

VISVESVARAYA TECHNOLOGICAL UNIVERSITY, BELAGAVI

B.E. in SMART AGRITECH

Scheme of Teaching and Examinations 2022

Outcome Based Education (OBE) and Choice Based Credit System (CBCS)

(Effective from the academic year 2023-24)

VII SEMESTER (Swappable VII and VIII SEMESTER) (SCHEME-A)

Sl. No	Course and Course Code		Course Title	Teaching Department (TD) and Question Paper Setting Board (PSB)	Teaching Hours /Week				Examination				Credits
					Theory Lecture	Tutorial	Practical / Drawing	SDA	Duration in hours	CIE Marks	SEE Marks	Total Marks	
					L	T	P	S					
1	IPCC	BSA701	Agro meteorology & Climate Change	TD: AG / SA PSB: AG / SA	3	0	2		3	50	50	100	4
2	IPCC	BSA702	Principles of Seed Technology	TD: AG / SA PSB: AG / SA	3	0	2		3	50	50	100	4
3	PCC	BSA703	Design of Agricultural Machinery	TD: AG / SA PSB: AG / SA	4	0	0		3	50	50	100	4
4	PEC	BSA714X	Professional Elective - III	TD: AG / SA PSB: AG / SA	3	0	0		3	50	50	100	3
5	OEC	BSA755X	Open Elective - II	TD: AG / SA PSB: AG / SA	3	0	0		3	50	50	100	3
6	PROJ	BSA786	Major Project Phase-II	TD: AG / SA	Two contact hours /week for interaction between the faculty and students.				3	100	100	200	6
									Total	350	350	700	24

Professional Elective Course

BSA714A	Manures, Fertilizers and Soil Fertility Management	BSA714C	Remote Sensing and GIS Applications
BSA714B	Fundamentals of Renewable Energy Sources	BSA714D	Drone Technology.

Open Elective Course

BSA755A	Introduction to Forestry	BSA755C	Agriculture Waste Management.
BSA755B	Agricultural Finance and Co-Operation		

PCC: Professional Core Course, **PCCL:** Professional Core Course laboratory, **PEC:** Professional Elective Course, **OEC:** Open Elective Course **PR:** Project Work, **L:** Lecture, **T:** Tutorial, **P:** Practical **S= SDA:** Skill Development Activity, **CIE:** Continuous Internal Evaluation, **SEE:** Semester End Evaluation. **TD-** Teaching Department, **PSB:** Paper Setting department, **OEC:** Open Elective Course, **PEC:** Professional Elective Course. **PROJ:** Project work

Note: VII and VIII semesters of IV years of the program

(1) Institutions can swap the VII and VIII Semester Schemes of Teaching and Examinations to accommodate research internships/ industry internships after the VI semester.

(2) Credits earned for the courses of VII and VIII Semester Scheme of Teaching and Examinations shall be counted against the corresponding semesters whether the VII or VIII semesters is completed during the beginning of the IV year or the later part of IV years of the program.

Professional Elective Courses (PEC): A professional elective (PEC) course is intended to enhance the depth and breadth of educational experience in the Engineering and Technology curriculum. Multidisciplinary courses that are added supplement the latest trend and advanced technology in the selected stream of engineering. Each group will provide an option to select one course. The minimum number of students' strengths for offering professional electives is 10. However, this conditional shall not be applicable to cases where the admission to the program is less than 10.

Open Elective Courses:

Students belonging to a particular stream of Engineering and Technology are not entitled to the open electives offered by their parent Department. However, they can opt for an elective offered by other Departments, provided they satisfy the prerequisite condition if any. Registration to open electives shall be documented under the guidance of the Program Coordinator/ Advisor/Mentor. The minimum numbers of students' strength for offering Open Elective Course is 10. However, minimum students strength shall not be applicable to class where the admission to the program is less than 10.

PROJECT WORK (21XXP75): The objective of the Project work is

- (i) To encourage independent learning and the innovative attitude of the students.
- (ii) To develop interactive attitude, communication skills, organization, time management, and presentation skills.
- (iii) To impart flexibility and adaptability.
- (iv) To inspire team working.
- (v) To expand intellectual capacity, credibility, judgment and intuition.
- (vi) To adhere to punctuality, setting and meeting deadlines.
- (vii) To install responsibilities to oneself and others.
- (viii) To train students to present the topic of project work in a seminar without any fear, face the audience confidently, enhance communication skills, involve in group discussion to present and exchange ideas.

CIE procedure for Project Work:

(1) **Single discipline:** The CIE marks shall be awarded by a committee consisting of the Head of the concerned Department and two senior faculty members of the Department, one of whom shall be the Guide.

The CIE marks awarded for the project work, shall be based on the evaluation of the project work Report, project presentation skill, and question and answer session in the ratio 50:25:25. The marks awarded for the project report shall be the same for all the batch mates.

(2) Interdisciplinary: Continuous Internal Evaluation shall be group-wise at the college level with the participation of all guides of the college. Participation of external guide/s, if any, is desirable. The CIE marks awarded for the project work, shall be based on the evaluation of project work Report, project presentation skill, and question and answer session in the ratio 50:25:25. The marks awarded for the project report shall be the same for all the batch mates.

SEE procedure for Project Work: SEE for project work will be conducted by the two examiners appointed by the University. The SEE marks awarded for the project work shall be based on the evaluation of project work Report, project presentation skill, and question and answer session in the ratio 50:25:25.

Scheme A: According to the teaching and examination plan, the Professional Elective Courses (online), Open Elective Courses (online), and a 14–15- week Internship (Bxx803) are scheduled for the eighth semester. Meanwhile, the Project Work (Bxx786) and other theory courses (Bxx701–703, 714x, and 755x) are allocated to the seventh semester.

- a. However, students who do not secure an internship can opt for **Skill Enhancement Courses (SEC)**, which offer credits equivalent to those of the internship. These SECs are available at online.vtu.ac.in (as per the 174th EC proceeding).
- b. Students choosing Skill Enhancement Courses (SEC) are **not eligible** to take up Scheme B.
- c. Scheme A: **Swappable VII and VIII semesters** to accommodate all the students for the internship. In the ODD semester, 50% of the final-year students can choose to take eighth-semester courses (PEC, OEC, and internship). In contrast, the remaining students can take project work along with the theory courses of the seventh semester. In the EVEN semester, the roles are reversed.

The students with the backlogs or without backlogs are eligible to take up scheme A.

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VIII SEMESTER (Swappable VII and VIII SEMESTER) (SCHEME-A)

Sl. No	Course and Course Code		Course Title	Teaching Department (TD) and Question Paper Setting Board (PSB)	Teaching Hours /Week				Examination				Credits
					Theory Lecture	Tutorial	Practical/ Drawing	SDA	Duration in hours	CIE Marks	SEE Marks	Total Marks	
					L	T	P	S					
1	PEC	BSA811x	Professional Elective - IV (Online Courses)		3	0	0		03	50	50	100	3
2	OEC	BSA852x	Open Elective - III (Online Courses)		3	0	0		03	50	50	100	3
3	INT	BSA883	Internship (Industry/Research)(14 - 20 weeks)		0	0	12		03	100	100	200	10
										200	200	400	16
Professional Elective Course (Online courses)													
BSA811A	Renewable Energy Engineering: Solar, Wind and Biomass Energy Systems		BSA811C	Novel Technologies For Food Processing And Shelf Life Extension									
BSA811B	Basics of Crop Breeding and Plant Biotechnology		BSA811D	Machine Learning for Soil and Crop Management									
Open Elective Courses (Online Courses)													
BSA852A	An Introduction to Artificial Intelligence		BSA852C	Dairy and Food Process and Products Technology									
BSA852B	Finite Element Method		BSA852D	Post Harvest Operations and Processing of Fruits, Vegetables, Spices and Plantation Crop Products									

L: Lecture, **T:** Tutorial, **P:** Practical **S= SDA:** Skill Development Activity, **CIE:** Continuous Internal Evaluation, **SEE:** Semester End Evaluation. **TD-** Teaching Department, **PSB:** Paper Setting department, **OEC:** Open Elective Course, **PEC:** Professional Elective Course. **PROJ:** Project work, **INT:** Industry Internship / Research Internship / Rural Internship

Note: VII and VIII semesters of IV years of the program

Swapping Facility

- Institutions can swap VII and VIII Semester Scheme of Teaching and Examinations to accommodate **research internships/ industry internships/Rural Internship** after the VI semester.
- Credits earned for the courses of VII and VIII Semester Scheme of Teaching and Examinations shall be counted against the corresponding semesters whether VII or VIII semester is completed during the beginning of IV year or later part of IV year of the program.

Elucidation:

At the beginning of IV years of the program i.e., after VI semester, VII semester classwork and VIII semester **Research Internship /Industrial Internship / Rural Internship** shall be permitted to be operated simultaneously by the University so that students have ample opportunity for an internship. In other words, a good percentage of the class shall attend VII semester classwork and a similar percentage of others shall attend to Research Internship or Industrial Internship or Rural Internship.

Research/Industrial /Rural Internship shall be carried out at an Industry, NGO, MSME, Innovation center, Incubation centre, Start-up, centre of Excellence (CoE), Study Centre established in the parent institute and /or at reputed research organizations/institutes.

The mandatory Research internship /Industry internship / Rural Internships for 14 to 20 weeks. The internship shall be considered as a head of passing and shall be considered for the award of a degree. Those, who do not take up/complete the internship shall be declared to fail and shall have to complete it during the subsequent University examination after satisfying the internship requirements.

Research internship: A research internship is intended to offer the flavor of current research going on in the research field. It helps students get familiarized with the field and imparts the skill required for carrying out research.

Industry internship: Is an extended period of work experience undertaken by students to supplement their degree for professional development. It also helps them learn to overcome unexpected obstacles and successfully navigate organizations, perspectives, and cultures. Dealing with contingencies helps students recognize, appreciate, and adapt to organizational realities by tempering their knowledge with practical constraints.

Rural Internship: Rural development internship is an initiative of Unnat Bharat Abhiyan Cell, RGIT in association with AICTE to involve students of all departments studying in different academic years for exploring various opportunities in techno-social fields, to connect and work with Rural India for their upliftment.

The faculty coordinator or mentor has to monitor the student's internship progress and interact with them to guide for the successful completion of the internship.

The students are permitted to carry out the internship anywhere in India or abroad. University shall not bear any expenses incurred in respect of the internship.

With the consent of the internal guide and Principal of the Institution, students shall be allowed to carry out the internship at their hometown (**within or outside the state or abroad**), provided favorable facilities are available for the internship and the student remains regularly in contact with the internal guide. **University shall not bear any cost involved in carrying out the internship by students.** However, students can receive any financial assistance extended by the organization.

Professional Elective /Open Elective Course: These are ONLINE courses suggested by the respective Board of Studies. Details of these courses shall be made available for students on the VTU web portal.

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- b. Students choosing Skill Enhancement Courses (SEC) are **not eligible** to take up Scheme B.
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The students with the backlogs or without backlogs are eligible to take up scheme A