during IV Year I Semester before II Mid examinations, in consultation with his Supervisor, the title, objective and plan of action of his Project work to the departmental committee for approval before commencement of IV Year II Semester. Only after obtaining the approval of the departmental committee, the student can start his project work.

UG project work shall be carried out in two stages: Project Stage – I for approval of project before Mid-II examinations in IV Year I Semester and Project Stage – II during IV Year II Semester. Student has to submit project work report at the end of IV Year II Semester. The project shall be evaluated for 100 marks before commencement of SEE Theory examinations.

For Project Stage – I, the departmental committee consisting of Head of the Department, project supervisor and a senior faculty member shall approve the project work to begin before II Mid-Term examination of IV Year I Semester. The student is deemed to be not eligible to register for the Project work, if he does not submit a report on Project Stage - I or does not make a presentation of the same before the evaluation committee as per schedule. A student who has failed may reappear once for the above evaluation, when it is scheduled again; if he fails in such 'one reappearance' evaluation also, he has to reappear for the same in the next subsequent semester, as and when it is scheduled.

For Project Stage – II, the external examiner shall evaluate the project work for 60 marks and the internal project committee shall evaluate it for 40 marks. Out of 40 internal marks, the departmental committee consisting of Head of the Department, Project Supervisor and a Senior Faculty Member shall evaluate the project work for 20 marks and Project Supervisor shall evaluate for 20 marks. The topics for Industry Oriented Mini Project/ Internship/SDC etc. and the main Project shall be different from the topic already taken. The student is deemed to have failed, if he (i) does not submit a report on the Project, or (ii) does not make a presentation of the same before the External Examiner as per schedule, or (iii) secures less than 40% marks in the sum total of the CIE and SEE taken together.

For conducting viva-voce of project, Principal/Director of the college selects an external examiner from the list of experts in the relevant branch submitted by the Head of the Department.

A student, who has failed, may reappear once for the above evaluation, when it is scheduled again; if student fails in such 'one reappearance' evaluation also, he has to reappear for the same in the next subsequent semester, as and when it is scheduled

Seminar Presentation

There shall be a seminar presentation in IV-year II Semester. For the seminar, the student shall collect the information on a specialized topic and prepare a technical report, showing his understanding of the topic, and submit it to the department. It shall be evaluated by the departmental committee consisting of Head of the Department, Seminar Supervisor and a Senior Faculty member. The seminar report shall be evaluated for 100 marks. There shall be no SEE or external examination for the seminar.

If the student fails to present the Seminar as required in the IV-year II Semester He may reappear for the seminar when they are scheduled again (within one month); if he fails in such 'one reappearance' evaluation also, he has to reappear for the same in the next subsequent Semester, as and when it is scheduled.

A student shall be given one time chance to re-register for a maximum of two subjects: ina semester

- If the internal marks secured by a student in the **continuous internal evaluation marks for 40** (Sum of average of two mid-term examinations consisting of objective & descriptive parts, average of 2 assignments and subject viva voce/PPT/Poster presentation/Case study on a topic in the concerned subject) are less than 35% and failed in those subjects

A student must re-register for the failed subject(s) for 40 marks within four weeks of commencement of the class work in next academic year.

In the event of the student taking this chance, his Continuous Internal Evaluation marks for 40 and Semester End Examination marks for 60 obtained in the previous attempt stand cancelled.

Distribution of Marks Internal Valuation/External Valuation

Subject	Internal Valuation Marks	External Valuation Marks	Total Marks
Theory/Engineering Drawing	40	60	100
Mini Project	0	100	100
Seminar	100	0	100
Major Project	40	60	100

Candidates shall be permitted to apply for recounting/revaluation of SEE scripts within 2 weeks from the date of release of results, with a payment of prescribed fee.

No marks or letter grades shall be allotted for Mandatory/Non-Credit Courses. Only Pass/Fail shall be indicated in Grade Card.

9 B.Tech with Minor Program

The Institution has introduced the **Bachelor of Technology in a particular specialization with minor program** *(For eg., B. Tech. in Electronics & Communication Engineering with Minor in AI&ML)*from AY. 2021-22.

The Bachelor of Technology (B.Tech.) with minor programs offered by VJIT focuses on the fundamental principle of Engineering, where the development of critical & analytical thinking and the ability to develop a distinctive approach to any given problem statement shall be the driving factor that fuels the pedagogic discourse.

A student will be eligible to get B. Tech. with Minor Degree, if he/she completes an additional 18 credits. These should be acquired through registered courses as per the respective courses offered by the Institute or through MOOCs courses as mentioned Annexure-I, as equivalent to the courses offered by the Institute.

Details are given in the Annexure –I

10 B.Tech (Honors)

The B. Tech. (Honors) programs are proposed to choose for an area of specialization among various emerging technologies in order to be a domain expert. A student will be eligible to get B. Tech. (Honors) Degree, if he/she completes an additional 20 credits. These should be acquired through registered courses as per the respective courses offered by the institution or through SWAYAM MOOCs as equivalent to the courses offered by the Institute.

Details are given in the Annexure -II

11 GRADING PROCEDURE

Grades will be awarded to indicate the performance of students in each theory subject, laboratory/ practical's/Seminar/ Industry Oriented Mini Project/Internship and Project Stage –I &II. Based on the percentage of marks obtained (Continuous Internal Evaluation and Semester End Examination, both taken together) as specified item7 and 8 of above, a corresponding letter grade shall be given.

As a measure of the student's performance, a 10-point Absolute Grading System using the following Letter Grades and corresponding percentage of marks shall be followed.

Letter Grade	Performance	Grade Points	% of marks Secured (Class Intervals)
O	Outstanding	10	Greater than or equal to 90%
A+	Excellent	9	80% and less than 90%
A	VeryGood	8	70% and less than 80%
B+	Good	7	60% and less than 70%
B	Average	6	50% and less than 60%
C	Pass	5	40% and less than 50%
F	Fail	0	Below 40%
AB	Absent	0	Absent

A Student who has obtained an **'F'** grade in any subject shall be considered 'failed' and is required to reappear as a 'supplementary student' in the semester End Examination as and when conducted. In such cases, Internal Marks in those subjects will remain the same as those obtained earlier.

To a student who has not appeared for a semester end examination in any subject, **'Ab'** grade will be allocated in that subject, and he is deemed to have **'failed'**. A Student will be required to reappear as a 'Supplementary Student' in the Semester End Examination, as and when conducted. In this case also, the internal marks in those subjects will remain the same as those obtained earlier.

A letter grade does not indicate any specific percentage of marks secured by the student, but it indicates only the range of percentage of marks.

In general, a student shall not be permitted to repeat any subject/course(s) only for the sake of 'Grade Improvement' or 'SGPA/CGPA Improvement'. However, he has to repeat all the Subject/Courses pertaining to that Semester when he is detained due to shortage of attendance.

A student earns grade point (GP) in each subject/ course, on the basis of the letter grade secured in that subject/ course. The corresponding 'credit points' (CP) are computed by

multiplying the grade point with credits for that particular subject/course.

Credit points (CP) = grade point (GP) x credits …. For a subject/course

The Grade Point Average (GPA) will be calculated according to the formula:

$$GPA = \frac{\sum C_i G_i}{\sum C_i}$$

Where C_i= Number of credits allotted to the ith Subject and G_i= Grade points allotted for all courses passed in that semester

The student passes the Subject/ Course only when he gets GP $\geq$ 5 (P Grade or above).

The Semester Grade Point Average (SGPA) is calculated by dividing the sum of credit points ($\sum$CP) secured from all subjects/ courses registered in a semester, by the total number of credits registered during that semester. SGPA is rounded off to two decimal places. SGPA is thus computed as

$$SGPA = \frac{\sum \text{Course Credits}\,(C_i) \times \text{Grade Points}\,(G_i)}{\sum \text{Course Credits}\,(C_i)}$$

WhereC_i = Number of credits allotted to the ith Course

G_i = Grade points allotted to i^{th} Course passed in that semester

$\sum C_i$ = Total number of credits for all courses registered in that semester

And 'i' is the course indicator index (takes into account all courses in a semester).

The Cumulative Grade Point Average (CGPA) is a measure of the overall cumulative performance of a student in all semesters considered for registration. The CGPA is the ratio of the total credit points secured by a student in all registered courses in all semesters, and the total number of credits registered in all the semesters. CGPA is rounded off to two decimal places. CGPA is thus computed from the I year II semester onwards at the end of

each semester as per the formula

$$CGPA = \frac{\sum \text{Course Credits}\,(C_j) \times \text{Grade Points}\,(G_j)}{\sum \text{Course Credits}\,(C_j)}$$

Where

C_j = Number of credits allotted to the jth Course

G_j = Grade points allotted to jth Course passed up to that semester

$\sum C_j$ = Total number of credits for all courses registered until that semester

And 'j' is the subject indicator index (takes into account all subjects until the semester)

After registration and completion of I year I semester, the SGPA of that semester itself may be taken as the CGPA, as there are no cumulative effects.

Illustration of calculation of SGPA:

Course	Credits	Letter Grade	Grade Points	Credit Points
Course 1	4	A	8	4x8=32
Course 2	4	O	10	4 x 10=40
Course 3	4	C	5	4x5=20
Course 4	3	B	6	3x6=18
Course 5	3	A+	9	3x9=27
Course 6	3	C	5	3x5=15
	21			152

SGPA = 152/21 = 7.24

llustrative Example:

An illustrative example given in below Table indicates the use of the above two equations in calculating SGPA and CGPA, both of which facilitate the declaration of academic performance of a student, at the end of a semester and at the end of successive semesters respectively. Both of them shall be normally calculated up to the second decimal position, so that the *CGPA,* in particular, can be made use of in awarding a rank for the student's performance in a class or college. If two students get the same *CGPA,* the tie should be resolved by considering the number of times a student has obtained higher *SGPA;* But, if it is not resolved even at this stage, the number of times a student has obtained higher grades like O, A, B etc shall be taken into account in rank ordering of the students in a class.

Example:

Year and Semester	Course No.	Credits	Grade	Grade Points	Credit Points
I Year I Semester	XX101	5	A	8	40
I Year I Semester	XX102	4	F	0	00
I Year I Semester	XX103	3	A+	9	27
I Year I Semester	XX104	4	F	0	00
I Year I Semester	XX105	5	C	5	25
I Year I Semester	XX106	5	A	8	40
Total		26(18*)			132
SGPA = 132/26=5.08 CGPA =5.08					
I Year II Semester	XX107	5	B+	7	35
I Year II Semester	XX108	4	A	8	32
I Year II Semester	XX109	3	C	5	15
I Year II Semester	XX110	5	B	6	30
I Year II Semester	XX111	4	A+	9	36
I Year II Semester	XX112	2	F	0	00
I Year II Semester	Xx113	2	A	8	16
I Year II Semester					
Total		25(23*)			164
SGPA = 164/25=6.56 CGPA = 296/51 =5.80					

*Total No. of credits excluding those with 'F'; this is particularly important to keep track of the number of credits earned by a student up to any semester.

The above illustrated calculation process of CGPA will be followed for each subsequent semester until 8th semester. The CGPA obtained at the end of 8th semester will become the final CGPA secured for entire B.Tech. Programme.

For merit ranking or comparison purposes or any other listing, only the 'rounded off' values of the CGPA will be used.

For calculations listed in regulations 11.7 to 11.10, performance in failed subjects/ courses (securing F grade) will also be taken into account, and the credits of such subjects/ courses will also be included in the multiplications and summations. After passing the failed subject(s) newly secured letter grades will be taken into account for calculation of SGPA and CGPA. However, mandatory courses will not be taken into consideration.

SGPA and CGPA of a semester will be mentioned in the semester Memorandum of Grades if all subjects of that semester are passed in first attempt. Otherwise, the SGPA and CGPA shall be mentioned only on the Memorandum of Grades in which sitting he passed his last exam in that semester.

12   EARNING OF CREDITS

A student shall be considered to have completed a Course successfully and earned the credits if he/she secures an acceptable letter grade in the range 'O' to 'P'. Letter grade 'F' in any Course implies failure of the student in that Course and no credits earned.

13   PASSING STANDARDS

A student shall be declared successful or 'passed' in a semester, if he secures a GP ≥ 5 ('C' grade or above) in every subject/course in that semester (i.e. when the student gets an SGPA

≥ 5.0 at the end of that particular semester); and he shall be declared successful or 'passed' in the entire undergraduate programme, only when gets a CGPA ≥ 5.00 ('C' grade or above) for the award of the degree as required.

After the completion of each semester, a grade card or grade sheet shall be issued to all theregistered students of that semester, indicating the letter grades and credits earned. It will show the details of the courses registered (course code, title, no. of credits, grade earned, etc.)and credits earned. There is NO exemption of credits in any case.

A Student shall be declared successful or 'passed' in any Non-Credit Subject/ Course, if he secures a minimum of P grade.

After the completion of each Semester, a Grade Card or Grade Sheet (or Transcript) shall

be issued to all the registered students of that semester, indicating the Letter Grades and Credits earned. It will show the details of the courses registered (Course Code, Title, No. of Credits, Grade Earned etc.), Credits earned, SGPA, and CGPA.

14 DECLARATION OF RESULTS

Computation of SGPA and CGPA are done using the procedure listed in 11.7 TO 11.10.

For final percentage of marks equivalent to the computed final CGPA, the following formula may be used.

% of Marks = (final CGPA – 0.5) x 10

15 AWARD OFDEGREE

A student who registers for all the specified subjects/ courses as listed in the course structure and secures the required number of 160 credits (with CGPA $\geq$ 5.0), within 8 academic years from the date of commencement of the first academic year, shall be declared to have 'qualified' for the award of B.Tech. degree in the branch of Engineering selected at the time of admission.

A student who qualifies for the award of the degree as listed in item 15.1 shall be placed in the following classes

A student with final CGPA (at the end of the undergraduate programme) > 8.00, and fulfilling the following conditions - shall be placed in 'First Class with Distinction'.
However, he/she

(i) Should have passed all the subjects/courses in 'First Appearance' within the first 4 academic years (or 8 sequential semesters) from the date of commencement of first year first semester.

(ii) Should not have been detained or prevented from writing the semester end examinations in any semester due to shortage of attendance or any other reason.

A student not fulfilling any of the above conditions with final CGPA > 8 shall be placed in 'First Class'.

Students with final CGPA (at the end of the undergraduate programme) ≥ 7.0 but < 8.00 shall be placed in 'First Class'.

Students with final CGPA (at the end of the undergraduate programme) ≥ 6.00 but < 7.00, shall be placed in 'Second Class'.

All other students who qualify for the award of the degree (as per item 15.1), with final CGPA (at the end of the undergraduate programme) ≥ 5.00 but < 6, shall be placed in 'pass class'.

A student with final CGPA (at the end of the undergraduate programme) < 5.00 will not be eligible for the award of the degree.

16   CONSOLIDATED GRADE CARD

A consolidated grade card containing credits & grades obtained by the candidates will be issued after completion of the four years B. Tech Program.

17   WITHHOLDING OF RESULTS

If the student has not paid the fees to the College at any stage, or has dues pending due to any reason whatsoever, or if any case of indiscipline is pending, the result of the student may be withheld, and the student will not be allowed to go into the next higher semester. The award or issue of the degree may also be withheld in such cases and the matter will be referred to College Academic Committee for final decision.

18   TRANSITORY REGULATIONS

Discontinued, detained for attendance, detained for want of credits, or failed students are eligible for readmission as and when the course is offered during the subsequent academic year as per the college admission procedures.

Students on transfer from a non- autonomous or from an autonomous college shall complete all the courses of the concerned programme not covered in the earlier organization. However, he/she should take the remaining courses in the programme along with the other students.

There shall be no branch transfers after the cut-off date of admissions made in the B.Tech.I year.

19   TRANSCRIPTS

After successful completion of the total programme of study, a Transcript containing performance of all academic years will be issued as a final record. Duplicate transcripts will also be issued if required after the payment of requisite fee.

20   SUPPLEMENTARY EXAMINATIONS

In addition to the Regular end semester examinations, Supplementary Examinations for the previous semesters will be conducted along with End Semester Examinations**.** A student can appear for any number of supplementary examinations till he/she clears all courses which he/she could not clear in the first attempt. However, the maximum stipulated period cannot be relaxed under any circumstances.

21   GRADUATIONCEREMONY

The College shall have its own annual Graduation Ceremony for the award of degrees to students completing the prescribed academic requirements in each case, in consultation with the University and by following the provisions in the Statute.

The College shall institute Prizes and Awards to meritorious students, for being given away annually at the Graduation Ceremony.

22   TERMINATION OF THE PROGRAM

The admission of a student to the program may be terminated and the student may be asked to leave the Institute in the following circumstances:

- If the student fails to satisfy the Academic requirements of the program within the maximum period stipulated for that program.
- If the student fails to satisfy the norms of discipline specified by the institute from time to time.

23   NON-CREDIT COURSES (Mandatory Courses)

Requirement of 75% attendance as per the college regulations is compulsory of completing the Mandatory courses.

Specified number of Mandatory Courses among the designated ones is compulsory requirement for all the students for the award of B.Tech. Degree.

Although these courses do not carry any credits, performance in these subjects is evaluated following the procedure adopted for other subjects with the same marks. However, their performance will be indicated in the student's memo of marks as Satisfactory/ Unsatisfactory.

MALPRACTICES RULES
DISCIPLINARY ACTION FOR/IMPROPER CONDUCT IN EXAMINATIONS

	Nature of Malpractices/Improper conduct	Punishment
	If the student:	
1. (a)	Possesses or keeps accessible in examination hall, any paper, note book, programmable calculators, cell phones, pager, palm computers or any other form of material concerned with or related to the subject of the examination (theory or practical) in which student is appearing but has not made use of (material shall include any marks on the body of the student which can be used as an aid in the subject of the examination)	Expulsion from the examination hall and cancellation of the performance in that subject only.
(b)	Gives assistance or guidance or receives it from any other student orally or by any other body language methods or communicates through cell phones with any student or persons in or outside the exam hall in respect of any matter.	Expulsion from the examination hall and cancellation of the performance in that subject Only of all the students involved. In case of an outsider, he will be handed over to the police and a case is registered against him.
2.	Has copied in the examination hall from any paper, book, programmable calculators, palm computers or any other form of material relevant to the subject of the examination (theory or practical) in which the student is Appearing.	Expulsion from the examination hall and cancellation of the performance in that subject only.
3.	Impersonates any other student in Connection with the examination.	The student who has impersonated shall be Expelled from examination hall. The student is also debarred and forfeits the seat. The performance of the original student who has been impersonated, shall be cancelled in all the subjects of

		the examination (including practical's and project work) already appeared and shall not be allowed to appear for examinations of the remaining subjects of that Semester/ year. The student is also debarred for two consecutive semesters from class work and All Examinations. The continuation of the course by the student is subject to the academic regulations in connection with Forfeiture of seat. If the imposter is an outsider, he will be handed over to the police and a case is registered against him.
4.	Smuggles in the answer book or additional sheet or takes out or arranges To send out the question paper during the examination or answer book or additional sheet, during or after the Examination .	Expulsion from the examination hall and cancellation of performance in that subject and all the other subjects the student has already appeared including practical examinations and project work and shall not be permitted for the remaining examinations of the subjects of that Semester/ year. The student is also debarred for two consecutive semesters from class work and All Examinations. The continuation of the course by the student is subject to the academic Regulations in connection with Forfeiture of seat.
5.	Uses objectionable, abusive or offensive language in the answer paper or in letters to the examiners or writes to the examiner requesting him to award pass Marks.	Cancellation of the performance in that subject.
6.	Refuses to obey the orders of the chief superintendent/assistant superintendent / any officer on duty or misbehaves or creates disturbance of any kind in and around the examination hall or organizes a walk out or instigates others to walk out, or threatens the officer-in charge or any person on duty in or outside the examination hall of any injury to his person or to any of his relations whether by words, either spoken or written or by signs orb visible representation, assaults the officer-in- charge, or any person on duty in or outside the examination hall or any of his relations, or indulges in any other act of misconduct or mischief which result in damage to or destruction of property in the examination hall or any part of the college campus or engages in any other act which in the opinion of the officer on duty amounts to use of unfair means or misconduct or has the	1. In case of students of the college, they shall be expelled from examination halls and cancellation of their performance in that subject and all other subjects the student(s) has (have) already appeared and shall not be permitted to appear for the remaining examinations of the subjects of that Semester/ year. 2. The students also are debarred and forfeit their seats. In case of outsiders, they will be handed over to the police and a Police case is registered against them.

	tendency to disrupt the orderly conduct of the examination.	
7.	Leaves the exam hall taking away answer script or intentionally tears off the script or any part there of inside or outside the examination hall.	1. Expulsion from the examination hall and cancellation of performance in that subject and all the other subjects the student has already appeared including practical examinations and project work and shall not be permitted for the remaining examinations of the subjects of that Semester/ year. 2. The student is also debarred for two consecutive semesters from class work and All University examinations. The continuation of the course by the student is subject to the academic regulations in connection with Forfeiture of seat.
8.	Possesses any lethal weapon or firearm in the examination hall.	1. Expulsion from the examination hall and cancellation of the performance in that subject and all other subjects the student has already appeared including practical examinations and project work and shall not be permitted for the remaining examinations of the subjects of that Semester/ year. 2. The student is also debarred and forfeits the seat. Police case will be registered.
9.	If student of the college, who is not a student for the particular examination or any person not connected with the college indulges in any malpractice or improper conduct mentioned in clause 6 to 8.	Expulsion from the examination hall and cancellation of the performance in that subject and all other subjects the student has already appeared including practical examinations and project work and shall not be permitted for the remaining examinations of the subjects of that Semester/ year. The student is also debarred and forfeits the seat. Person(s) who do not belong to the college will be handed over to the police and, a police case Will be registered against them.
10.	Comes in a drunken condition to the examination hall.	Expulsion from the examination hall and cancellation of the performance in that subject and all other subjects the student has already appeared for including practical examinations and project work and shall not be permitted for the remaining examinations of the subjects of That semester/ year.
11.	Copying detected on the basis of internal evidence, such as, during Valuation or during special scrutiny.	Cancellation of the performance in that subject and all other subjects the student has appeared for including practical examinations and project work of that semester/year

		Examinations.
		34
12.	If any malpractice is detected which is not covered in the above clauses 1 to 11 shall be reported to the Principal for further action to award a suitable Punishment.	

Malpractices identified by squad or special invigilators: Punishment to the students as per the above guidelines.

24   General

Wherever the words "he", "him", "his", occur in the regulations, they include "she", "her", "hers".

Where the words "Subject" or "Subjects", occur in these regulations, they also imply "Course" or "Courses".

The academic regulation should be read as a whole for the purpose of interpretation.

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

The Institution may change or amend the Academic Regulations, course structure or syllabi at any time, and the changes or amendments made shall be applicable to all students with effect from the date notified by the Institution.

ACADEMIC REGULATIONS FOR B. TECH LATERAL ENTRY STUDENTS

Applicable for the students admitted into II-year B. Tech. (Lateral Entry Scheme) from the Academic Year 2023-24.

1. **Eligibility for award of B. Tech. Degree (LES)**

   The LES candidates shall pursue a course of study for not less than three academic years and not more than six academic years.

   The candidate shall register for 120 credits and secure 120 credits by securing a minimum CGPA of ≥ 5 of B.Tech. II to IV year for the award of B.Tech. Degree.

   The student(s), who fail to fulfill the requirement for the award of the degree in six Academic years from the year of admission, shall forfeit their seat(s). The attendance regulationsof B. Tech. (Regular) shall be applicable to B.Tech. (LES).

2. **Promotion Rule**

   A student shall be promoted from B.Tech., II Year to III Year if he/she gets at least a minimum of 24out of 40 credits, up to II-year II semester, from all the examinations, whether or not the candidate takes the examinations.

   A student shall be promoted from III year to IV year if he/she gets a minimum of 48 out of 80 credits, up to III-year II semester, from all the examinations, whether or not the candidate takes the examinations.

   A student shall register and put-up minimum attendance in all 120 credits and earns all 120 credits tobe eligible for the award of B. Tec degree.

   A student, who fails to earn 120 credits as indicated in the course structure within six academic years, shall forfeit his/her admission in B.Tech. Course.

3. **Award of Class**

   A student, who satisfies all the requirements prescribed for the completion of the B.Tech. program, is eligible for the award of the said degree, in any one of the following four classes:

CGPA	Class Awarded	
≥8.00	First Class with Distinction	From the CGPA secured from 120 credits
≥7.00 - <8.00	First Class	
≥6.00 - <7.00	Second Class	
≥5.00 - <6.00	Pass Class	

4. All the other regulations as applicable to B. Tech. 4-year degree course (Regular) will hold good for B.Tech. (Lateral Entry Scheme).

Annexure-I

B. Tech with Minor Program

VJIT has always been emphasizing to orient the students towards the technologies that shall drive the world in the years to come; the Institution has introduced the Bachelor **of Technology in a particular specialization with minor program** *(For eg., B. Tech. in Electronics & Communication Engineering with Minor in AI&ML)* from AY. 2021-22.

The Bachelor of Technology (B.Tech) with minor programs offered by VJIT focuses on the fundamental principle of Engineering, where the development of critical & analytical thinking and the ability to develop a distinctive approach to any given problem statement shall be the driving factor that fuels the pedagogic discourse.

B. Tech. with Minor degree:
A student will be eligible to get B. Tech. with Minor Degree, if he/she completes an additional 18 credits. These should be acquired through registered courses as per the respective courses offered by the Institute or through MOOCs as equivalent to the courses offered by the Institute.

The key features of the B.Tech with Minor program being:

o   The student can identify **only one area** of specialization along with his/her basic engineering degree.
o   The no. of courses for Minor program is limited to 2 in a semester along with normal courses.
o   In addition to the traditional B.Tech. program which is a 4-Year (8 Semester program) offering 160 course credits, additional **18 Credits**(minimum) to be completed as part of the **B.Tech with Minor program** between the **5th** and **8th** semester within the same period of 4-Year B. Tech. program.
o   To successfully complete the **B.Tech with Minor program** the student shall need to clear the examinations for the additional 18 Credits. These credits can be acquired adopting advanced subjects in the offered specialization/ interdisciplinary studies, etc.

The following are the recommended areas for Minor programs:

S. No.	Minor Program	Eligible branch of students	@ Offering Department	Award of Degree
1	Construction Engineering & Management	All branches, except B. Tech. Civil Engg.	Civil Engg.	"B. Tech. in branch name with Minor in Construction Engineering & Management
2	Robotics	All branches, except B. Tech. Mech. Engg	Mech. Engg.	"B. Tech. in branch name with Minor in Robotics
3	Electric Vehicles	All branches, except B. Tech. EEE	EEE	"B. Tech. in branch name with Minor in Electric Vehicles
4	Sustainable Energy	All branches, except B. Tech. EEE	EEE	"B. Tech. in branch name with Minor in Sustainable Energy
5	IoT	All branches, except B. Tech. ECE	ECE	"B. Tech. in branch name with Minor in IOT"
6	CSE	All branches, except B. Tech. CSE	CSE	"B. Tech. in branch name with Minor in CSE
7	IT	All branches, except B. Tech. IT	IT	"B. Tech. in branch name with Minor in IT
8	AI&ML	All branches, except B. Tech. AI	AI	"B. Tech. in branch name with Minor in AI&ML
9	Business & Innovation Management (B&IM)	All branches of B.Tech.	MBA	"B. Tech. in branch name with Minor in B&IM

Rules & Regulations for B. Tech. with Minor Degree
1. The duration and all the academic regulations are on par with regular 4-Years B. Tech. program. A student completes/earns all the required credits of a course, if he/ she registers for the course and obtains a passing grade.
2. Only Students having earned all the credits at the end of the third semester (i.e., end of 2nd Year I-semester) without active backlogs are eligible to register for Minor program, in the fifth semester only.
3. For B. Tech with Minor, a student needs to earn additional minimum 18 credits (over and above the required 160 credits for B. Tech degree) as per the Minor program course structure.
4. Course registration fee per course should be met by the students only. The registration fee per credit is Rs.1000/-.
5. After registering for the Minor programme, if a student fails in any registered course and unable to earn all the required 18 credits in a specified duration (twice the duration of the course), he/she shall not be awarded Minor degree. However, if the student earns all the required credits of 160 for B. Tech., he/she will be awarded only B. Tech degree in the

concerned discipline. There is no transfer of credits from Minor program courses to regular B. Tech. degree course& vice versa.

6. These 18 credits (minimum) are to be earned from:
   - Additional Courses offered in the specialization by the concerned department.
   - MOOC courses offered by SWAYAM MOOCs as notified/approved by the university (minimum 3 credits each) from time to time.
   - Any expenses incurred for the MOOCs course to be met by the students only.

7. Online courses registered shall be certified ones with grading/marks/pass. Only Pass-grade/ pass-marks/ pass or above grade/marks shall be considered for inclusion of grades.

8. If the MOOC course is a pass course without any grades, the grade to be assigned as per the main regulations.

9. Prior to registration to MOOC courses, formal approval of the courses, by the University based on the organization of the programme, syllabus coverage, detailed duration of the programme, nature of evaluation etc. is needed.

10. The additional courses (for minimum of 18 credits) may be from the departments offering courses/subjects for the Minor degree. These subjects can be considered as advanced courses in that specialization/interdisciplinary courses etc.

11. However, the choice to opt/ take the Minor program is purely on the choice of the students in a particular engineering stream. Only top 50% of the total class in each specialization, based on their overall percentage of marks without active backlogs up to 3rdsemester (II-year I Semester), are eligible to register for Minor program courses/ subjects.

Requirement for the Award of B.Tech with Minor Degree:

a) A student may opt for B.Tech with Minor degree if she/he has no active backlogs till 3rdsemester.

b) For B. Tech with Minor, a student needs to earn additional 18 credits (minimum over and above the required 160 credits for B. Tech degree) as per his/her registered Minor program.

c) Student should take permission of registration for the B.Tech with Minor program from Head of the department & faculty/course in-charge before commencement of 3rd Year I Semester or 5th Semester.

d) To successfully complete the B.Tech with Minor program the student shall need to clear the examinations for the additional 18 Credits. The examinations shall be conducted as per the AICTE as well as University guidelines.

e) The student shall be given a choice of withdrawing all the courses registered and/or credits earned for Minor courses/degree; and in that case the student will be awarded only B. Tech. degree in the concerned specialization on earning the required credits of 160 in a specified duration.

The following are the course structure of B.Tech Minor programs offered by various departments:

Course Structure of B.Tech Minor Programs offered by Various Departments

Department of Civil Engineering

B.TECH MINOR IN CONSTRUCTION ENGINEERING & MANAGEMENT

S. No.	Year/ Semester	Course	L	T	P	Credits
1	III-I	Principles of Surveying/ **MOOCS**	3	0	0	3
2	III-I	Surveying Lab	0	0	3	1.5
3	III-II	Essentials of building planning / **MOOCS**	3	0	0	3
4	III-II	Computer aided Building planning Lab	0	0	3	1.5
5	IV-I	AI applications in construction practices	3	0	0	3
6	IV-I	Construction Management/ **MOOCS**	3	0	0	3
7	IV-II	Mini Project	0	0	6	3
Total Credits						**18**

Department of Mechanical Engineering

B.TECH MINOR IN ROBOTICS

S. No.	Year/ Semester	Course Title	L	T	P	Credits
1	III-I	Principles of Robotics	3	0	0	3
2		SCI Lab for Robotics Lab	0	0	3	1.5
3	III-II	Microcontrollers for Robotics	3	0	0	3
4	IV-I	Advanced Robotics (or) SWAYAM course on Introduction to Robotics	4	0	0	4
5		Robotic Simulation Lab	0	0	3	1.5
6	IV-II	Implementation of Robotic Systems	3	0	0	3
7		Mini Project	0	0	4	2
Total Credits						**18**

Department of Electrical & Electronics Engineering

B.TECH MINOR IN SUSTAINABLE ENERGY

S. No.	Year/ Semester	Course Title	L	T	P	Credits
1.	III-I	Energy and its Resources	4	0	0	4
2.	III-II	Climate Change Understanding and Observations	3	0	0	3
3.	III-II	Energy and its Resources Lab	0	0	3	1.5
4.	IV-I	Energy Storage for Renewable	3	0	0	3
5.	IV-II	**Electives** 1. Electronics for Renewable 2. Solar Energy Technologies and System Design 3. Solar Energy System Installations and Maintenance	3	0	0	3
6.	IV-II	Energy Systems Lab	0	0	3	1.5
7.	IV-II	Internship/Mini Project	0	0	4	2
Total Credits						**18**

B.TECH MINOR IN ELECTRIC VEHICLES

S. No.	Year/ Semester	Course Title	L	T	P	Credits
1.	III-I	Electric Vehicle and Energy Systems	4	0	0	4
2.	III-II	Power Electronics and Control of Electric Machines	3	0	0	3
3.	III-II	Simulation Lab	0	0	3	1.5
4.	IV-I	Automotive Transmission and Communication	3	0	0	3
5.	IV-II	**Electives** 1. Electric Vehicle Dynamics and Testing 2. Battery Charging Technology for EVs 3. Electric Vehicle: Safety and Regulations and Future of EVs	3	0	0	3
6.	IV-II	Electric Mobility Lab	0	0	3	1.5
7.	IV-II	Internship/Mini Project	0	0	4	2
Total Credits						**18**

Department of Electronics & Communication engineering

B.TECH MINOR IN INTERNET OF THINGS

S. No.	Year/ Semester	Course Title	L	T	P	Credits
1	III-I	Embedded Sensors and IOT Architectures	4	0	0	4
2	III-I	Essentials of Python Programming Laboratory	0	0	3	1.5
3	III-II	IOT Communication Protocols	3	0	0	3
4	III-II	Smart Technologies	3	0	0	3
5	IV - I	Fog & Edge Computing for IoT	3	0	0	3
6	IV - I	IoT Automation withRaspberry-PI Laboratory	0	0	3	1.5
7	IV - II	Mini Project	0	0	4	2
Total Credits						**18**

Department of Computer Science and Engineering

B.TECH MINOR IN COMPUTER SCIENCE AND ENGINEERING

S. No.	Year/ Semester	Course Title	L	T	P	Credits
1	III-I	Computer System Architecture	3	0	0	3
2	III-I	Data Structures	3	0	0	3
3	III-I	Data Structures Lab	0	0	3	1.5
4	III-II	Data Warehousing and Data Mining	3	0	0	3
5	III-II	Data Warehousing and Data Mining Lab	0	0	3	1.5
6	IV-I	Artificial Intelligence Linux Programming Software Testing Methodologies E-Commerce	3	0	0	3
7	IV-II	Mini Project	0	0	6	3
Total Credits						**18**

Department of Information Technology

B.TECH MINOR IN INFORMATION TECHNOLOGY

S. No.	Year/ Semester	Course Title	L	T	P	Credits
1	III-I	Fundamentals of Algorithms	3	0	0	3
2	III-I	Algorithms Lab	0	0	3	1.5
3	III-II	Foundations of Cloud Computing	3	0	0	3
4	IV-I	Fundamentals of Database Management Systems	3	0	0	3
5	IV-I	Fundamentals of Database Management Systems Lab	0	0	3	1.5
6	IV-II	Principles of Artificial Intelligence Big Data Analytics Internet of Things Blockchain Technologies (or) Swayam Course on Big Data Computing	3	0	0	3
7	IV-II	Mini Project				3
Total Credits						**18**

Department of Artificial Intelligence

B.TECH MINOR IN ARTIFICIAL INTELLIGENCE & MACHINE LEARNING

S. No.	Year/ Semester	Course Title	L	T	P	Credits
1	III-I	Foundations of Artificial Intelligence	3	0	0	3
2	III-I	Python Programming Lab	0	1	3	2.5
3	III-II	Foundations of Machine Learning	3	0	0	3
4	III-II	Foundations of Machine Learning Lab	0	0	3	1.5
5	IV-I	Basics of Deep Learning	2	0	0	2
6	IV-I	Basics of Deep Learning Lab	0	0	2	1
7	IV-II	**Electives:** 1. Principles of Natural Language Processing 2. Introduction to Computer Vision 3. Soft Computing 4. Introduction to Artificial Neural Networks	3	0	0	3
8	IV-II	Mini Project	0	0	0	2
Total Credits						**18**

Department of Management Studies
B.TECH MINOR IN BUSINESS & INNOVATION MANAGEMENT

S. No.	Year/ Semester	Course Title	L	T	P	Credits
1	III - I	Foundations of Management	4	0	0	4
2	III - II	Innovation & Design Thinking	3	0	0	3
3	III - II	Design thinking and Ideation Laboratory	0	0	3	1.5
4	IV - I	Business Ideation Business Models	3	0	0	3
5	IV - I	Business Plan Development	0	0	3	1.5
6	IV - II	**Any ONE of the following subjects:** 1. Project management 2. Market Research 3. Legal Aspects of Business 4. Technology Management (if not studied in the regular course)	3	0	0	3
7	IV - II	**Mini Project** Field Study Report/ Feasibility reporton New ventures/ Pitfalls of entrepreneurship	0	0	4	2
Total Credits						**18**

Annexure-II

B.Tech (Honors)

The B. Tech. (Honors) programs are proposed to choose for an area of specialization among various emerging technologies in order to be a domain expert. A student will be eligible to get B. Tech. (Honors) Degree, if he/she completes an additional 20 credits. These should be acquired through registered courses as per the respective courses offered by the University or through SWAYAM MOOCs as equivalent to the courses offered by the Institute.

1. Objectives

The key objectives of offering **B. Tech. (Honors)** programs are:

- To expand the domain knowledge of the undergraduate students.
- To increase educational and professional skills required for pursuing higher studies or research in the area of interest.
- To acquire more knowledge as per industry requirement for better employment.

The key features of the **B.Tech. (Honors)** program being:
- The student can identify **only one area** of specialization along with his/her basic engineering degree.
- The no. of courses registered for honors is limited to TWO in a semester along with normal courses.
- In contrast to a traditional B. Tech. program which is a 4 Year (8 Semester program) offering 160 course credits, the **B. Tech. (Honors)** program is a 4 Year program (8 Semester program) offering 180 course credits.
- The additional **20 Credits** (Minimum, and maximum 20 credits) to be completed as part of the **B. Tech. (Honors)** program is to be spaced out between the 5th and 8th semester.
- To successfully complete the **B. Tech. (Honors)** program the student shall need to clear the examinations for the additional 20 Credits. These credits can be acquired opting advanced subjects in the offered specialization/ research/ interdisciplinary studies, etc.

2. Proposed Specialization Details

As per AICTE guide lines 2021-22, some of the VJIT proposed B. Tech. (Honors) programs are given below in each major discipline:

S. No.	Honors Program	Eligible branch of students	[@] Offering Department	Award of Degree
1.	Structural Engineering	B. Tech. Civil Engg.	Civil Engg.	"B. Tech. (Honors) in branch name with Specialization in Structural Engineering
2.	CAD/ CAM	B. Tech. Mech. Engg.	Mech. Engg.	"B. Tech. (Honors) in branch name with Specialization in CAD/CAM
3.	Power Systems	B. Tech. EEE	EEE	"B. Tech. in branch name with Minor in Power Systems
4.	ECE	B. Tech. ECE	ECE	"B. Tech. (Honors) in branch name with Specialization in ECE
5.	CSE	B. Tech. CSE	CSE	"B. Tech. (Honors) in branch name with Specialization in CSE

3. Rules and Regulations for B. Tech. (Honors) Degree

1. The duration and all the academic regulations are on par with regular 4-Years B. Tech. program. A student will be awarded B. Tech. (Honors) degree, if he/she completes & earns all the required credits of a course for the registered courses and obtains a passing grade.
2. The department concerned shall have at least one M.Tech (Preferably NBA accredited) in the concerned stream, for B.Tech. (Honors) registration.
3. Only Students having earned all the credits with CGPA of **7or above** at the end of the third semester (i.e., end of 2nd Year I Sem.) are eligible to register for B.Tech. (Honors), in the fifth semester only.
4. For B. Tech. (Honors), a student needs to earn additional minimum 20 credits (over and above the required 160 credits for B. Tech degree) relevant to her/his discipline as per the course structure.
5. Course registration fees per course should be met by the students only. The registration fees per credit is Rs.1000/-.

6. After registering for the B.Tech. (Honors) programme, if a student fails in any registered course and unable to earn all the required 20 credits in a specified duration, he/she will not be eligible for obtaining B.Tech. (Honors) degree.

7. There is NO reduction in total no. of credits offered in the concerned regulations and NO credit transfer from normal courses to honors courses and vice versa.

8. These 20 credits are to be earned from:
   - Additional Courses offered in the same specialization by the concerned department. Course registration fee per course should be met by the students only as per the norms of the University.
   - Courses offered by NPTEL/ SWAYAM MOOCs as notified/approved by the university (minimum 3 credits each) from time to time. The duration of courses shall be a minimum of 12-14 weeks. The assessment and certification of the NPTEL/SWAYAM MOOCs courses shall be as per the prescribed norms of the NPTEL and approved by the Institute
   - Any expenses incurred for the NPTEL/SWAYAM MOOCs course should be met by the students only.

9. Online courses registered shall be certified ones with grading or marks or pass/ fail. Only Pass- grade/ pass-marks/ pass or above grade/marks shall be considered for inclusion of grades.

10. If the MOOC course is a pass course without any grades, the grade to be assigned as per the main regulations.

11. The additional courses (for minimum of 20 credits) may be from the same department as the undergraduate major. These subjects can be considered as advanced courses in that specialization/ research/ interdisciplinary courses etc.

12. However, the choice to opt/take the Honors program is purely on the choice of the students in a particular engineering stream. Only top 30% of the total class in each specialization, based on their overall percentage of marks in first attempt (without fail in any subject) up to 3rd semester (II-year I Semester), and are eligible to register for honors program courses/ subjects.

Requirement for the Award of B. Tech. (Honors) Degree:

A student enrolled in a B. Tech. program may also graduate with Honors, provided the student completes all the additional requirements for Honors, as specified by the regulations for the program in which he/she is enrolled. These additional requirements normally should include:

a) For B. Tech (Honors), a student needs to earn additional 20 credits (minimum, over and above the required 160 credits for B. Tech degree) relevant to the discipline as recommended by the faculty advisor based on the courses offered in course structure for honors degree.

b) Student should not have received any 'F' grade throughout the program in first attempt (without fail in any subject).

c) Transfer of credits will not be permitted from regular courses to honors courses and vice versa.

4. Registration

1) At the beginning, just before the start of classes, of each semester, a student shall register for the courses he/ she wishes to take in that semester. A student shall normally be allowed to register for a course only if he/she has passed all the necessary pre-requisites for that course.

2) Student should take permission of registration for the B.Tech with Honors program from Head of the department & faculty/ course in-charge before commencement of 3rd Year I Semester or 5th Semester.

3) Registration is compulsory for all students, and is the sole responsibility of the student and must be completed before the last date of registration with necessary course registration fee per subject.

4) No student is allowed to register directly and the registration shall be through institute/ department. The registered students list shall be submitted to the university by the concerned principal.

5) The institute/ department shall maintain the record of student registered and pursing the Honors degree.

6) The institute/ department shall prepare the time table for the registered Honors courses without any overlap/ clash on other courses the student registered for.

7) Minimum class strength (i.e., 33% of intake) is required for offering in-class Honors course.

The following are the course structure of B.Tech Honors programs offered by various departments:

Course Structure of B.Tech Honors Programs offered by Various Departments

Department of Civil Engineering

B.TECH HONORS IN STRUCTURAL ENGINEERING

S. No	Year/ Semester	Course Title	L	T	P	Credits
1	III-I	Advanced R.C. Design	3	0	0	3
2	III-I	Advanced Concrete Lab	0	0	3	1.5
3	III-II	Structural Dynamics	3	0	0	3
4	III-II	Computer aided structural design Lab	0	0	3	1.5
5	IV-I	Research Methodology	3	0	0	3
6	IV-I	Technical Paper Writing	2	0	0	2
7	IV-II	Cost management of Engineering projects/ one course from MOOCS	3	0	0	3
8	IV-II	Earthquake Resistant Design Of Buildings / one course from MOOCS	3	0	0	3
Total Credits						**20**

Department of Mechanical Engineering

B.TECH HONORS IN CAD/ CAM

S. No.	Year/ Semester	Course Title	L	T	P	Credits
1	III-I	Industrial Robotics	4	0	0	4
2	III-II	Additive Manufacturing (or) SWAYAM Course on Fundamentals of Additive Manufacturing Technologies	4	0	0	4
3		Robotic Simulation &3D Printing Lab	0	0	3	1.5
4	IV-I	Advanced Finite Element Method	3	0	0	3
5		Technical Paper Writing	0	0	4	2
6	IV-II	Advanced CAD	4	0	0	4
7		CAD/CAM/CAE Lab	0	0	3	1.5
Total Credits						**20**

Department of Electrical & Electronics Engineering

B.TECH HONORS IN POWER SYSTEMS

S. No.	Year/ Semester	Course Title	L	T	P	Credits
1	III-I	Honors Elective - 1	3	0	0	3
2	III-II	Research Methodologies	3	0	0	3
3	III-II	Honors Elective - 2	3	0	0	3
4	IV-I	Honors Elective - 3	3	0	0	3
5	IV-I	Honors Elective - 4	3	0	0	3
6	IV-II	Technical Paper Writing	0	0	4	2
7	IV-II	Honors Elective -5	3	0	0	3
Total Credits						**20**

Honors Electives (E)	Pre-Requisites
Honors Elective - 1	
Waste to Energy Conversion	Power Systems I
Energy and its resources	Power Systems I
Electrical Safety and Quality Management	Power Systems I
Honors Elective - 2	
Advances in Distribution Systems	Power Systems I, Power Systems II
IoT Applications in Electrical Engineering	Basic Electrical Engineering
Energy Storage systems for renewable	Power Systems I
Honors Elective -3	
Smart Cities – Management of Smart Urban	Power Systems I, Power Systems II
Grid Integration of Renewable Energy Systems	Power Systems I, Power Systems II
Grid Integration of Electric Vehicles	Power Systems I, Power Systems II
Honors Elective - 4	
Cyber Security of Smart Grids	Smart Grids Planning and Operation
SCADA and Energy Management Systems	Power Systems I and Power Systems II
Distributed Generation and Micro Grids	Power Systems I and Power Systems II
Honors Elective - 5	
Smart Grid Protection	Smart Grids Planning and Operation
Electrical Safety Management	Basic Electrical Engineering
HVDC Transmission	Power Electronics, Power Systems

Department of Electronics & Communication Engineering

B.TECH HONORS IN ELECTRONICS & COMMUNICATION ENGINEERING

S. No.	Year/ Semester	Course Title	L	T	P	Credits
1	III-I	**Honors Elective -1** 1. High Speed Electronics 2. Nano electronics	3	0	0	3
2	III-II	Research Methodologies &Et hics	3	0	0	3
3	III-II	**Honors Elective – 2** 1. Wireless Sensor Networks 2. Error Correcting Codes	3	0	0	3
4	IV-I	**Honors Elective – 3** 1. Mixed Signal Processing 2. Adaptive Signal Processing	3	0	0	3
5	IV-I	**Honors Elective – 4** 1. Speech and Audio Signal Processing 2. Scientific computing	3	0	0	3
6	IV-II	Introduction to IOT	3	0	0	3
7	IV-II	Technical Paper Writing	0	0	4	2
Total Credits						**20**

Department of Computer Science and Engineering

B.TECH HONORS IN COMPUTER SCIENCE AND ENGINEERING

S. No	Year / Semester	Course to be chosen from/ studied	L	T	P	C
1.	III-I	**Honors Elective-1** 1. Principles of Programming Languages 2. Software Testing Methodologies 3. Computer Graphics	3	0	0	3
2.	III-II	**Research Methodologies**	3	0	0	3
3.	III-II	**Honors Elective-2** 1.Foundations of Machine Learning 2.Information Security 3.Software Project Management	3	0	0	3
4.	IV-I	**Honors Elective-3** 1.Big Data Analytics 2.Internet of Things 3.R Programming	3	0	0	3
5.	IV-I	**Honors Elective-4** 1.Advanced Databases 2.Neural Networks and Deep Learning 3.Natural Language Processing	3	0	0	3
6.	IV-II	**Technical Paper writing**	0	0	0	2
7.	IV-II	**Honors Elective-5** 1. Introduction to Data Science 2. Image Processing 3. Block Chain Technologies or MOOCS	0	0	0	3
Total Credits						**20**