

VISVESVARAYATECHNOLOGICALUNIVERSITY,BELAGAVI
**B.E.inElectronicsandCommunicationEngineeringSchemeof
TeachingandExaminations2022**
OutcomeBasedEducation(OBE)andChoiceBasedCreditSystem(CBCS)
(Effectivefromtheacademic year2023-24)

VIISEMESTER(SwappableVIIandVIIISEMESTER)

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	BEC701	Microwave Engineering and Antenna Theory		3	0	2		03	50	50	100	4
2	IPCC	BEC702	Computer Networks and Protocols		3	0	2		03	50	50	100	4
3	PCC	BEC703	Wireless Communication Systems		4	0	0		03	50	50	100	4
4	PEC	BEC714x	Professional Elective Course		3	0	0		03	50	50	100	3
5	OEC	BEC755x	Open Elective Course		3	0	0		01	50	50	100	3
6	PROJ	BEC786	Major Project Phase-II		0	0	12		03	100	100	200	6
										350	350	700	24

Professional Elective Course

BEC714A	Application Specific Integrated Circuit	BEC714C	Automotive Electronics
BEC714B	Computer and Network Security.	BEC714D	Radar Communication

Open Elective Course

BEC755A	E-waste Management	BTE755C	Embedded System Applications
BEC755B	Automotive Engineering	BEC755D	Sensors and Actuators

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:** Projectwork

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

- (1) Institutions can swap the VII and VIII Semester Schemes of Teaching and Examination to accommodate research internships/industry internships after the VI semester.
- (2) Credit 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 semester is completed during the beginning of the IV year or the later part of IV year 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, this condition shall not be applicable to class where the admission to the program is less than 10.

PROJECTWORK(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 batchmates.

(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 batchmates.

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.

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VIII SEMESTER (Swappable VII and VIII SEMESTER)

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	BEC801x	Professional Elective (Online Courses)		3	0	0		03	50	50	100	3
2	OEC	BEC802x	Open Elective (Online Courses)		3	0	0		01	50	50	100	3
3	INT	BEC803	Internship (Industry/Research) (14-20 weeks)		0	0	12		03	100	100	200	10
										200	200	400	16
Professional Elective Course (Online Courses)													
BEC801A	BOS Recommended Course			BEC801C	BOS Recommended Course								
BEC801B	BOS Recommended Course			BEC801D	BOS Recommended Course								
Open Elective Courses (Online Courses)													
BEC802A	BOS Recommended Course			BEC802C	BOS Recommended Course								
BEC802B	BOS Recommended Course			BEC802D	BOS Recommended Course								
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.
- Credit 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 Internship is 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 impart 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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VISEMESTER													
Sl. No	Course and Course Code		Course Title	Teaching Department (TD) and Question Paper Setting Board (P/SB)	Teaching Hours/Week				Examination				Credits
					Theory Lecture	Tutorial	Practical/ Drawing	SDA	Duration in hours	CIEMarks	SEEMarks	TotalMarks	
					L	T	P	S					
1	IPCC	BXX601	EmbeddedSystemDesign		3	0	2		03	50	50	100	4
2	PCC	BXX602	MicrowaveandAntennaTheory		4	0	0		03	50	50	100	4
3	PEC	BXX613x	ProfessionalElectiveCourse		3	0	0		03	50	50	100	3
4	OEC	BXX654x	OpenElectiveCourse		3	0	0		03	50	50	100	3
5	PCCL	BXXL606	Labcomponent		0	0	2		03	50	50	100	1
6	AEC/SDC	BXX657x	AbilityEnhancementCourse/SkillDevelopmentCourseV		IfthecourseisofferedasaTheory				01	50	50	100	1
					1	0	0						
					Ifcourseisofferedasa practical								
					0	0	2						
7	MC	BNSK658	NationalServiceScheme(NSS)	NSSCoordinator	0	0	2			100	---	100	0
		BPEK658	PhysicalEducation(PE)(SportsandAthletics)	PhysicalEducation Director									
		BYOK658	Yoga	YogaTeacher									
8	IKS	BIKS609	IndianKnowledgeSystem		1	0	0		01	100	---	100	0
									Total	500	300	800	16

Professional Elective Course

BEC613A	IntelligentSystemsandMachineLearningAlgorithms	BEC613C	DigitalImageProcessing
BEC613B	ComputerandDataSecurity	BEC613D	FPGASystemDesignusingVerilog
Open Elective Course			
BEC654A	DigitalSystemDesignusingVerilog	BEC654C	ElectronicCommunicationSystems

BEC654B	ConsumerElectronics	BEC654D	BasicVLSIDesign
AbilityEnhancementCourse/SkillEnhancementCourse-V			
BEC657A	FPGASystemDesignusingVerilogLAB	BEC657C	IOTLab
BEC657B	SystemModellingusingSimulink	BEC657D	PythonProgrammingforMachineLearningApplications

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VIIandVIIIsemesterforwhoseseeksinternshipwithprojectwork

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	CIEMarks	SEEMarks	TotalMarks	
					L	T	P	S					
1	PCC	BXX701	To be completed in 5 th /6 th semester		3	0	2		03	50	50	100	4
2	PCC	BXX702	To be completed in 5 th /6 th semester		3	0	2		03	50	50	100	4
3	PCC	BXX703	To be completed in 5 th /6 th semester		4	0	0		03	50	50	100	3
4	PEC	BXX714x	Professional Elective Course (MOOC Courses)		3	0	0		03	50	50	100	3
5	OEC	BXX755x	Open Elective Courses (MOOC courses)		3	0	0		01	50	50	100	3
1	PEC	Bxx801x	Professional Elective (Online Courses)		3	0	0		03	50	50	100	3
2	OEC	Bxx802x	Open Elective (Online Courses)		3	0	0		01	50	50	100	3
3	PROJ	BXX883	Project Work Outcome of Training		0	0	12		03	100	100	200	9
4	INT	Bxx804	Internship (Industry/Research) (Two semesters)		0	0	12		03	100	100	200	10
									Total	200	200	400	42