

Department of Information Science and Engineering

B. E. III semester Scheme of Teaching and Examinations

(Effective from the academic year 2023-24)

III SEMESTER													
Sl. No	Course	Course Code	Course Title	Teaching Department (T D) 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	
1	PCC/BSC	22UMA311C	Mathematics for Computer Science	Mathematics	3	2	0		03	50	50	100	4
2	IPCC	22UIS302C	Digital Design & Computer Organization	ISE	3	0	2		03	50	50	100	4
3	IPCC	22UIS306C	Operating Systems	ISE	3	0	2		03	50	50	100	4
4	PCC	22UIS307C	Data Structures and Applications	ISE	3	0	0		03	50	50	100	3
5	PCCL	22UIS381L	Data Structures Lab	ISE	0	0	2		03	50	50	100	1
6	ESC	22UISXXXC	ESC/ETC/PLC	ISE	2	0	2		03	50	50	100	3
7	UHV	22UHS307C	Social Connect and Responsibility	Any Department	0	0	2		01	100	---	100	1
8	AEC/ SEC	22UISXXXC/22UISXXXL	Ability Enhancement Course/Skill Enhancement Course-III	ISE	If the course is a Theory				01	50	50	100	1
					1	0	0						
					If a course is a laboratory				02				
					0	0	2						
9	MC	22UHS002M	National Service Scheme (NSS)	NSS coordinator	0	0	2			100	---	100	0
		22UHS003M	Physical Education (PE) (Sports and Athletics)	Physical Education Director									
		22UHS001M	Yoga	Yoga Teacher									
		22UHS004M	Music	Music Teacher									
Total										550	350	900	21

PCC: Professional Core Course, **PCCL:** Professional Core Course laboratory, **UHV:** Universal Human Value Course, **MC:** Mandatory Course (Non-credit), **AEC:** Ability Enhancement Course, **SEC:** Skill Enhancement Course, **L:** Lecture, **T:** Tutorial, **P:** Practical **S= SDA:** Skill Development Activity, **CIE:** Continuous Internal Evaluation, **SEE:** Semester End Evaluation. **K:** This letter in the course code indicates common to all the stream of engineering. **ESC:** Engineering Science Course, **ETC:** Emerging Technology Course, **PLC:** Programming Language Course

Engineering Science Course (ESC/ETC/PLC) (Note-Students should opt for the course which should not be similar to the course opted in 1st Year)

22UIS308C	Object Oriented Programming with Java	BCS306C	
22UIS309C	Object Oriented Programming with C++	BCS306D	
Ability Enhancement Course II			
	I		
22UIS382L	Data analytics with Excel	22UIS384L	Project Management with Git
22UIS383L	R programming	22UIS385L	Data Visualization with Python

Professional Core Course (IPCC): Refers to Professional Core Course Theory Integrated with practicals of the same course. Credit for IPCC can be 04 and its Teaching-Learning hours (L : T : P) can be considered as (3 : 0 : 2) or (2 : 2 : 2). 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. For more details, the regulation governing the Degree of Bachelor of Engineering/Technology (B.E./B.Tech.) 2022-23 may please be referred.

National Service Scheme/Physical Education/Yoga: All students have to register for any one of the courses namely National Service Scheme (NSS), Physical Education (PE) (Sports and Athletics), and Yoga (YOG) with the concerned coordinator of the course during the first week of III semesters. Activities shall be carried out between III semester to the VI semester (for 4 semesters). Successful completion of the registered course and requisite CIE score is mandatory for the award of the degree. The events shall be appropriately scheduled by the colleges and the same shall be reflected in the calendar prepared for the NSS, PE, and Yoga activities. These courses shall not be considered for vertical progression as well as for the calculation of SGPA and CGPA, but completion of the course is mandatory for the award of degree.

Department of Information Science and Engineering

B. E. IV semester Scheme of Teaching and Examinations

(Effective from the academic year 2023-24)

IV 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	Self - Study	Duration in hours	CIE Marks	SEE Marks	Total Marks	
1	PCC/BSC	22UIS402C	Analysis & Design of Algorithms	TD: ISPSB:CS	3	0	0		03	50	50	100	3
2	IPCC	22UIS404C	Advanced Java	TD: ISPSB: CS	3	0	2		03	50	50	100	4
3	IPCC	22UIS405C	Database Management Systems	TD: ISPSB: CS	3	0	2		03	50	50	100	4
4	PCCL	22UIS421L	Analysis & Design of Algorithms Lab	TD: ISPSB:CS	0	0	2		03	50	50	100	1
5	ESC	22UISXXXC	ESC/ETC/PLC	TD: IS/Maths PSB: IS/Maths	2	2	0		03	50	50	100	3
6	AEC/SEC	22UISXXXC/22UISXXXL	Ability Enhancement Course/Skill Enhancement Course- IV	TD: Concerned department PSB:CS	If the course is Theory				01	50	50	100	1
					1	0	0						
					If the course is a lab				02				
					0	0	2						
7	BSC	22UBT408C	Biology For Computer Engineers	TD/PSB: BT, CHE,	2	0	0		03	50	50	100	2
8	UHV	22UHS424C	Universal human values course	Any Department	1	0	0		01	50	50	100	1
9	MC	22UHS002M	National Service Scheme (NSS)	NSS coordinator	0	0	2			100	---	100	0
		22UHS003M	Physical Education (PE) (Sports and Athletics)	Physical Education Director									
		22UHS001M	Yoga	Yoga Teacher									
		22UHS004M	Music	Music Teacher									
Total									500	400	900	19	

PCC:ProfessionalCoreCourse,**PCCL:**ProfessionalCoreCourselaboratory,**UHV:**UniversalHumanValueCourse,**MC:**MandatoryCourse(Non-credit),**AEC:**AbilityEnhancementCourse,**SEC:**SkillEnhancementCourse,**L:**Lecture,**T:**Tutorial,**P:**Practical**S=SDA:**SkillDevelopmentActivity,**CIE:**ContinuousInternal Evaluation,**SEE:** SemesterEndEvaluation.K:Thisletterinthe coursecodeindicates commontoallthe streamofengineering.

Ability Enhancement Course/Skill Enhancement Course- IV

22UIS410C	GreenITandSustainability	22UIS412C	UI/UX
22UIS411C	CapacityPlanningforIT	22UIS422L	TechnicalwritingusingLATEX(Lab)(0:0:2)
Engineering Science Course(ESC/ETC/PLC)			
22UIS406C	DiscreteMathematicalStructures	22UIS408C	OptimizationTechniques
22UIS407C	GraphTheory	22UIS409C	LinearAlgebra

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National Service Scheme/Physical Education/ Yoga: All students have to register for any one of the courses namely National Service Scheme (NSS), Physical Education (PE) (Sports and Athletics), and Yoga (YOG) with the concerned coordinator of the course during the first week of III semesters. Activities shall be carried out between III semester to the VI semester (for 4 semesters). Successful completion of the registered course and requisite CIE score is mandatory for the award of the degree. The events shall be appropriately scheduled by the colleges and the same shall be reflected in the calendar prepared for the NSS, PE, and Yoga activities. These courses shall not be considered for vertical progression as well as for the calculation of SGPA and CGPA, but completion of the courses is mandatory for the award of degree.

5

(Effective from the academic year 2023-24)

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	
1	HSMS	BIS501	Software Engineering & Project Management	TD: ISPSB: IS	3	0	0		03	50	50	100	3
2	IPCC	BIS502	Computer Networks	TD: ISPSB: IS	3	0	2		03	50	50	100	4
3	PCC	BIS503	Theory of Computations	TD: ISPSB: IS	3	2	0		03	50	50	100	4
4	PCCL	BISL504	Data Visualization Lab	TD: ISPSB: IS	0	0	2		03	50	50	100	1
5	PEC	BIS515x	Professional Elective Course	TD: ISPSB: IS	3	0	0		03	50	50	100	3
6	PROJ	BIS586	Mini Project	TD: ISPSB: IS	0	0	4		03	100		100	2
7	AEC	BRMK557	Research Methodology and IPR	TD: HSMPSB: HSM	2	2	0		02	50	50	100	3
8	MC	22UBT509C	Environmental Studies	TD: HSMPSB: HSM	2	0	0		02	50	50	100	2
	HSS		Soft Skill (Audit)	Placement	2	0	0			50		50	
9	MC	22UHS002M	National Service Scheme (NSS)	NSS Coordinator	0	0	2			100		100	22
		22UHS003M	Physical Education (PE) (Sports and Athletics)	Physical Education Director									
		22UHS001M	Yoga	Yoga Teacher									
		22UHS004M	Music	Music Teacher									
Total									500	300	800	22	
Professional Elective Course													
BIS515A		Computer Vision			BIS515C		Distributed Systems						
BIS515B		Artificial Intelligence			BIS515D		Unix System Programming						

PCC: Professional Core Course, **PCCL:** Professional Core Course laboratory, **UHV:** Universal Human Value Course, **MC:** Mandatory Course (Non-credit), **AEC:** Ability Enhancement Course, **SEC:** Skill Enhancement Course, **L:** Lecture, **T:** Tutorial, **P:** Practical **S= SDA:** Skill Development Activity, **CIE:** Continuous Internal Evaluation, **SIS:** Semester End Evaluation. **K:** The letter in the course code indicates common to all the stream of engineering. **PROJ:** Project/Mini Project. **PEC:** Professional Elective Course

Professional Core Course (IPCC): Refers to Professional Core Course Theory Integrated with practicals of the same course. Credit for IPCC can be 04 and its Teaching–Learning hours (L : T : P) can be considered as (3 : 0 : 2) or (2 : 2 : 2). 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. For more details, the regulation governing the Degree of Bachelor of Engineering/Technology (B.E./B.Tech.) 2022-23

National Service Scheme /Physical Education/Yoga: All students have to register for any one of the courses namely National Service Scheme (NSS), Physical Education (PE) (Sports and Athletics), and Yoga (YOG) with the concerned coordinator of the course during the first week of III semesters. Activities shall be carried out between III semester to the VI semester (for 4 semesters). Successful completion of the registered course and requisite CIE score is mandatory for the award of the degree. The event shall be appropriately scheduled by the colleges and the same shall be reflected in the calendar prepared for the NSS, PE, and Yoga activities. These courses shall not be considered for vertical progression as well as for the calculation of SGPA and CGPA, but completion of the course is mandatory for the award of degree.

Mini-project work: Mini Project is a laboratory-oriented/hands on course that will provide a platform to students to enhance their practical knowledge and skills by the development of small systems/applications etc. Based on the ability/abilities of the student/s and recommendations of the mentor, a single discipline or a multidisciplinary Mini-project can be assigned to an individual student or to a group having not more than 4 students.

CIE procedure for Mini-project:

(i) Single discipline: The CIE marks shall be awarded by a committee consisting of the Head of the concerned Department and two faculty members of the Department, one of them being the Guide. The CIE marks awarded for the Mini-project work shall be based on the evaluation of the project report, project presentation skill, and question and answer session in the ratio of 50:25:25. The marks awarded for the project report shall be the same for all the batch mates.

(ii) Interdisciplinary: Continuous Internal Evaluation shall be group-wise at the college level with the participation of all the guides of the project.

The CIE marks awarded for the Mini-project, shall be based on the evaluation of the project 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.

No SEE component for Mini-Project.

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 a professional elective is 10. However, this conditional shall not be applicable to cases where the admission to the program is less than 10.

Department of Information Science and Engineering

B. E. VI semester Scheme of Teaching and Examinations

(Effective from the academic year 2023-24)

VISEMESTER													
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	
1	IPC C	BIS601	Full Stack Development	TD: ISPSB: IS	3	0	2		03	50	50	100	4
2	PC C	BIS602	Machine Learning	TD: ISPSB: IS	4	0	0		03	50	50	100	4
3	PEC	BIS613x	Professional Elective Course	TD: ISPSB: IS	3	0	0		03	50	50	100	3
4	OE C	BIS654x	Open Elective Course	TD: ISPSB: IS	3	0	0		03	50	50	100	3
5	PROJ	BIS685	Project Phase I	TD: IS PSB: IS	0	0	4		03	100	--	100	2
6	PC CL	BISL606	Machine Learning lab	TD: ISPSB: IS	0	0	2		03	50	50	100	1
7	AEC/SD C	BIS657x	Ability Enhancement Course/Skill Development Course V (IKS)	TD and PSB: Concerned department	If the course is offered as a Theory				01	50	50	100	1
					1	0	0						
					If the course is offered as a practical								
					0	0	2						
8	MC	22UHS002M	National Service Scheme (NSS)	NSS coordinator	0	0	2			100	---	100	0
		22UHS003M	Physical Education (PE) (Sports and Athletics)	Physical Education Director									
		22UHS001M	Yoga	Yoga Teacher									
		22UHS004M	Music	Music Teacher									
Total									500	300	800	18	

Professional Elective Course			
BIS613A	Blockchain Technology	BIS613C	Compiler Design
BIS613B	Internet of Things	BIS613D	Cloud Computing
Open Elective Course			
BIS654A	Introduction to Data Structures	BIS654C	Mobile Application Development
BIS654B	Fundamentals of Operating Systems	BIS654D	Introduction to AI
Ability Enhancement Course/Skill Enhancement Course-V			
BIS657A	Progressive App Development	BIS657C	Cyber Laws
BIS657B	Tosca – Automated Software Testing	BIS657D	Devops
<p>PCC: Professional Core Course, PCCL: Professional Core Course laboratory, UHV: Universal Human Value Course, MC: Mandatory Course (Non-credit), AEC: Ability Enhancement Course, SEC: Skill Enhancement Course, L: Lecture, T: Tutorial, P: Practical S= SDA: Skill Development Activity, CIE: Continuous Internal Evaluation, SEE: Semester End Evaluation. K: The letter in the course code indicates common to all the stream of engineering. PROJ: Project/Mini Project. PEC: Professional Elective Course. PROJ: Project Phase -I, OEC: Open Elective Course</p> <p>Professional Core Course (IPCC): Refers to Professional Core Course Theory Integrated with practicals of the same course. Credit for IPCC can be 04 and its Teaching–Learning hours (L : T : P) can be considered as (3 : 0 : 2) or (2 : 2 : 2). 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. For more details, the regulation governing the Degree of Bachelor of Engineering/Technology (B.E./B.Tech.) 2022-23</p> <p>National Service Scheme/ Physical Education/Yoga: All students have to register for any one of the courses namely National Service Scheme (NSS), Physical Education (PE) (Sports and Athletics), and Yoga (YOG) with the concerned coordinator of the course during the first week of III semesters. Activities shall be carried out between III semester to the VI semester (for 4 semesters). Successful completion of the registered course and requisite CIE score is mandatory for the award of the degree. The events shall be appropriately scheduled by the colleges and the same shall be reflected in the calendar prepared for the NSS, PE, and Yoga activities. These courses shall not be considered for vertical progression as well as for the calculation of SGPA and CGPA, but completion of the course is mandatory for the award of degree.</p> <p>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 condition shall Not be applicable to cases where the admission to the program is less than 10.</p> <p>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.</p>			

Project Phase-I: Students have to discuss with the mentor/guide and with their help he/she has to complete the literature survey and prepare the report and finally define the problem statement for the project work.

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, this condition shall not be applicable to class where the admission to the program is less than 10.

PROJECTWORK(21ISP75):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 one self 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.

- 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.
- **Note: For BCE801x and BCE802x courses BOS will announce list of courses in 6th, 7th & 8th Sem. Students can register in any of the semester to earn the credits in 8th Sem.**

Elucidation:

At the beginning of IV years of the program i.e., after VI semester, VII semester class work 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 class work 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 center, Start-up, center 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 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.

