

VISVESVARAYA TECHNOLOGICAL UNIVERSITY, BELAGAVI
M.TECH in Electronics & Communication (Advanced Communication Technology)
Scheme of Teaching and Examinations 2022
 Outcome Based Education (OBE) and Choice Based Credit System (CBCS)
 (Effective from the academic year 2023-24)

ISEMESTER

Sl.No	Course	Course Code	Course Title	Teaching Department (TD) and Question Paper Setting Board (PSB)	Teaching Hours per Week			Examination				Credits
					Theory	Practical/ Seminar	Tutorial/ Skill Development Activities	Duration in hours	CIEMarks	SEEMarks	TotalMarks	
					L	P	T/SDA					
1	BSC	22LAC11	Advanced Engineering Mathematics	TD-MAT	03	00	00	03	50	50	100	3
2	IPCC	22LAC12	Advanced Digital Signal Processing	TD: ECE	03	02	00	03	50	50	100	4
3	PCC	22LAC13	Advanced Communication Systems – 1	TD: ECE	03	00	02	03	50	50	100	4
4	PCC	22LAC14	Advanced Engineering Electromagnetics	TD: ECE	02	00	02	03	50	50	100	3
5	PCC	22LAC15	Advanced Communication Networks	TD: ECE	02	00	02	03	50	50	100	3

#@31102023

6	MCC	22RM16	Research Methodology and IPR	TD:ECE	03	00	00	03	50	50	100	3
7	PCCL	22LAEL17	Advanced Digital Signal Processing Lab	TD:ECE	01	02	00	03	50	50	100	2
8	AUD/AEC	22AUD18/ 22AEC18 B	BOS recommended ONLINE course on 5G		Classes and evaluation procedures are as per the policy of the online course providers.							PP
TOTAL					17	04	06	21	350	350	700	22
<p>Note: BSC-Basic Science Courses, PCC-Professional Core Courses, IPCC-Integrated Professional Core Courses, MCC-Mandatory Credit Course, AUD/AEC –Audit Course / Ability Enhancement Course (A pass in AUD/AEC is mandatory for the award of the degree), PCCL-Professional Core Course lab, L-Lecture, P-Practical, T/SDA-Tutorial/Skill Development Activities (Hours are for interaction between faculty and students)</p>												
<p>Integrated Professional Core Course (IPCC): Integrated Professional Core Course (IPCC): Refer to Professional Theory Core Course Integrated with practical of the same course. The theory part of the IPCC shall be evaluated both by CIE and SEE. The practical part shall be evaluated by only CIE (no SEE). However, questions from the practical part of IPCC shall be included in the SEE question paper.</p>												

Audit Courses /Ability Enhancement Courses Suggested by BOS (ONLINE courses): Audit Courses: These are prerequisite courses suggested by the concerned Board of Studies. Ability Enhancement Courses will be suggested by the BoS if prerequisite courses are not required for the programs.

Ability Enhancement Courses:

- These courses are prescribed to help students to enhance their skills in fields connected to the field of specialisation as well as allied fields that lead to employable skills. Involving in learning such courses are impetus to lifelong learning.
- The courses under this category are online courses published in advance and approved by the concerned Board of Studies.
- Registration to Audit /Ability Enhancement Course shall be done in consultation with the mentor and is compulsory during the concerned semester.
- In case a candidate fails to appear for the proctored examination or fails to pass the selected online course, he/she can register and appear for the same course if offered during the next session or register for a new course offered during that session, in consultation with the mentor.
- The Audit Ability Enhancement Course carries no credit and is not counted for vertical progression. However, a pass in such a course is mandatory for the upward of the degree.

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I SEMESTER

Sl. No	Course	Course Code	Course Title	Teaching Department (TD) and Question Paper Setting Board (PSB)	Teaching Hours/Week			Examination			Credits	
					Theory	Practical/Seminar	Tutorial/ Skill Development Activities	Duration in hours	CIE Marks	SEE Marks		Total Marks
					L	P	T/SDA					

#@31102023

1	PCC	22LAC21	AdvancedCommunicationSystem2	TD-MAT	02	00	02	03	50	50	100	3
2	IPCC	22LAC22	Antenna Theory and Design	TD:ECE	03	02	00	03	50	50	100	4
3	PEC	22LAC23x	Professionalelective 1	TD:ECE	02	00	02	03	50	50	100	3
4	PEC	22LAC24x	Professionalelective 2	TD:ECE	02	00	02	03	50	50	100	3
5	MPS	22LAC25	Mini Project with Seminar	TD:ECE	00	04	02	--	100	--	100	3
6	PCCL	22LACL26	Advanced Communication Lab	TD:ECE	01	02	00	03	50	50	100	02
7	AUD/AEC	22AUD27	BOS recommended ONLINE courses on Introduction to machine learning	TD:ECE	Classes and evaluation procedures are as per the policy of the online course providers.							pp
TOTAL					10	08	08	15	350	250	600	18

Note: PCC: Professional core courses, PEC: Professional Elective Courses, IPCC-Integrated Professional Core Courses. MPS-Mini Project With Seminar; AUD/AEC; Audit Courses /Ability Enhancement Courses (Mandatory),PCCL-Professional Core Course lab, L-Lecture, P-Practical, T/SDA-Tutorial/Skill Development Activities(Hours are for Interaction between faculty and students)

Professional Elective1		Professional Elective2	
Course Code under 22LAC23x	Course title	Course Code under 22LAC24x	Course title
22LAC231	Wireless Sensor Networks	22LAC241	Multimedia Over Communication Links
22LAC232	Nano electronics	22LAC242	Statistical Signal Processing
22LAC233	Cryptography and Network Security	22LAC243	Micro electro Mechanical Systems
22LAC234	Optical Communication and Networking	22LAC244	Array Signal Processing
22LAC235	Biomedical Signal Processing	22LAC245	MATLAB for Advanced Applications

Note:

1 Mini Project with Seminar: This may be hands-on practice, survey report, data collection and analysis, coding, mobile app development, field visit and report preparation, modelling of system, simulation, analyzing and authenticating, case studies, etc.

CIE marks shall be awarded by a committee comprising of H.O.D as Chairman, Guide/co-guide, if any, and a senior faculty of the department. Students can present the seminar based on the completed mini-project. Participation in the seminar by all postgraduate students of the program shall be mandatory.

The CIE marks awarded for Mini-Project work and Seminar shall be based on the evaluation of Mini Project work and Report, Presentation skill and performance in Question-and-Answer session in the ratio 50:25:25. Mini-Project with Seminar shall be considered as a head of passing and shall be considered for vertical progression as well as for the award of degree. Those, who do not take-up/complete the Mini Project and Seminar shall be declared as fail in that course and have to complete the same during the subsequent semester. There is no SEE for this course.

2. Internship: All the students shall have to undergo a mandatory internship of **06 weeks** during the vacation of II and III semesters. A University examination shall be conducted during III semester and the prescribed internship credit shall be counted in the same semester. The internship shall be considered as a head of passing and shall be considered for vertical progression as well as for the award of degree. Those, who do not take-up/complete the internship shall be declared as fail in the internship course and have to complete the same during the subsequent

#@31102023

University examination after satisfying the internship requirements.

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III SEMESTER

Sl. No	Course	Course Code	Course Title	Teaching Department (TD) and Question Paper Setting Board (PSB)	Teaching Hours/Week			Examination				Credits
					Theory	Practical/M ini-Project/ Internship	Tutorial/ Skill Development Activities	Duration in hours	CIE Marks	SEE Marks	Total Marks	
					L	P	SDA					
1	PCC	22LAC31	Microwave devices and its applications	TD-MAT	03	00	02	03	50	50	100	4
2	PEC	22LAC32x	<i>Professionalelective3</i>	TD: ECE	03	00	00	03	50	50	100	3
3	PEC	22LAC33x	<i>Professionalelective4</i>	TD: ECE	03	00	00	03	50	50	100	3
4	PROJ	22LAC34	ProjectWorkphase-1	TD: ECE	00	06	00	--	100	--	100	3
5	SP	22LAC35	Societal Project		00	06	00	--	100	--	100	3
6	INT	22LAC36			(06 weeks Internship Completed during the Intervening vacation of II and III semesters.)			03	50	50	100	6

#@31102023

TOTAL	09	12	02	TD:ECE	400	200	600	22
<p>Note: PCC: Professional core courses, PEC: Professional Elective Courses, IPCC-Integrated Professional Core Courses. MPS-Mini Project With Seminar; AUD/AEC; Audit Courses / Ability Enhancement Courses (Mandatory), PCCL-Professional Core Course lab, L-Lecture, P-Practical, T/SDA-Tutorial / Skill DevelopmentActivities(HoursareforInteractionbetweenfacultyandstudents)</p>								

Professionalelective3		Professionalelective4	
Course Code under	Course title	Course Code under	Course title
22LAC321	Advances in Image Processing	22LAC331	Pattern Recognition and Machine Learning
22LAC322	Internet of Things	22LAC332	VLSI Design for Signal Processing
22LAC323	Real Time Systems	22LAC333	Digital Compression
22LAC324	RF MEMS	22LAC334	Wavelet Transforms and Applications
22LAC325	5G Radio Access Technologies	22LAC335	Advanced Computer Architecture

Note:**1. ProjectWorkPhase-**

1:Theprojectworkshallbecarriedoutindividually.However,incaseadisciplinaryorinterdisciplinaryprojectrequiresmoreparticipants,then agroupconsistingof notmorethanthreeshallbepermitted.

Students in consultation with the guide/co-guide (if any) in disciplinary project or guides/co-guides (if any) of all departments in caseof multidisciplinary projects, shall pursue a literature survey and complete the preliminary requirements of the selected Projectwork.Eachstudentshallpreparea relevantintroductoryproject document,and presentaseminar.

CIEmarksshallbeawardedbyacommitteecomprisingofHoDasChairman,allGuide/sandco-guide/s(ifany)andaseniorfacultyof the concerned departments. The CIE marks awarded for project work phase -1, shall be based on the evaluation of Project Report,ProjectPresentationskill, andperformanceintheQuestionandAnswersessionintheratio of50:25:25.

2. Societal Project: Students in consultation with the internal guide as well as with external guide (much preferable) shall involve inapplyingtechnologytoworkout/proposing viablesolutionsforsocietalproblems.

CIE marks shall be awarded by a committee comprising of HoD as Chairman, Guide/co-guide if any, and a senior faculty of thedepartment. The CIE marks awarded, shall be based on the evaluation of Project Report, Project Presentation skill, and performanceintheQuestionandAnswersessionintheratio of 50:25:25.

Those,whohavenotpursued/completedtheSocietalProject,shallbe declaredas failinthecourse and havetocompletethesame duringsubsequentsemester/saftersatisfyingtheSocietalProjectrequirements. ThereisnoSEE(Universityexamination)forthis

#@31102023

course.

3. Internship: Those, who have not pursued /completed the internship, shall be declared as fail in the internship course and have to complete the same during subsequent University examinations after satisfying the internship requirements. Internship SEE (University examination) shall be as per the University norms.

CIE marks shall be awarded by a committee comprising of HoD as Chairman, Guide/co-guide if any, and a senior faculty of the department. The CIE marks awarded for project work phase -1, shall be based on the evaluation of Project Report, Project Presentation skill, and performance in the Question and Answer session in the ratio of 50:25:25.

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IVSEMESTER															
Sl.No	Course	Course Code	Course Title	Teaching Hours /Week				Examination				Credits			
				Th	eo	ry	ica	/	Fie	ld	Duration in hours		CIE Marks	Marks Viva	Total Marks
				L			P								
1	Project	22LAC41	Projectworkphase-2	--				08			03	100	100	200	18
TOTAL				--				08			03	100	100	200	18
Note: 1.ProjectWorkPhase-2: Students in consultation with the guide/co-guide (if any) in disciplinary project or guides/co-guides (if any) of all departments in case of multidisciplinary projects, shall continue to work of Project Work phase -1to complete the Project work. Each student / batch of students shall prepare project document, and present a seminar. CIE marks shall be awarded by a committee comprising of HoD as Chairman, all Guide/sand co-guide/s(if any) and asenior faculty of the concerned departments. The CIE marks awarded for project work phase -2, shall be based on the evaluation of Project Report, Project Presentation skill, and performance in the Question and Answer session in the ratio of50:25:25. SEEshallbeattheendofIVsemester.ProjectworkevaluationandViva-Voceexamination(SEE),aftersatisfyingtheplagiarism Check, shall be as per the University norms.															

TotalCredits20+20+20+20=**80**

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