



VIGNAN'S

FOUNDATION FOR SCIENCE, TECHNOLOGY & RESEARCH

(Deemed to be University) - Estd. u/s 3 of UGC Act 1956

R25

Academic Regulations

In Compliance with NEP 2020

Prof. P. NAGABHUSHAN

B.E., M.Tech., Ph.D., FIE, FIETE, FIAPS.

Vice Chancellor, VFSTR

Life time Professor, IIIT - Allahabad, Prayagraj

(Formerly: Director, IIIT-Allahabad 2017-22)

PREFACE - R25

Change is the only permanent thing. The happening of Change implies continues morphing, - iterative refinement, leading to evolution. There cannot be an end in the process of evolution, however an imagined target could be the goalpost to drive the change. The regulation R-25 could be one such stage during the saga of transition in pursuit of quality in learning.

The focal point in higher education should be learning, which should serve as foundational premise for *unlearning*, *relearning* and *continuing to learn lifelong*. This ability for the creativity towards learning has got to be seeded and allowed to be sprouted by the mentors who would provide handholding and lead the potential and untapped youngsters to be able to think, because learning should imbibe thinking - **thinking logically; thinking on how to internalise, how to imbibe and then how to invent and implement.**

The regulation R-25, is in the sequel to R-22. As focused in R-22, R-25 aims to more effectively channelize the policies brought out in National Educational Policy - NEP 2020, into practice.

The anticipated challenges in store for the future, the agenda of accomplishing Sustainable Development Goals (SDGs) and the largely unexplored hidden treasure of Indian Knowledge System (IKS), if could be modulated through the carrier framework of NEP-2020, would be impactful in bringing out an eminent thinker in every genuine learner. And realising this objective is the motivation in bringing out VIGNAN's Regulation R-25.

ACADEMIC REGULATIONS, CURRICULUM AND COURSE CONTENTS

EXECUTIVE ABSTRACT

The Academic Regulations - R25, Curriculum, and Course Structure of VFSTR Deemed-to-be University are designed in alignment with NEP-2020, emphasizing continuous learning, continuous assessment, and competency-based education. These regulations build upon the experiences gained during the implementation of R-22 since AY 2022-23, which was also an exercise of inculcating and internalizing NEP-2020. Insights from R-22 and the recommendations of the 6th Deans' Committee of ICAR have led to refinements in the curriculum, course structure, pedagogy, and assessment tools, resulting in a more mature, robust, and adaptive educational framework-R25.

The new course structure incorporates a two-module system, where Module-1 focuses on strengthening foundational knowledge and conceptual clarity, while Module-2 fosters higher-order thinking, problem-solving, and innovation in addressing agricultural challenges and developing sustainable farming solutions. The curriculum adopts the **T-shaped learning philosophy**, balancing breadth (horizontal line) and depth (vertical line) in knowledge acquisition. The vertical line represents deep expertise in core agricultural and allied science domains, while the horizontal line encourages cross-disciplinary learning and adaptability, equipping students with both strong functional foundations and diverse competencies for agricultural research, rural development, entrepreneurship, and agribusiness ventures.

Furthermore, the program ensures an integrated and rigorous learning experience across core agricultural sciences, value-based learning, skill enhancement, multidisciplinary perspectives, and discipline-specific specializations. Rather than offering superficial exposure, the curriculum is designed to provide in-depth engagement in these areas. It offers students the opportunity to pursue carefully designed electives that enhance their agro-technical and entrepreneurial capabilities, ensuring meaningful multidisciplinary learning. This fosters a truly holistic agricultural education that bridges theoretical insight with practical competence. In alignment with this vision, relevant concepts from the **Indian Knowledge System (IKS)** have been woven into a few courses, enriching modern scientific approaches with India's rich intellectual traditions. Additionally, all courses in the curriculum are mapped with relevant **Sustainable Development Goals (SDGs)**, reaffirming VFSTR's commitment to fulfilling the SDGs through education.

To provide greater academic flexibility, R25 introduces a provision of '**Creative Work-in-Lieu of a Course**', enabling students to substitute a conventional elective with creativity driven exploration that leads to research-based outcomes such as peer-reviewed publications, patents, or innovative projects. This initiative encourages students to engage with impactful research and real-world problem-solving, fostering a culture of innovation and intellectual contribution. Additionally, experiential learning has been infused throughout the curriculum, ensuring students gain hands-on experience through industry collaborations, prototype development, and applied research initiatives. Experiential learning is seamlessly integrated into the academic structure, with assessments aligned to capture the depth and authenticity of learning through experience.

In accordance with the 6th Deans' Committee recommendations of ICAR, R25 emphasizes experiential learning as a core element of the B.Tech. (Agriculture) program. The curriculum integrates Project, In-plant Training and Research Internship, providing authentic field exposure and skill development opportunities. Deeksharambh (Student Induction Program), conducted at the beginning of the program, helps students adjust to the institution, develop a sense of belonging, and transition smoothly into university life. Together with project-based learning, these components connect classroom concepts with real-world agricultural contexts, while assessments capture the depth and authenticity of learning.

The assessment strategy is structured into six formative assessment stages (Pre-T1, T1, T2, T3, T4 & T5), ensuring a **continuous and comprehensive assessment model** that progressively aligns with revised Bloom's Taxonomy and the T-shaped learning framework, reinforcing Learning–Thinking–Understanding–Skilling–Applying–Creating at each stage. The emphasis on continuous assessment is driven by the principle of continued learning, where students are consistently engaged with concepts and skills throughout their academic journey.

The four-year B.Tech. Agricultural Engineering program follows a flexible and student-centric approach, incorporating multiple entry and exit at different levels. The student/s will have the option to exit after the 1st year. The student has to complete 10 weeks of internship (10 credits) after 1st year (2 semesters) to be eligible for award of UG-Certificate in Agricultural Engineering. The student has another option to exit after the 2nd year. The student has to complete another 10 weeks of internship (10 credits) after 2nd year (4 semesters) to be eligible for award of UG-Diploma in Agricultural Engineering. After four years of study, the student will be awarded UG degree in concerned discipline. No exit after 3 years (6 semesters) is

recommended considering the professional nature of the courses. The lateral entry at 3rd semester will be for the candidates having UG-certificate in Agricultural Engineering or those who have completed Diploma (3 years course after 10th) in recognized HAEIs. The lateral entry in 5th semester will be for candidates who have completed UG-Diploma in Agricultural Engineering. Additionally, for students who wish to progress at a slower pace, a spillover period of up to three additional years is available for degree completion, ensuring academic flexibility without compromising learning outcomes. By integrating multidisciplinary exposure, skill-based learning, and holistic assessment, VFSTR reaffirms its commitment to developing well-rounded, future-ready professionals in accordance with NEP-2020's transformative vision.

Salient features of the regulation

- Multidisciplinary
- Continuous learning.
- Continuous assessment.
- T-Shaped Learning Philosophy.
- Multiple entry and honorable exit options.
- Sabbatical Semester Drop option to pursue innovation, incubation, entrepreneurial and advanced exploratory activities and subsequent re-entry.
- Credit earning by credit transfer.

1 INTRODUCTION

This document contains the academic regulations, scheme of assessments, curriculum, detailed syllabi, course contents with text / reference books recommended, course outcomes, skills expected to be acquired and the projects / assignments that are to be performed for each course for the conduct of 4-year B.Tech. Agricultural Engineering programme.

1.1 Definition

For the purpose of R25 regulation, definitions as follows shall apply:

- **“Degree”** shall refer to the B.Tech. Agricultural Engineering Degree Program.
- **“Course”** shall refer to such Course(s) for which a student shall earn Credits after due assessment as per the laid provisions. Project is also treated as a Course.
- **“Academic activities”** shall refer to the activities like Lecture-L (Physical Lecture Session), Transactions (Tutorial)-T (Participatory discussion / Self-Study / Desk Work

/ Quiz / Seminar Presentation, etc. activities that make the student absorb & assimilate, the delivered contents effectively) and Practical / Practice Sessions-P (includes Hands on Experience / Lab experiments / Field Studies / Case Studies etc. activities that enable the student to acquire the requisite skill).

- **“Credit”** refers to a unit of measurement assigned to courses based on the weekly instructional hours. Typically, one credit corresponds to one hour of lecture (L) or two hours of transaction (T) / practices (P) sessions per week.
- **“Continuous Assessment”** shall refer to the assessment of the student spread over the entire semester on the various constituent components of the prescribed course.
- **“Semester”** shall refer to a period covering the two assessment periods viz Formative and Summative Assessment period. A semester would generally be spread over twenty weeks.
- **“Deeksharambh”** refers to a course offered at the start of first year first semester for a duration of two weeks. This will create a platform for students to learn from each other’s life experiences, help for cultural Integration of students from different backgrounds, know about the operational framework of academic process in university, instilling life and social skills, social awareness, ethics and values, team work, leadership, creativity, etc.
- **“Course Drop”** shall refer to a student having to undertake a ‘Repeat (R)’ of the Course(s) not being able to complete the Credit requirements of the Course(s), under the conditions stipulated in the regulation.
- **“Supplementary Examinations”** shall refer to the examination(s) conducted to allow the student to appear in the un-cleared / Incomplete (I) Semester - End summative assessment component.
- **“Blank Semester”** shall refer to a Semester in which a student either does not register for any course at the beginning of the Semester OR chooses to DROP all courses OR is so compelled to DROP all the courses, as the case may be.
- **“Semester Drop”** shall refer to availing a blank semester. However, if drop is availed to pursue a creative extension activity, then it is defined as **semester sabbatical**.
- **“Spill Over Semester”** shall refer to the additional semester(s) beyond the completion of prescribed normal semesters.
- **“AAA Section”** shall refer to the Academics, Assessment and Award Section of the Institute.

- **“Attendance”** refers to the Physical personal presence in an academic activity session.
- **“Summer Semester”** refers to a Semester that is scheduled to be held during the intervening period of Even and Odd Semester (*i.e.* Summer Vacation period).
- **“Themes”** refer to the courses offered in a particular stream other than offered by the regular departments, for example NCC, Entrepreneurship, Fitness and Living, *etc.*
- **“School”** refers to a division of institute dealing with two or more specific areas of discipline / study comprising of the departments related with exclusive emphasis on trans-disciplinary research.
- **“Department”** refers to a division of institute dealing with a specific area of discipline / study.
- **“HoD”** refers to the Head of the respective Department, where the student is enrolled for his / her Branch of Study.
- **“Center”** refers to a structured unit within the school / department established with the purpose to carry out advanced research.
- **“Grade Point”** refers to the quantification of the performance of a candidate in a particular course as defined herein.
- **“SGPA”** refers to the Semester Grade Point Average and is calculated as detailed in the regulations subsequently.
- **“CGPA”** refers to the Cumulative Grade Point Average and is calculated as detailed in the regulations subsequently.
- **“Division”** refers to the Division awarded to the student as per the mechanism detailed in the regulations subsequently.
- **“Internship”** refers to onsite Practical Training offered by reputed companies / Institutions, in India or abroad. To be undertaken with (or seeking) prior approval of the respective HoD.
- **“Project”** refers to a course executed by a candidate on a specific research problem / product or process development at VFSTR / any organization of repute for a short duration. To be undertaken with (or seeking) prior approval of the respective HoD.
- **“Credit equivalence and credit transfer committee”** refers to the committee designated to look into for credit equivalence and credit transfer.

- **“Honorable Exit Option”** refers to the Exit Options available to students, when they are unable to complete the prescribed Four-year B.Tech. Degree program in Seven successive years or would like to voluntarily exit.

1.2 Academic Administration

The academic programmes of VFSTR are governed by the rules and regulations approved by the Academic Council from time to time. The various academic activities are conducted following a fixed time schedule duly approved by the Academic Council in line with the AICTE / UGC regulations. The academic activities of VFSTR are followed meticulously as specified in the academic calendar as approved by the Academic Council. This academic calendar is shared with all the stake holders well before the beginning of the respective academic year. The curriculum and the course contents of all the programmes are discussed by the respective Board of Studies (BoS), analyzed and recommended for implementation. The Academic Council, being the highest statutory body, chaired by the Vice-Chancellor, meets four times a year and discusses, suggests and approves all the important academic matters related to curriculum and course contents in particular including the recommendations of BoS. The intended revision in regulations (R25) was accepted and recommended by the Academic Council in its 40th meeting on 22-02-2025.

1.3 Program Duration

For the B.Tech. program the regular courses including theory, transactions, and practice sessions are offered over a period of four years in eight semesters. The normal duration to complete the B.Tech. Agricultural Engineering program is four years. However, a student can avail the benefit of spill over period of 3 years, that is the maximum duration of seven years can be availed by a candidate to complete the B.Tech. programme in a slower pace if he / she desires. This flexibility caters to diverse learner needs, supporting extended degree pathways. Candidates failing to complete the requirements within this period will be considered for an honorable exit, as applicable. Honorable exit can also be exercised by a candidate voluntarily.

1.4 Courses and Credits

The term course is used in a broader sense to refer to so called papers such as ‘theory subject’, ‘laboratory/ practical’, ‘Seminar’, ‘Case Study’, ‘internship’, ‘Project’, ‘In-plant training/Research internship’ etc. A course can be of theoretical and/ or of practical nature, and certain number of credits are allotted to it depending on the number of hours of instruction per semester. For a course offered in a semester, one hour of lecture (L)

instructions carried out in a week is considered equivalent to one credit, whereas two hours of practical (P) sessions done in a week are considered equivalent to one credit respectively. Depending on the course two hours of transaction (T) sessions may be considered equivalent to one credit. A student earns these credits when he/she successfully completes the course. Credits can also be obtained by successful completion of other recognized co-curricular and extra-curricular activities such as NCC, NSS, Yoga, etc. The details of credits of such activities will be provided by the respective course coordinators and assessment of student performance in the activities will be carried out objectively by the constituted committees appointed by the Dean AAA. The criteria of assessment for these activities will include aspects like regular attendance in the programme and satisfactory completion of it through assessments conducted at university level or by participation / performance at university level events, state level or national level participation etc.

1.4.1 Content Delivery of a Course

Content delivery of a Course in the B.Tech. Agricultural Engineering Degree Program shall be through, either or all, of the following Methods:

- i. **Lecture** - refers to Lecture Session(s) through classroom contact session wherein students will learn by listening. Denoted by “L”.
- ii. **Tutorial** - refers to transaction(s) consisting of Participatory discussion / Self-study / Desk work / Brief presentations by students along with such other novel methods that enable a student to efficiently & effectively absorb and assimilate the contents delivered in the lecture sessions. Denoted by “T”.
- iii. **Practice** - refers to Practice / Practical sessions and it consists of Hands-on-Experience / Case Studies / Computer Simulations/ Societal Projects/ Seminar / Internship / Project / In-plant training / Research internship’, that equip the students to acquire the much required skill component. Denoted by “P”.

1.5 B.Tech. Agricultural Engineering Degree

All students formally and conventionally enroll for B.Tech. Agricultural Engineering degree programme. They have to earn **184** credits for the award of degree as specified in the Curriculum wherein 184 credits shall be referred as Core Courses, Multi-Disciplinary Courses (MDC), Value Added Courses (VAC), Ability Enhancement Courses (AEC), Skill Enhancement courses (SEC), Electives and NPTEL/MOOCs etc. courses specified in the curriculum.

1.6 Composition of an Academic year

An academic year is composed of an Odd semester (20 – 22 weeks), an Even semester (20 – 22 weeks) and a Summer semester (6 – 8 weeks). The regular semester that begins in July / August is known as odd / first semester and the one that begins in December / January is known as even / second semester (Figure 1). The instructional days for a regular semester shall be a minimum of 95 working days exclusive of days earmarked for summative assessment.

YEAR OF 12 MONTHS											
1	2	3	4	5	6	7	8	9	10	11	12
July/ Aug.	Aug./ Sept.	Sept./ Oct.	Oct./ Nov.	Nov./ Dec.	Dec./ Jan.	Jan./ Feb.	Feb./ Mar.	Mar./ Apr.	Apr./ May	May/ June	June/ July
ODD SEM/ FIRST SEM					EVEN SEM/ SECOND SEM					SUMMER SEM	

Figure 1: Distribution of semesters during an Academic Year.

1.6.1 Before the commencement of the semester, a candidate has to pay the stipulated tuition fee and submit an application detailing the courses he / she intended to register, valid for that respective Odd / Even semester. The maximum number of credits per semester will be 25 credits inclusive add-on credits. The intended semester wise coverage will be as presented in the curriculum.

1.6.2 Summer semester is a short duration semester program that will be generally conducted during the semester break between even semester and odd semester. The students having ‘R’ (Repeat grade) courses may register for the course work during this semester to get a chance for successfully completing the ‘R’ courses. In general, supplementary assessments are conducted in the later part of the summer semester. However, the courses offered in summer semester and the number of courses a student can register are subjected to academic and administrative convenience. A student may register up to a max. of 16 credits in a summer semester. A student may either go for Summer Internship or may register for ‘R’ course.

1.6.3 The Summer Semester also serves as a platform for experiential learning. As per the curriculum requirements, students can register for the 10-credit (Internship) during the Sandwich Summer Semester between the first, second and third years. Students may

choose to pursue these internships or register for 'R' courses during the same summer semester period, as per academic regulations.

- 1.6.4** Exception to the routine practice of registering for 'R' courses in summer semester, a student can register in a course offered by a visiting expert during the summer vacation which may be equivalent to an elective. The candidates can register for such courses within the scope of 16 credits. Candidate may also avail summer semester for summer internship opportunities, which may be considered as Add-on credits.

1.7 Semester wise provisions

A student may register for a max of 25 credits per semester as prescribed or otherwise he/she may include the Repeat courses in the event of having not successfully completed a course or courses in the earlier semester. However, a student may also opt to go in a slower pace to earn the credits less than the prescribed max of 25, including even 'Dropping' a semester for special reasons.

It should be clearly underscored that a candidate should on priority register for Repeat (R) credits if any, during a regular semester, within the said scope of 25 credits; in case he / she cannot be sure of completing the 'R' credits in Summer semester.

- 1.7.1** During the first four years from the date of admission to B.Tech., a candidate has to pay the semester / annual fees as prescribed irrespective of the less number of credits / semesters that he / she would register or even opt to Drop a semester.
- 1.7.2** If a candidate gets into spill over semester beyond four years up to a maximum of seven years he / she has to pay semester fee proportional to the credits that he/ she registered in that spill over semester as prescribed from time to time.
- 1.7.3** A candidate has to pay additional fee proportional to the number of credits for registering in a summer semester as prescribed from time to time.

2. CURRICULUM

School of Agriculture & Food Technology offers B.Tech. Agricultural Engineering programme and the department of Agricultural Engineering prescribes semester-wise curriculum encompassing different courses. Every course offered will be designated in a L-T-P-SL structure. The theory courses comprise of L (and / or T & P hours) whereas the practice courses include instructions (T) and practical sessions (P). Amalgamation of theory courses with practical sessions is predominantly seen in this curriculum. The 'SL' represents the expected self-learning hours (to be carried out by each student) in a particular course.

2.1 Distribution of credits

The overall distribution of credits for various categories of courses in the curriculum of B.Tech. Agricultural Engineering programme is represented in Table (1) as given below.

Table 1: Credits Distribution for Various categories of courses

Category of Courses	Number of Credits	Percentage of Credits (%)	ICAR Sixth Deans Committee
Core Courses (CC)	125	67.93	67.93
Multi-Disciplinary Courses (MDC)	10	5.43	5.43
Value Added Courses (VAC)	6	3.26	3.26
Ability Enhancement Courses (AEC)	10	5.43	5.43
Skill Enhancement Courses (SEC)	8	4.34	4.34
Internship/ In-plant Training/ Projects	15	8.15	8.15
Binary graded	4	2.17	2.17
Online Courses	6	3.26	3.26
Total	184	100	100

2.2 Organization of course contents

Courses offered in the program are composed of two modules, covering all the course contents required for a candidate to obtain knowledge and skill. Module-1 is divided into two units, focusing on the ‘Fundamentals and Broad Perspective’ of the course while also introducing basic applications to establish a practical context. In contrast, Module-2 is divided into three units, which encompass the extension and advanced topics of Module-1. Both modules will include a separate list of suggested transactions or practices tailored to its content. These transactions / practices are essential for validating and applying the knowledge gained during Lecture sessions.

Module-1 may be completed within 5 to 6 weeks, while Module-2 may require 9 to 10 weeks. By the end of each module a candidate must be in a position to translate his/ her L-based knowledge into P-based skill as prescribed in the curriculum. Individual formative assessment shall be in place for each module and a single semester-end summative assessment for the course composed of both the modules.

The course contents are mapped with relevant Sustainable Development Goals (SDGs), ensuring alignment with global sustainability objectives. Additionally, where authenticated

information is available, Indian Knowledge System (IKS) topics are incorporated into the curriculum.

Each course must have 4 to 6 course outcomes (COs) mapped to relevant program outcomes (POs), aligning with the revised Bloom's Taxonomy levels 3, 4, 5, and 6 ensuring progressive cognitive development. Furthermore, every course has at least one mandatory textbook and two to three reference books to provide students with credible and in-depth learning resources.

2.3 Prerequisite Knowledge

Wherever prerequisite knowledge is mentioned, a student must register for the required courses covering the specified content before he/she register in a higher-level course. There are two types of prerequisites: for some courses, successful completion of the prerequisite (i.e., earning credits) is mandatory before registration in the higher-level course; for others, completion of formative assessments in the prerequisite course is sufficient, and students become eligible to register for the higher-level course as long as they do not have an 'R-grade' in the prerequisite course.

3. NATIONAL CREDIT FRAMEWORK / CHOICE BASED CREDIT SYSTEM

B.Tech. Agricultural Engineering comprises a set of courses - Core Courses, Electives, Multi-Disciplinary Courses, Value Added Courses, Ability Enhancement Courses, Skill Enhancement Courses, Seminar, Case study, Internship, Project, binary graded and online courses. VFSTR Studies offers flexibility for students to choose courses of their choice and obtain the credits satisfying the minimum credits criterion in each category as given in Table (2).

3.1 Core Courses (CC)`

Core Courses are mandatory for all students enrolled in the program and are designed to provide a solid foundation in the essential domains of engineering and agricultural sciences. They cover the primary technical areas, analytical tools, design principles, resource management aspects, and contextual knowledge necessary to understand and apply agricultural engineering effectively. These courses integrate theory with laboratory and / or field-based practices, enabling students to acquire both conceptual grounding and practical competencies required for advanced study, interdisciplinary integration, and professional success in diverse agricultural and engineering environments.

3.2 Electives

Elective courses are offered in curated pools to provide students exposure to advanced and emerging areas of Agricultural Engineering. These electives are offered in the 8th semester, after students have completed their foundational core courses, ensuring conceptual readiness to engage with specialized topics. The pool of 37 electives spans broad domains including automation, artificial intelligence, machine learning, robotics and data analytics for digital and precision farming; soil, water and irrigation engineering for sustainable resource management; farm machinery and power engineering for mechanization; renewable energy and environmental engineering for sustainable solutions; food and post-harvest engineering for value addition; and agribusiness and entrepreneurship for enterprise development. Though offered only in the final semester, these electives complement core learning and build competencies relevant to modern agricultural practices and industry needs.

3.3 Multi-Disciplinary Courses (MDC)

Multi-Disciplinary Courses (MDC) are offered in the first, second, and fourth semesters to broaden students' learning beyond the core agricultural engineering curriculum. Drawn from areas such as basic sciences, humanities, social sciences, and management, these courses provide early exposure to diverse domains and foster cross-disciplinary thinking. By integrating perspectives from outside their parent discipline at this formative stage, students build a wider academic foundation and develop the ability to approach agricultural challenges in a holistic manner.

3.4 Value Added Courses (VAC)

Value Added Courses (VAC) complement the formal curriculum by providing contextual knowledge and perspectives that extend beyond technical training. They include courses such as Environmental Studies and Disaster Management in the first semester, and Agricultural Informatics and Artificial Intelligence in the second semester. By addressing contemporary issues and emerging technologies alongside ethical and societal concerns, these courses help students develop broader awareness and prepare them to contribute responsibly to both agriculture and society.

3.5 Ability Enhancement Courses (AEC)

Ability Enhancement Courses (AEC) are designed to strengthen essential competencies that support both academic success and professional growth. They include communication skills, computer programming, physical education, first aid, yoga practice, meditation, and

participation in NSS/NCC. Together, these courses build the personal effectiveness, discipline, and social responsibility needed for agricultural engineering professionals. The curriculum also includes a brief orientation through Deeksharambh (Student Induction) along with personality development modules, which encourage adaptability, cultural understanding, and lifelong learning habits, thereby promoting the holistic development of students.

3.6 Skill Enhancement Courses (SEC)

Skill Enhancement Courses are intended to equip students with practical, industry-relevant skills that strengthen their employability and entrepreneurial capabilities. Covering areas such as repair and maintenance of equipment's and systems, these courses emphasize application-oriented learning. Delivered largely through practical components, SECs ensure that students graduate with hands-on proficiency and readiness for real-world agricultural engineering challenges.

3.7 Seminar

Seminar is included to enable students to enhance their knowledge and understanding of a specific topic, and to develop confidence and competence in identifying, analyzing, and comparing technical and practical issues related to their area of specialization. It also aims to improve their ability to present the acquired knowledge effectively before a group of people.

3.8 Case Study

This course aims to help students develop an in-depth and multi-faceted understanding of a specific professional case or situation in a real-life context. Students will be assigned to visit a nearby area or organization to study and analyze a particular case. The case study may be either problem-solving, focusing on identifying issues and recommending solutions based on analysis and theory, or descriptive, aimed at understanding situations by exploring what happened and why. Through this exercise, students will gain practical insights that can guide better decision-making in similar future scenarios.

3.9 In-plant Training / Research Internship

In the eighth semester, students undertake an In-plant Training or Research Internship carrying 8 credits. This component is aligned with the Student READY framework of the ICAR 6th Deans' Committee and is intended to provide extended exposure to agro-industrial settings, research institutions, or field-based organizations. The internship trains students to understand and solve real-life problems through the application of engineering analysis, design, evaluation, and innovation, working in association with practitioners and

experts. Each student is expected to carry out a focused study on a specific problem or topic in consultation with the hosting organization and faculty mentor. Progress reports are submitted periodically, and a final internship report is prepared and certified by the industry/research mentor. Performance in the internship will also be assessed in the modular framework for formative and semester-end summative.

3.10 Project

Students undertake project work in both the seventh and eighth semesters, with a combined weightage of 7 credits. Project–I (3 credits, Semester VII) introduces students to problem identification, literature review, and project planning. Project–II (4 credits, Semester VIII) advances this process, emphasizing implementation, experimentation, modeling, or research-based approaches under faculty supervision. These projects enable students to demonstrate competencies in analysis, design, execution, and presentation while addressing practical challenges in agricultural engineering. Performance in the project will also be assessed in the modular framework for formative and semester-end summative.

3.11 Binary Graded courses

3.11.1 Deeksharambh (Induction-cum-foundation course)

A course entitled “Deeksharambh” (0+2) (Non-gradual) will be offered at the start of first semester for a duration of two weeks. This will create a platform for students to learn from each other’s life experiences, help for cultural Integration of students from different backgrounds, know about the operational framework of academic process in university, instilling life and social skills, social awareness, ethics and values, team work, leadership, creativity, etc. It will also help in identifying the traditional values and indigenous cultures along with diverse potentialities both in indigenous and developed scenario. There will be sessions by alumni, business leaders, outstanding achievers in related fields, people with inspiring life experiences as well as the University academic and research managers.

3.11.2 Educational Tour

Educational Tour is included as a part of the curriculum to provide students the joy of discovery and opportunity to learn new things through travel. Education tours are a great way for students and educators to absorb, interact and to grasp theory practically.

3.12 Online courses / MOOC

Credits for online courses are earned primarily through BoS-approved MOOCs on the SWAYAM platform, ensuring flexibility and access to diverse learning resources. This promotes self-learning and exposes students to emerging knowledge domains beyond the conventional curriculum. To support students, VFSTR has constituted a central “Online

Course Committee” with departmental representatives to guide course selection and assist in the completion process. Through this framework, students are encouraged to adopt innovative learning approaches and supplement their classroom learning with nationally recognized online courses.

4. ATTENDANCE

It is mandatory for the student to attend the course work in each semester as per the academic schedule of that semester. VFSTR expects 100% attendance. However, the attendance in each course shall not be less than 75 % of the aggregate of all L, T, P sessions conducted in that course.

- a) The attendance calculations will be periodically reviewed at the end of every 4 weeks. The details of attendance status will be shared with the parents / guardian. The final status of attendance will be reported at end of 15th week granting the advantage of the attendance for the 16th week for the purpose of attendance shortage calculations.
- b) The shortage of attendance may be condoned up to 10% on the ground of ill-health, social obligations, participating / representing in sports/cultural events, placement activities etc.
- c) Documentary evidence like medical reports and certificates issued by concerned bodies is to be produced on time as support for the attendance shortage due to ill-health. These cases are subjected to the scrutiny of a committee constituted for this purpose by the Vice-Chancellor. The decision of the committee shall be final.
- d) Prior approval has to be taken from the HoDs for the other types of leaves.
- e) The courses where the student shortage of attendance was not condoned shall be considered as ‘Repeat’ category courses and will be under ‘R’ grade in the student’s semester transcript. Student should re-register for these courses during the summer semester or whenever the course is offered next time during regular semesters. These re-registrations are subjected to the regulations at the time of re-registration. In case of core courses, the same core has got to be re-registered. However, in case of an elective a candidate may exercise a choice of choosing different elective in place of ‘R’ graded elective.

The students who are put into ‘R’ grade will not be allowed to take up the L-based summative assessment in that semester. In case due to lack and/or delay in information, if he/she appears for the summative assessment in that course, office of AAA is empowered

to cancel the attended assessments. The scores obtained either in formative or summative assessment will not be considered for grading.

5. ASSESSMENT

Teaching-Learning and Assessment should go hand in hand and complement each other. Continuous assessment plays a vital role to enable the student to get synchronized with the teaching-learning process. Assessment mechanism adopted in the institute is aimed at testing the learning outcomes in tune with the outcome based model of education. The focus, is thus on assessing whether the outcomes are realized by the end of the course.

The performance of a student in each course is assessed on a continuous basis during the semester through various in-semester and end-semester assessment models. The marks awarded through continuous assessment are referred to as Formative assessment marks. The marks awarded through end-semester tests are referred to as Summative assessment marks (Figure 3). Both the formative and summative assessment marks are considered for awarding the final marks and the grade point in a particular course.

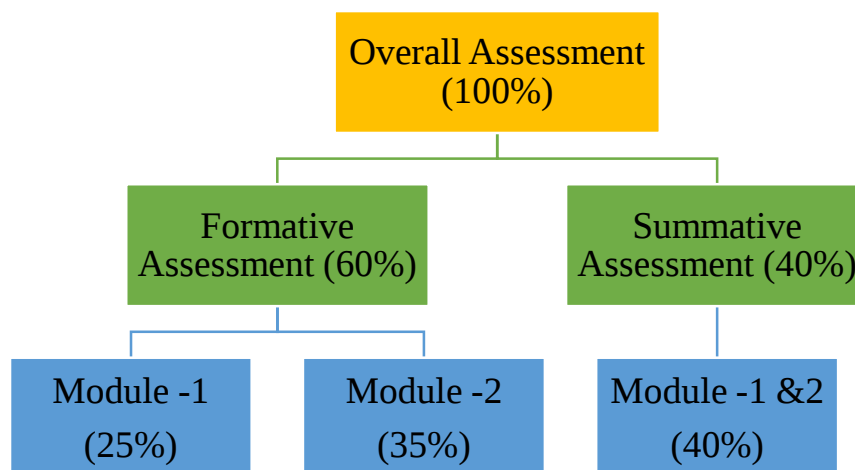


Figure 3: Categories of assessments in place for R25.

5.1 Marks distribution

For each course, the maximum sum of formative and summative assessment marks put together is 100, in the ratio of 60:40, respectively. Furthermore, the 40 marks allocated for the summative assessment maybe divided between P-based and L-based assessments in a ratio as recommended by the faculty and approved by Dean AAA.

5.2 Qualifying criteria

To be declared successful in a course, a student must secure at least a grade 5.0 in a scale of 10 based on the total maximum marks which is inclusive of formative and summative

assessment. The students should also get 50% from the maximum marks allotted for formative assessment and 40% from the maximum marks allotted for summative assessment.

The hierarchy of qualifying criteria is as follows:

- i. Attendance compliance should be 75% or within condonable range; else the candidate is put into 'R' grade.
- ii. In formative assessment, a candidate should secure a minimum of 50% *i.e.* 30 marks out of 60; else the candidate is put into 'R' grade.
- iii. In summative assessment, a candidate should secure a minimum of 40% *i.e.* 16 marks out of 40; else the candidate is put into 'I' (Incomplete) grade.
- iv. Collectively the candidate should secure a min. grade of 5.0 in a scale of 10 after relative grading (section 7); else the candidate has to choose either 'R' or 'I' grade duly being counselled.

The candidates with 'R' grade should re-register for 'R' courses either in Summer semester or in a regular semester as and when the courses are offered. The candidates in 'I' grade are allowed to appear for supplementary summative assessment whenever the semester-end assessments are conducted.

To assess Binary graded courses / special projects / courses, not fitting into the categories described here, a suitable assessment procedure will be evolved in consultation with experts of that area and adjudicated by the committee constituted for that purpose. The decision given by the committee will be final. The appended assessment scheme shall be announced by the course coordinator during the commencement of course.

5.3 L-based courses integrated with P/T

5.3.1 Formative Assessment

The scheme of formative assessment is designed to promote the continuous learning. Scheme consists of assessments planned at institute level and assessment that may be scheduled by the course instructor. Institute level assessments shall be scheduled by the office of AAA. Respective Faculty Member(s) shall declare the schedule of Continuous Laboratory Assessments (CLA), Quiz, Tutorials, Assignments, Seminars, Discussions, etc. Some of the components may also however take place in an unscheduled manner like Surprise Tests. However, students shall be made aware of the assessment modalities that are going to be followed in a course by the faculty, under information to the HoD.

To monitor the progress of students, continuous assessment comprising of six targets (Pre-T1, T1, T2, T3, T4 and T5) is advocated for a maximum of 60 marks. Students in each section are randomly grouped into batches comprising of 3 to 4 members. These batches remain same for all courses and also for the P-sessions in the courses in that semester and are created in the beginning of that semester. The suggestive modality of evaluation of five targets is listed here under:

- a) **Pre-T1** shall be conducted once in module-1 and twice in module-2 by course instructor as classroom test / assignments. Assignments may cover pre-announced modular bank problems or broad concepts covered during the L-sessions, with a weightage of 10 marks.
- b) **Module -1-T1:** As outlined in Section 2.2, Module-1 is conducted over a shorter duration, emphasizing the fundamentals and broad perspectives of the course. In tune with this, the assessment could be based on Revised Bloom's Taxonomy Levels 1, 2, and 3, with an emphasis on remembering (recalling), understanding, and applying. To assess these skills, Module-1 T1 will be a paper-based, proctored test conducted for 90 minutes and graded for 30 marks. The question paper will consist of two 5-mark questions and two 10-mark questions. There will be no module bank for this module. The test will be held between the 34th and 36th days after commencement of the course, typically around the 6th week.
- c) **Module -2-T1:** T1 for module-2 commences by the announcement of module bank containing 10 problems covering the course contents of the module. Nature of problems in the module bank shall be at the level of creative / exploratory / design / thought provoking covering the complete syllabus of a module at somewhat advanced / challenging level. The purpose of creating module bank of 10 problems is to assign one problem each to 2 batches of 3 - 4 members. The purpose of assigning one problem to two batches is to create a healthy competitive spirit between the two batches. During 7th week of module-2, T1 consisting of two parts: A and B shall be conducted.

Part A consists of one random problem from the module bank and vary from batch to batch. All the questions in the module bank shall be distributed among students and students shall know the question to be answered only on the day of test in the examination hall.

Part B consists of one common problem at fairly application/ advanced level (**not at all prior notified**) from outside the module bank for all the students.

T1 shall be paper based and proctored test for a period of 90 min (maximum) which shall be assessed for 20 marks.

For the students who for justifiable reasons could not attend the classroom test on the scheduled day, a re-test may be conducted. However, Part-B will contain a new question and Part-B will have higher weightage than part-A or full weightage could even be allotted for Part-B in such an event.

- d) **T2:** Immediately follows Module -2-T1. Students in a specified batch who now have received the same question during T1 will work further on that problem for T2.

T2 is primarily an extension of problem received in T1 for carrying out validation study: Case studies / Simulations / Experimentation. Each batch shall interact with the course instructor to finalize the nature of validation and expected to complete the exercise within 10 to 12 days after T1.

Course instructor should ensure assigning a different case study / a different scope for validation study for each batch in case the same problem is assigned to two batches.

Course instructor shall assess every student in a batch for a max. of 10 marks based on his observation, interaction and/or reviewing (based on at least two reviews).

- e) **T3:** T3 shall be conducted during the last week of each module. Student batches are expected to submit a report, clearly documenting the work executed during T2. The report should be in IEEE / APA format and additionally a voice in-built PPT should be prepared and submitted.

The report and presentation shall be assessed by the course instructor for 10 marks for every student. In certain cases, a course instructor can call for a physical presentation also by a batch.

- f) **T4:** T4 is a comprehensive test covering contents of both the modules conducted for 30 min. comprising of 40 multiple choice questions (MCQs) covering the holistic content of both the modules. T4 shall be evaluated for a max. of 20 marks @ ½ mark for each question. T4 will be conducted in ON-LINE mode.

When the test is administered online, every student receives the questions in shuffled sequence and also the choices in shuffled sequence. Therefore, the choice like both 'a' & 'b' above. Neither 'a' nor 'b', all the three a, b, c will not be set.

- g) **T5:** T5 assessment is based on Practice or Tutorial assignments. Implementation, Report presentation and Discussion shall happen in a continuous mode throughout the module period. At least 4 such continuous lab practice assessments (CLPA) /

assignments per module shall be conducted by course instructor. The marks will be @ 5 marks per assignment.

- h) The scores of the targets are to be normally announced within three working days on completion of the assessment and the performance is to be discussed in the class.
- i) **The total marks for module-1 is 50 – Pre-T1 (10), T1 (30) and T5 (10)**
- j) **The total marks for module-2 is 70 - Pre-T1 (10), T1 (20), T2 (5), T3 (5), T4 (10) and T5 (20).**
- k) The total marks from formative assessments for both modules will be added up to 120. These absolute scores will first be scaled down to a max. of 60 marks. The lead instructor, in consultation with the HoD, will review the scaled-down marks and determine a suitable mapping. The finalized mapping approach must be shared with Dean AAA for documentation.
- l) The marks scored in Module-1 should be entered / submitted latest by 7th week and of Module-2 latest by 16th week of the semester. The consolidated score (max. of 120), after scaling down and suitable mapping to a maximum of 60 marks, must be submitted by the 18th week to facilitate the declaration of the formative ‘R’-grade before the commencement of the L-based summative assessment.
- m) A candidate placed under ‘R’ will not be permitted to take up the L-based summative assessment.

5.3.2 Summative Assessment

Summative assessment activities including timetables, question paper model, duration of the examinations will be informed to the students well before the commencement of the examinations in the form of circulars from Dean-AAA’s office.

- a. Unless specified otherwise one of the following formats may be used for summative assessment for L-based courses integrated with T/P.
 - i. 15 (P) + 25 (L) marks format (L+P or L+T+P courses).
 - ii. 20 (P) + 20 (L) marks format
 - iii. 40 marks format (L+T courses).
- b. **If summative assessment is in two parts format:**
 - i. Part-I will be the assessment of the capstone project, which is pre-assigned during the module-2 period, or will be the exploratory review assessment of all lab practice assignments. This summative assessment activity may be

completed during the 15th week after the start of the semester, at the end of the formative assessment.

- ii. Part-II will be based on a written examination for a max. marks of 60, as in c & d below, which is **scaled down** to 25.
- iii. A candidate should attend both the parts of summative assessments; else he will be put into I grade.
- c. For each L-based course integrated with T/P, the summative assessment shall be conducted by the Institute for a duration of 150 min. and for a maximum of 60 marks. Contents for summative assessment shall cover the breadth and depth of the complete syllabus that is mentioned in the two modules of a course.
- d. The question paper for end-semester theory examination consists of two parts as given in Table (2).

Table 2: L-based Summative Assessment Question Paper Pattern.

Part No.	No. of Questions	Marks for each Question	Marks	Choice
A	4	8	32	No
B	2	14	28	No
Total Marks			60	

- e. The questions will be comprehensive covering the entire course syllabus and any single question should not necessarily be limited to any particular unit / module.
- f. These marks are suitably mapped down to a score of 40.
- g. Total marks of summative assessment will be for a max. of 40 irrespective of format of evaluation.
- h. The award of 'I' grade is solely based on marks scored in summative assessment out of 40, if he/she does not score a min. 16 out of 40 (40%).

5.4 P-based Courses

The detailed information regarding activity formats, batch formations, practice schedules, and related instructions will be displayed or communicated to students in the first week of the semester, enabling them to be well-prepared for the practice sessions. Copies of the activity manual will be made available to students along with the schedule. The manual will include guidelines for each activity, step-by-step procedures for conducting exercises or simulations, formats for report preparation, expected learning outcomes for each activity,

and a set of short questions designed to promote critical understanding and application of concepts.

5.4.1 Formative Assessment

During practice sessions, a brief viva-voce is conducted for each student on the activity he/she is carrying out on that day. Some of the parameters that could be included in the Continuous Lab Practice Assessment (CLPA) are given in Table (3). The set of parameters may slightly differ from one course to the other, and will be announced before the commencement of the practice session. These parameters are assessed for each laboratory session.

Table 3: Suggested parameters for Lab Practice Assessment (CLPA)

S. No	Component	Marks
1	Report of about 1 page on proposed activity/project layout and relevant background before the start of the session	4
2	Viva and interaction to evaluate understanding of concepts	4
3	Execution of the activity including data or information collection	4
4	Analysis of collected data/information and interpretation of findings	4
5	Finalized report submitted in the next week	4
Total		20

Each practice session is assessed for a total of 20 marks. The cumulative scores from all sessions will be **suitably mapped down** to a max. of 60 marks, with Module-1 contributing 25 marks and Module-2 contributing 35 marks toward the consolidated formative assessment.

5.4.2 Summative Assessment

End semester examination for each practical course is conducted jointly by two examiners. The end-semester assessment for each practical course is conducted jointly by two examiners. The panel of examiners is constituted by the respective School Dean. The internal examiner is the faculty member who has conducted all practical sessions and associated activities throughout the semester. The external examiner is nominated from within the department and is familiar with the course's practical components but has not been directly involved in its delivery. The scheme of assessment may vary depending on

the nature of the course, which shall be shared with student by the course faculty. The summative assessment will be conducted for a max. marks of 40. The general scheme of assessment is given in Table (4).

Table 4: Suggested end-semester summative assessment pattern for P-based courses.

Component	Marks		
	Examiner 1	Examiner 2	Total
Activity write-up, including objectives, methodology, and expected outcomes	4	4	08
Execution of activity and data collection	4	4	08
Processing and organization of collected data	4	4	08
Analysis of results and Interpretation	4	4	08
Viva Voce	0	8	08
Total Marks	16	24	40

5.5 Assessment and Grading of MOOCs based elective

Whenever a candidate opts for a course through MOOCS offered via Swayam platform, he / she has to learn and undergo assessment as per norms set by VFSTR for such MOOCs Courses. Upon the declaration of the result, that the candidate has successfully completed the course, the candidate is said to have earned the credits under credit equivalence and credit transfer.

5.6 Project

Students have to carry out their project work and submit the report which is a mandatory requirement for the award of degree. These projects are usually done in batches during the VII and VIII semester, under the guidance of a faculty member. Every batch, in consultation with the guide, should define the project and also the probable procedure of carrying it out and submit the same to a committee consisting of 2 to 3 faculty members appointed by Head of the Department. This is to avoid the repetition and also to come up with a roadmap for completion of the project within the time stipulated. The students are encouraged to select topics related to ongoing research, consultancy projects or field-level challenges in agricultural engineering. The students are expected to carry out and present a survey of literature on the topic, work out a project plan and its implementation through experimental studies, prototype design, process development, or field-based investigations. They are also expected to exhibit system analysis, design, and presentation and evaluation skills.

5.6.1 Formative Assessment

The progress of project is reviewed twice in a module by the Project Review Committee (PRC) and formative assessment marks are awarded based on these reviews. The Project review committee consists of

- a) Head of Department or his/her nominee – Chairperson
- b) A senior faculty member identified by the HoD – member
- c) Project supervisor – member

Review schedules of PRC are to be announced by the department immediately after the commencement of class work. The review presentations are open to all the students of that section and attendance is compulsory. The first review should be of 15 minutes / batch; the remaining reviews should be around 30 minutes / batch. Before every review the batches should submit their PPT along with a brief report of not exceeding two pages. It is to be expected by the committee that student communicates/publishes research article based on the project work prior to graduation. The following aspects may be considered by the committee for assessment Table (5).

Table 5: Schedule and suggested parameters to be considered for formative assessment.

Module	Schedule	Review	Points to be considered	Max. Marks
Module -1	4 th week	First review	• Identification of specific area out of broad areas. • Identification of outcomes in line with programme objectives • Feasibility of contributing to the attainment of outcomes • Awareness on components mentioned in Project Experience Information sheet	20
Module - 2	12 th week	Second review	• Acquisition / learning of the tool required • Readiness of the layout of the project report • Progress review as per mechanism/ schedule identified • Individual student contribution in above activities	20
	16 th week	Third review	• Presentation of results and conclusions • Meeting of objectives defined in first review • Submission of draft report • Understanding by individual students on the overall project • Individual student contribution • Progress of project as per schedule	20

5.6.2 Summative Assessment

Summative assessment will be done jointly by two examiners (both from VFSTR) wherein one as internal examiner and the other as external examiner. These examiners will be appointed by School Dean from the panel of examiners suggested by the respective Head of the Department. The scheme of assessment will be report (15 marks), presentation (10 marks) and demonstration (15 marks) respectively. Points to be considered during the review.

- a. Presentation of results, analyses and conclusions
- b. Meeting of objectives defined in first review
- c. Preparation of report
- d. Understanding by individual students on the overall project
- e. Individual student contribution

5.7 In-Plant Training / Research Internship

In-Plant Training/ Internship work is undertaken in the VIII semester by a student in an industry research institute, or agriculture-related organization under the joint supervision of industry personnel and an internal faculty member. Sixty percentage of the marks of Internship are allotted through continuous evaluation as formative assessment and the remaining 40% are based on end semester assessment.

Table 6: Assessment scheme for Internship reviews.

Module	Review	Schedule	Formative assessment marks
Module -1	First review	4 th week	20
Module – 2	Second review	12 th week	20
	Third review	16 th week	20
Total			60

- a) The progress of internship work is reviewed twice in every module by the “Internship Review Committee” and marks for formative assessment are awarded based on these reviews.
- b) The Internship Review Committee (IRC) consists of Head of Department or his/her nominee (Chairperson), the internal and external (industry) supervisors.
- c) The IRC may not be the same for all students; however, the same IRC should exist for entire duration of the internship program of any single student.

- d) The schedule and the scheme of evaluation are to be announced with internship notification. The internship reviews may take place at the place of internship or at the university, as decided by the interning organization or may be conducted in the blended mode.

5.7.1 Formative assessment: Internal reviews at the place of internship

The internal supervisor will interact with the guide allotted at internship offering industry based on the schedule given to conduct the reviews. Scheduled reviews can be conducted by IRC on online mode for discussion/ presentation. The 20 marks obtained by students for each review will be scaled to allotted marks as given in Table (7).

- a) Students should submit a report (not more than two pages) explaining about the progress of their work, mentioning clearly details like the machines or software handled / adopted, type of data collected and his/her understanding and contribution in the programme, and the same has to be presented before the supervisors.
- b) The candidate should clearly present the completion of stipulated assignments set by the industry supervisor for that period.
- c) The evaluation will be based on a & b above and also based on regularity and discipline maintained in the internship venue.

Table 7: Suggested scheme of assessment for every review

Component	Total
Regularity and interaction	5
Application of knowledge	3
Gaining of new knowledge /skills / literature survey	5
Internship progress	4
Report	3
Total marks	20

5.7.2 Summative assessment – Internship

At the end of the semester, the student shall submit a comprehensive report of internship covering the work done and make a final presentation in two phases as follows:

Phase-I (during 18th - 19th week): A committee of two members comprising of internal supervisor and HoD's nominee will assess the overall internship participation by the candidate and his final report through presentation made by the intern. The internship report (6 marks), presentation (7 marks) and overall impression (7 marks) during the internship will be evaluated respectively.

Phase–II (during 20th week): A final presentation and defense assessment for a max. of 20 marks will be carried out by one-man committee composed of an external expert who is chosen by the Dean AAA from a panel of examiners suggested by the HoD. The format for evaluation will involve going through the project report's quality (6 marks), presentation (6 marks) and interaction and defense (8 marks).

The qualifying marks will be finalized considering the marks scored in both the phases (I & II) of summative assessment.

In case the candidate is placed in 'I' grade, he / she has to appear for both Phase-I and Phase-II assessments, which will be held within the 15 days after declaration of results. In the consecutive assessment also if the candidate fails to secure min. required score then he/she will be placed in 'R' grade.

5.8 Binary graded courses

Binary graded courses aim to simplify the grading process and encourage students to focus on learning and achieving the mastery rather than the pursuit of specific grades. Unlike traditional grading systems, binary graded courses such as Deeksharambh, Physical Education, First Aid, Yoga Practice and meditation, NSS, NCC offer only two possible outcomes i.e., Pass grade / R-grade. To obtain Pass grade, a candidate should maintain 75% of attendance and secure a minimum of 50% score (i.e. 50 marks out of 100) in each course; else the candidate shall be placed into 'R'-grade. There shall not be any summative assessment activity for Binary graded courses.

5.8.1 Formative assessment

The assessment will be carried in a systematic way wherein two reviews per module shall be conducted as mentioned in the Table (8).

Table 8: Schedule for formative assessment

Module	Activity	Formative assessment marks
Module -1	Activity - 1	20
	Activity - 2	20
Module -2	Activity - 1	30
	Activity - 2	30

6. SEMESTER-END ASSESSMENT ACTIVITIES

6.1 Setting of semester-end summative assessment question papers will be coordinated by the lead instructor assigned for a particular course. Two sets of question papers will be submitted latest by 12th week of the semester.

6.2 There shall be ‘Summative Assessment Question Paper Scrutiny Committee’ which would be constituted with external experts. Experts are empowered to modify / rephrase the questions to maintain a high standard of the semester-end assessment. The review should be completed by the 14th week of the semester. The review process will be coordinated by a committee of School Dean, HoDs and external experts.

6.3 The question wise marks scored in the summative assessment out of a total of 60 will be made available online within two weeks from the last date of examination and would be kept active for 24 hours. Latest by the end of 48 hours from the instant of notification any candidate can submit an appeal online providing question wise claim.

6.4 Claims for re-assessment on P-based courses are not allowed.

6.5 The appeals will be attended within next three working days. Fees for appeal, as decided from time to time, has to be remitted online along with the appeal.

6.6 Final results and grades will be computed as explained in the next section.

6.7 Final results and grades shall be announced within four weeks of completion of the last examination of the summative assessment (within two weeks from the last date of appeal). Grades are published on the University website, and also informed to the parents and students through SMS.

6.8 Provisional Grade cards will be issued within two weeks after the announcement of grades. Grade card will contain three parts. Part 1: Details of successfully completed courses. Part 2: Details of ‘I’ grade courses. Part 3: Details of ‘R’ grade courses.

7. GRADING POLICY

To ensure fair and context-sensitive assessment of student performance, a **Bilateral Relative Grading System** shall be adopted for all credit-based courses. This system permits the possibility of upward scaling, downward scaling, or retention of absolute scores, based on a holistic analysis of marks distribution, course complexity, assessment design, and class performance. The decision regarding the direction and extent of scaling shall be made by a committee duly appointed by the Honorable Vice-Chancellor. The grading for each course shall be finalized by the committee, ensuring that the influence of outlier scored is minimized while accurately representing the performance of the major

cohort. This method supports equitable grade interpretation across diverse course deliveries and upholds the integrity of the assessment process.

8. COMPUTATION OF GRADING

8.1 Formative assessment decides the list of 'R'- candidates. Therefore, these candidates will not be considered for grading computation. Summative assessments decide the list of 'I' candidates. Therefore, these candidates will not be considered for grading computation.

8.2 The candidates who have successfully completed both formative and summative assessments will be considered for computation of relative grading.

8.3 Threshold value (**Th**) for relative grading in each course is arrived after studying the marks distribution in that course by a committee constituted by office of Dean AAA. The threshold value is decided by the upper bound marks of the major chunk of the class keeping the top outlier scores away from consideration (the least upper bound). The threshold value will be slightly greater than upper bound marks or may be equal to the upper bound marks.

8.4 The total marks (**m**) = marks scored in the formative assessment + marks scored in the summative assessment is transformed into relative grade expressed accurate to two decimal places as follows:

$$\text{Relative grade point (P)} = (m/Th) \times 10 \text{ [and limited to 10]}$$

8.5 If students require course wise percentage equivalence, then the calculation will be based on the following

$$\text{Course wise percentage equivalence} = (m/Th) \times 100$$

[truncated to two-digit integer and limited to 100]

8.6 After relative grading, a student is assigned a 'Letter Grade (G)' for each course as per Table (9). The grade and the corresponding letter grade represent the outcomes and assessments of a student's performance in a course.

Table 9: Grading information

Relative Grading Range (P)	Category	Grade (G)
≥ 9.50	Outstanding	O
≥ 9.00 to 9.49	Excellent	S
≥ 8.00 to 8.99	Very good	A+

≥ 7.00 to 7.99	Good	A
≥ 6.00 to 6.99	Fair	B
≥ 5.00 to 5.99	Marginal	C
Transitional Grade	Repeat	R
Transitional Grade	Incomplete	I

9. SUPPLEMENTARY EXAMINATIONS

- 9.1 The supplementary examinations shall be conducted once in summer semester. Notifications will be released by the examination section informing the students about registration procedures, details of fee and timetables. Apart from these examinations the students who have courses with 'I'-grade can also write the supplementary examinations along with regular semester-end examinations of that academic (Odd / Even) semester.
- 9.2 Whenever a candidate clears courses with 'I' grade in a supplementary examination that are conducted during a regular semester, the Threshold value for computing his / her grade will be obtained from the same batch in which he / she had completed his/her formative assessment.
- 9.3 Whenever a candidate clears courses with 'R' / 'I' grade in a summer semester, the Threshold value for computing his / her grade will be carry forwarded from the preceding Odd / Even semester for the respective courses.
- 9.4 Whenever a candidate clears courses with a 'R' grade in a regular semester along with his/ her junior batch then for this candidate the Threshold value will be corresponding to his/her junior batch for computing grade.
- 9.5 The results of summative assessment of Project / Internship will be announced only if the candidate successfully earns all the credits in courses registered during the program. If the candidate is with 'R' / 'I' graded courses the results will be kept under '**Announced Later (L)**' status and will be announced only after candidate clears these courses.

10. GRADE POINT AVERAGE

The Academic Performance of a student in every semester is indicated by the Semester Grade Point Average (SGPA) and finally by Cumulative Grade Point Average (CGPA).

10.1 SGPA

The Semester Grade Point Average (SGPA) shall be computed using the formula given below:

$$SGPA = \frac{\sum_{i=1}^n C_i P_i}{\sum_{i=1}^n C_i}$$

Where

n = number of courses a student successfully completed in the semester under consideration

P_i = Grade points secured for the ith course registered in the semester under consideration.

C_i = the number of credits assigned to ith course registered in the semester under consideration

10.2 CGPA

The Cumulative Grade Point Average (CGPA) shall be computed after successful completion of the programme. The CGPA shall be expressed in different flavours to reflect B.Tech of 184 credits.

Accordingly, the computations will be as below:

$$CGPA = \frac{\sum_{j=1}^m C_j P_j}{\sum_{j=1}^m C_j}$$

Where

m = total number of courses prescribed for the completion of the programme

P_j = grade points secured for the jth course.

C_j = the number of credits assigned to jth course

11. AWARD OF CLASS

The students who have become eligible for award of degree shall be classified based on their CGPA secured, as per the Table (10) given below:

Table 10: Class/ Division information.

Sl. No.	CGPA	Class / Division
1	8.0 and above	First Class with Distinction
2	6.5 and above but less than 8.0	First Class
3	6.0 and above but less than 6.5	Second Class
4	5.0 and above but less than 6.0	Pass class
5	Less than 5.0	No class

- a) For the purpose of rewarding the accomplishes with ranks and awards, toppers in each branch discipline are identified, based on their academic performance (CGPA).
- b) In addition, the 'Chairman's gold medal' and other 'Endowment Awards' are awarded to the 'outstanding students' based on the overall performance which includes academic, co-curricular and extra-curricular activities, campus placements and competitive examinations. A committee appointed by the Vice-Chancellor will recommend the eligible student for the award, selected from the nominations received from the departments.
- c) In addition, the institution may recognize exceptional performance such as music, dance, sports etc. and display of exceptional bravery from time to time.
- d) Only such candidates who complete 184 credits in the first 8 successive semesters shall be eligible to receive awards/ ranks.
- e) The candidates availing spill over semesters will not be eligible for the award of merit scholarships.

12. AWARD OF DEGREE

On successful completion of prescribed requirements of the programme, the degree shall be conferred during the convocation of the VFSTR.

For the conferment of degree, the student has to fulfill the following requirements:

- a) a bonafide student and undergone the course work of not less than four academic years and not more than seven academic years from the date of joining.
- b) successfully completed all the courses as prescribed in the respective curriculum.
- c) acquired a minimum eligible credits i.e. 184 credits for the award of B.Tech. degree.
- d) obtained no due certificates as prescribed by VFSTR.
- e) no in-disciplinary proceedings pending against him / her.

Consequent upon being convinced, following an enquiry, the Academic council may resolve to withdraw the degree / diploma / any other certification provided by the institute. The aggrieved may however prefer for a review of such decision by the Academic Council, citing cogent reasons for review or go in for an appeal to the, Executive council of the institute.

13 LATERAL ENTRY AND LATERAL EXIT OPTIONS

13.1 Lateral Entry into II year of B.Tech.

The students who have completed their diploma programme in recognized institutes can be admitted into the third semester of the undergraduate programme. The committee constituted by Vice-Chancellor, will establish the eligibility of admission into different branches offered by VFSTR. The committee may recommend additional courses to be studied by the candidate, which students will complete during their first year of study at VFSTR however subject to a maximum of 25 credits per semester. To earn B.Tech. degree the student has to earn the same number of credits specified for regular B.Tech. in their 2nd, 3rd and 4th year of study.

13.2 Lateral Entry and Honorable exit with suitable Certification or Diploma

In line with NEP-2020, the B.Tech Agricultural Engineering program provides multiple entry and exit opportunities for candidates at defined stages of their academic journey. A candidate who has earned the specified credits after the first year (with 10 weeks of internship) will be awarded an **Undergraduate Certificate in Agricultural Engineering**. Similarly, a candidate who chooses to exit after the second year (with 10 weeks of internship) will be awarded an **Undergraduate Diploma in Agricultural Engineering**. All candidates exiting under these provisions will be issued semester-wise transcripts and a consolidated transcript. A candidate who has exited may seek re-entry to complete the B.Tech. degree by surrendering the Undergraduate Diploma in Agricultural Engineering or Undergraduate Certificate in Agricultural Engineering previously awarded. The lateral entry at 3rd semester will be for the candidates having UG-certificate in Agriculture or those who have completed Diploma (3 years course after 10th) in recognised HAEIs. The lateral entry in 5th semester will be for candidates who have completed UG-Diploma in Agriculture. Such re-entry requests will be scrutinized by a committee constituted by the Vice-Chancellor, which will recommend a suitable plan of action. The maximum duration to complete the B.Tech. program shall be limited to the prescribed period for the degree, and any extension beyond this limit will require the approval of the Academic Council, if the candidate submits an appeal for such an extension.

13.3 Inter- Institutional Credit Transfer

Students pursuing an undergraduate programme in other recognized Higher Education Institute (HEI) could be admitted into VFSTR without appearing for the entrance exam to continue their studies, subject to the approval by a committee constituted by Vice-

Chancellor. In this case, the student shall furnish the transcripts or grade cards, syllabus copies, educational certificates, and other relevant documents while applying for admission. The committee constituted by Vice-Chancellor, will establish the equivalency based on the marks / credits obtained in the courses in the previous institute by following the Inter-Institutional Credit Transfer policy.

13.4 Volunteer ‘Drop’ with Sabbatical Semester option

A candidate may exercise his option to voluntarily exit from B.Tech. Agricultural Engineering programme temporarily for a semester during the programme, by registering for a ‘DROP option’ in the beginning of the semester. The DROP can be exercised to take up special Internship / Innovation / Exploratory / Entrepreneurship / Advanced research / Start-up and such related activities. Under such circumstances a candidate can normally avail DROP over two successive semesters. Such ‘Drop’ semester will be identified as Sabbatical semesters.

Such a candidate has to pay the regular semester fee if such a Drop option is utilized during the first 8 semesters of B.Tech. and has to pay a nominal semester maintenance fee during the spill over period, if a candidate has not yet completed the credit requirements.

Upon returning from such a temporary exit, a candidate may continue his B.Tech. studies utilizing the provision of spill over period. A candidate may also submit a claim for Credit equivalence for the activities undertaken during the sabbatical period. The equivalence committee would evaluate and assess the academic equivalence of the work carried out and would recommend the credit equivalence and credit transfer to be granted together with the grades that could be attributed, if applicable. However, the max. duration of programme should be limited to seven years and further extension beyond the stipulated max. duration of study has to be approved by Academic Council, if the candidate appeals for an extension.

13.5 Volunteer ‘Drop’ with Semester Drop option

A candidate may exercise his option to voluntarily exit from B.Tech. programme temporarily for a semester during the B.Tech. programme, by registering for a ‘DROP option’ in the beginning of the semester to meet the family / personal exigencies. All the norms as mentioned in the section (13.4) shall be applicable for the candidates utilizing semester drop option.

14. INTERPRETATION OF RULES

- a) The academic rules and regulations should be read as a whole for the purpose of any interpretation.

- b) For the matter(s) NOT covered herein above or for unforeseen circumstances, but arising during the course of the implementation of the above regulations. The Vice-Chancellor shall be authorized to remove the difficulties and decide upon the matters. The same shall be reported in the next meeting of Academic Council for ratification and subsequently informed to Executive Council.
- c) The Institution may change or amend the academic rules and regulations or curriculum at any time, and the changes or amendments made shall be applicable to all the students with effect from the dates, notified by the Institution.
- d) Procedure and explanation to any section can be floated by the office of Dean AAA as applicable from time to time with due approval by the Chairman of Academic Council.

COURSE STRUCTURE – C25

I YEAR I SEMESTER

Course Code	Course Title	L	T	P	SL	C	Course Category
25AG101	Deeksharambh	0	0	4	0	2	Binary graded
25AG102	Crop Production and Protection Technologies	3	0	2	3	4	MDC
25AG103	Introduction to Agricultural Engineering	3	0	2	3	4	CC
25AG104	Surveying and Levelling	1	0	4	1	3	CC
25AG105	Workshop Technology and Practice	0	0	4	0	2	CC
25AG106	Basic Electrical Gadgets and Instruments	2	0	2	2	3	CC
25AG107	Agricultural Informatics and Artificial Intelligence	2	0	2	2	3	VAC
25AG108	NSS- I	0	0	2	0	1	AEC
25AG109	NCC- I						
Sub-Total		11	0	22	11	22	
Total		33			11	22	

I YEAR II SEMESTER

Course Code	Course Title	L	T	P	SL	C	Course Category
25AG110	Repair And Maintenance Of Tractors And Power Tillers	0	0	8	0	4	SEC
25AG111	Repair and Maintenance of Pumps And Irrigation Systems	0	0	8	0	4	SEC
25AG112	Engineering Drawing	0	0	4	0	2	CC
25AG113	Computer Programing and Data Structures	0	0	4	0	2	AEC
25AG114	Farming Based Livelihood Systems	2	0	2	2	3	MDC
25AG115	Environmental Studies and Disaster Management	2	0	2	2	3	VAC
25AG116	Communication Skills	1	0	2	1	2	AEC
25AG117	NSS- II	0	0	2	0	1	AEC
25AG118	NCC- II						
Sub-Total		05	0	32	05	21	
Total		37			05	21	

Post II Semester

Course Code	Course Title	L	T	P	SL	C	Course Category
25AG119	Internship (for 10 weeks, only for exit option for award of UG-Certificate)	0	2	18	0	10	Project

II YEAR I SEMESTER

Course Code	Course Title	L	T	P	SL	C	Course Category
25AG201	Engineering Mathematics- I	2	2	0	2	3	CC
25AG202	Engineering Physics	2	0	2	2	3	CC
25AG203	Engineering Chemistry	2	0	2	2	3	CC
25AG204	Engineering Mechanics	2	0	2	2	3	CC
25AG205	Soil Mechanics	1	0	2	1	2	CC
25AG206	Fluid Mechanics and Open Channel Hydraulics	2	0	2	2	3	CC
25AG207	Engineering Properties of Agricultural Produce and Food Science	2	0	2	2	3	CC
25AG208	Farm Machinery and Equipment- I	2	0	2	2	3	CC
25AG209	Physical Education, First Aid, Yoga Practice and meditation	0	0	4	0	2	AEC
Sub-Total		15	02	18	15	25	
Total		35			15	25	

II YEAR II SEMESTER

Course Code	Course Title	L	T	P	SL	C	Course Category
25AG210	Engineering Mathematics- II	2	2	0	2	3	CC
25AG211	Theory of Structures	1	0	2	1	2	CC
25AG212	Building Construction & Cost Estimation	1	2	0	1	2	CC
25AG213	Watershed Hydrology	2	0	2	2	3	CC
25AG214	Soil and Water Conservation Engineering	2	0	2	2	3	CC
25AG215	Farm Machinery and Equipment II	2	0	2	2	3	CC
25AG216	Renewable Energy Sources	2	0	2	2	3	CC
25AG217	Post-harvest Engineering of Cereals, Pulses and Oilseeds	2	0	2	2	3	CC
25AG218	Entrepreneurship Development and Business Management	2	0	2	2	3	MDC
Sub-Total		16	04	14	16	25	
Total		34			16	25	

Post IV Semester

Course Code	Course Title	L	T	P	SL	C	Course Category
25AG219	Internship (for 10 weeks, only for exit option for award of UG-Diploma)	0	0	20	0	10	Project

III YEAR I SEMESTER

Course Code	Course Title	L	T	P	SL	C	Course Category
25AG301	Strength of Materials	1	0	2	1	2	CC
25AG302	Theory of Machines	1	2	0	1	2	CC
25AG303	Thermodynamics and Heat Transfer	2	2	0	2	3	CC
25AG304	Tractor and Automotive Engines	2	0	2	2	3	CC
25AG305	Irrigation and Drainage Engineering	3	0	2	3	4	CC
25AG306	Food and Dairy Engineering	3	0	2	3	4	CC
25AG307	Personality Development	1	0	2	1	2	AEC
25AG308	Seminar	0	0	2	0	1	CC
Total		29			13	21	
25AG309	Study tour	0	0	4	0	2	Binary graded

III YEAR II SEMESTER

Course Code	Course Title	L	T	P	SL	C	Course Category
25AG310	Tractor Systems and Controls	2	0	2	2	3	CC
25AG311	Groundwater, Wells and Pumps	2	0	2	2	3	CC
25AG312	Sensors, AI and Robotics in Agriculture	2	0	2	2	3	CC
25AG313	Agricultural Structures & Environment Control	2	0	2	2	3	CC
25AG314	Bioenergy Systems: Design and Applications	2	0	2	2	3	CC
25AG315	Refrigeration and Air-conditioning	2	0	2	2	3	CC
25AG316	Post-harvest Engineering of Horticultural Crops	1	0	2	1	2	CC
25AG317	Case Study	0	0	2	0	1	CC
Total		29			13	21	

IV YEAR I SEMESTER

Course Code	Course Title	L	T	P	SL	C	Course Category
25AG401	Project-I	0	0	6	0	3	Project
25AG402	Engineering Graphics and Design	0	0	4	0	2	CC
25AG403	Food Quality and Safety	2	0	2	2	3	CC
25AG404	Watershed Planning and Management	2	0	2	2	3	CC
25AG405	Sprinkler & Micro Irrigation Systems	1	0	2	1	2	CC
25AG406	Machine Design	1	2	0	1	2	CC
25AG407	Electrical Machines	2	0	2	2	3	CC
25AG408	Agricultural Statistics and Data Analysis	1	0	2	1	2	CC
Sub Total		31			09	20	
25AG412	Online courses/MOOC					3	

IV YEAR II SEMESTER

Course Code	Course Title	L	T	P	SL	C	Course Category
25AG409	Project –II	0	0	8	0	4	Project
25AG410	In-plant Training	0	0	16	0	8	Internship
25AG411	Research Internship						
	Elective- I	2	0	2	2	3	CC
	Elective- II	2	0	2	2	3	CC
	Elective- III	2	0	2	2	3	CC
Sub Total		36			06	21	
25AG413	Online courses/MOOC					3	

LIST OF ELECTIVES

Course Code	Course Title	L	T	P	SL	C
25AG801	Mechanics of Tillage and Traction	2	0	2	2	3
25AG802	Farm Machinery Design and Production	2	0	2	2	3
25AG803	Tractor Design and Testing	2	0	2	2	3
25AG804	Hydraulic Drives and Controls	2	0	2	2	3
25AG805	Human Engineering and Safety	2	0	2	2	3
25AG806	Precision Agriculture and System Management	2	0	2	2	3
25AG807	Photovoltaic Technology and Systems	2	0	2	2	3
25AG808	Wind Power Technology and Systems	2	0	2	2	3
25AG809	Waste and By-products Utilization	2	0	2	2	3
25AG810	Floods and Control Measures	2	0	2	2	3
25AG811	Remote Sensing and GIS Applications	2	0	2	2	3
25AG812	Information Technology for Land and Water Management	2	0	2	2	3
25AG813	Wasteland Development	2	0	2	2	3
25AG814	Minor Irrigation and Command Area Development	2	0	2	2	3
25AG815	Management of Canal Irrigation System	2	0	2	2	3
25AG816	Water Quality and Management Measures	2	0	2	2	3
25AG817	Landscape Irrigation Design and Management	2	0	2	2	3
25AG818	Application of Plastics in Agriculture	2	0	2	2	3
25AG819	Precision Farming Techniques for protected cultivation	2	0	2	2	3
25AG820	Environmental Engineering	2	0	2	2	3
25AG821	Development of Processed Food Products	2	0	2	2	3
25AG822	Food Packaging Technology	2	0	2	2	3

25AG823	Food Plant and Equipment Design	2	0	2	2	3
25AG824	Emerging Technologies in Food Processing	2	2	0	2	3
25AG825	Processing of Livestock, Fish and Marine Products	2	0	2	2	3
25AG826	Food Business Management and Entrepreneurship Development	2	0	2	2	3
25AG827	MATLAB Programming	1	0	4	1	3
25AG828	Python Programming	1	0	4	1	3
25AG829	Artificial Intelligence	2	0	2	2	3
25AG830	Advances in Automation and Robotics in Agriculture	2	0	2	2	3
25AG831	Machine Learning	2	0	2	2	3
25AG832	Operations Research	2	2	0	2	3
25AG833	Mechatronics	2	0	2	2	3
25AG834	Natural Fibres: Extraction and Properties	2	0	2	2	3
25AG835	Natural Fibre Applications in Agriculture	2	0	2	2	3
25AG836	Processing of Natural Fibres	2	0	2	2	3
25AG837	Agricultural Marketing and Trade	2	0	2	2	3