



**SCHEME OF TEACHING AND EXAMINATIONS 2021
OUTCOME BASED EDUCATION (OBE) AND CHOICE BASED CREDIT SYSTEM (CBCS)
(2021-SCHEME: EFFECTIVE FROM THE ACADEMIC YEAR 2022 - 23)**

Sl. No.	Course	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	CIA Marks	SEE Marks	Total Marks	
1	BSC	21MAT301	Computational Mathematics - I	Maths / Any CSE Board Department	3	0	0	1	3	50	50	100	3
2	IPCC	21CS32	Digital Logic Design and Computer Organization	Any CSE Board	3	0	2	0	3	50	50	100	4
3	IPCC	21CS33	Object Oriented Programming with Java		3	0	2	0	3	50	50	100	4
4	PCC	21CS34	Data Structures and its Applications		3	0	0	0	3	50	50	100	3
5	PCC	21CSL35	Data Structures Laboratory with C		0	0	2	0	2	50	50	100	1
6	UHV	21UH36	Social Connect and Responsibilities	Any Department	1	0	0	0	1	50	50	100	1
7	HSMC	21KSK37/47	Sanskrutika Kannada	TD and PSB: HSMC	1	0	0	0	1	50	50	100	1
	HSMC	21KBK37/47	Balake Kannada										
	OR												
	HSMC	21CIP37/47	Constitution of India, Professional Ethics and Cyber Laws										
8	AEC	21CS38X / 21CSL38X	Ability Enhancement Course - III	TD: Concerned Department PSB: Concerned Board	If offered as Theory Course				1	50	50	100	1
					1	0	0	0					
					If offered as Lab. Course				2				
					0	0	2	0					
Total									400	400	800	18	
9	Scheduled activities for III to VIII semesters	NMDC 21NS83	National Service Scheme (NSS)	NSS	All students have to register for any one of the mandatory non-credit course namely National Service Scheme (NSS), Physical Education (PE) (Sports and Athletics) and Yoga during the III semester. the concerned coordinators will schedule the activities as per the academic calendar. The successful completion of the registered course is mandatory for the award of the degree and the same will be reflected in the VI semester grade card. The course will be evaluated based on two components – Activities conducted (50 Marks) and Report (50 Marks), which will be evaluated by the faculty mentors and moderated by the Academic Section.								
		NMDC 21PE83	Physical Education (PE) (Sports and Athletics)	PED									

		NMDC 21YO83	Yoga	Yoga	The students have to obtain 50% of the marks in both the components for completing the course satisfactorily. Such students will be awarded with 'PP' grade. In the event of students failing to meet the requirements, they will be awarded with 'NP' grade and they will have to repeat the course subsequently.									
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COURSE PRESCRIBED TO LATERAL ENTRY DIPLOMA HOLDERS ADMITTED TO III SEMESTER B.E. PROGRAMS

1	NCMC	21MATDIP31	Additional Mathematics - I	Maths	2	0	0	1	3	50	50	100	0
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Note: BSC: Basic Science Course, IPCC: Integrated Professional Core Course, PCC: Professional Core Course, INT –Internship, HSMC: Humanity and Social Science & Management Courses, AEC– Ability Enhancement Courses. UHV: Universal Human Value Course.

L – Lecture, T – Tutorial, P- Practical/ Drawing, S – Self -Study Component, CIA: Continuous Internal Assessment, SEE: Semester End Examination, TD- Teaching Department, PSB: Paper Setting department.

21KSK37/47 Samskrutika Kannada is for students who speak, read and write Kannada and **21KBK37/47** Balake Kannada is for non-Kannada speaking, reading, and writing students.

Integrated Professional Core Course (IPCC): Refers to Professional Theory Core Course Integrated with Practical 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 CIA and SEE. The practical part shall be evaluated by only CIA (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 (BE) 2021-22 may be referred.

21INT49 Inter/Intra Institutional Internship: All the students admitted to engineering programs under the lateral entry category shall have to undergo a mandatory 21INT49 Inter/Intra Institutional Internship of 03 weeks during the intervening period of III and IV semesters. The internship shall be slated for CIA only and will not have SEE. The letter grade earned through CIA shall be included in the IV semester grade card. The internship shall be considered as a head of passing and shall be considered for vertical progression and for the award of degree. Those, who do not take up / complete the internship shall be declared fail and shall have to complete during subsequently after satisfying the internship requirements. The faculty coordinator or mentor shall monitor the students' internship progress and interact with them for the successful completion of the internship.

Non–Credit Mandatory Courses (NCMC):

(A) Additional Mathematics I:

- 1) This course is prescribed in the III semester to the lateral entry Diploma holders admitted to the second year of the B.E., programs. They shall attend the classes during the respective semesters to complete all the formalities of the course and appear for the Continuous Internal Assessment (CIA). These courses are slated for both CIA and SEE.
- 2) Additional Mathematics I shall not be considered for vertical progression as well as for the calculation of SGPA and CGPA, but completion of the courses shall be mandatory for the award of degree.
- 3) Successful completion of the courses Additional Mathematics I shall be indicated with Pass (PP) grade in the grade card. Non-completion of the courses will lead to the award of Not Pass (NP) Grade.
- 4) In case, any student fails to register for the said course/fails to secure the minimum 40% of the prescribed CIA marks and 40% of the prescribed SEE marks, shall be deemed to have secured an NP grade. In such a case, the student has to fulfill the course requirements during subsequent semester/s.

(B) National Service Scheme/Physical Education (Sport and Athletics)/ Yoga:

- 1) Securing 40% or more in CIA, 40% or more marks in SEE and 40% or more in the sum total of CIA + SEE leads to successful completion of the registered course.
- 2) In case, students fail to secure 40 % marks in SEE, they have to appear for SEE during the subsequent examinations and obtain the minimum requirement.
- 3) In case, any student fails to register for NSS, PE or Yoga/fails to secure the minimum requirements as mentioned in (B).1, they shall be awarded with NP Grade. In such a case, the student has to fulfill the course requirements during subsequent semester/s.
- 4) Successful completion of the course shall be indicated with a PP Grade in the grade card.
- 5) These courses shall not be considered for vertical progression as well as for the calculation of SGPA and CGPA, but completion of the courses shall be mandatory for the award of degree.

ABILITY ENHANCEMENT COURSE - III

21CSL381	Competitive Programming using C++	21CSL383	AUTOSAR
21CSL382	Fundamentals of R programming		



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SAHYADRI
COLLEGE OF ENGINEERING & MANAGEMENT
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B.E. IN INFORMATION SCIENCE & ENGINEERING

SCHEME OF TEACHING AND EXAMINATIONS 2021
OUTCOME BASED EDUCATION (OBE) AND CHOICE BASED CREDIT SYSTEM (CBCS)
(2021 SCHEME: EFFECTIVE FROM THE ACADEMIC YEAR 2022 - 23)

IV SEMESTER

Sl. No.	Course	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	CIA Marks	SEE Marks	Total Marks	
					L	T	P	S					
1	BSC	21MAT401	Computational Mathematics - II	Maths / Any CSE Board	3	0	0	1	3	50	50	100	3
2	IPCC	21CS42	Embedded System Concepts with ARM	Any CSE Board	3	0	2	0	3	50	50	100	4
3	IPCC	21CS43	Operating Systems		3	0	2	0	3	50	50	100	4
4	PCC	21CS44	Design and Analysis of Algorithms		3	0	0	0	3	50	50	100	3
5	AEC	21BE45	Biology for Engineers	Basic Science	2	0	0	0	3	50	50	100	2
6	PCC	21CSL46	Design and Analysis of Algorithms Laboratory with Python	Any CSE Board	0	0	2	0	2	50	50	100	1
7	HSMC	21KSK37/47	Samskrutika Kannada	HSMC	1	0	0	0	1	50	50	100	1
	HSMC	21KBK37/47	Balake Kannada										
	OR												
	HSMC	21CIP37/47	Constitution of India, Professional Ethics and Cyber Laws										
8	AEC	21CS48X / 21CSL48X	Ability Enhancement Course - IV	Concerned Board	If offered as Theory Course				1	50	50	100	1
					1	0	0	0					
					If offered as Lab. Course				2				
0	0	2	0										
9	UHV	21UH49	Understanding Harmony And Ethical Human Conduct	Any Department	1	0	0	0	1	50	50	100	1
10	INT	21INT49	Inter/Intra Institute Internship	Evaluation by the appropriate authorities	Completed				3	100	---	100	2
Total										550	450	1000	22

Chairperson
Board of Studies
Computer Science & Engineering & Allied Program



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COURSE PRESCRIBED TO LATERAL ENTRY DIPLOMA HOLDERS ADMITTED TO III SEMESTER B.E. PROGRAMS

1	NCMC	21MATDIP41	Additional Mathematics - II	Maths	2	0	0	1	3	50	50	100	0
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Note: BSC: Basic Science Course, IPCC: Integrated Professional Core Course, PCC: Professional Core Course, INT –Internship, HSMC: Humanity and Social Science & Management Courses, AEC– Ability Enhancement Courses. UHV: Universal Human Value Course.

L – Lecture, **T** – Tutorial, **P**- Practical/ Drawing, **S** – Self -Study Component, **CIA**: Continuous Internal Assessment, **SEE**: Semester End Examination, **TD**- Teaching Department, **PSB**: Paper Setting department.

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Integrated Professional Core Course (IPCC): Refers to Professional Theory Core Course Integrated with Practical 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 CIA and SEE. The practical part shall be evaluated by only CIA (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 (BE) 2021-22 may be referred.

21INT49 Inter/Intra Institutional Internship: All the students admitted to engineering programs under the lateral entry category shall have to undergo a mandatory 21INT49 Inter/Intra Institutional Internship of 03 weeks during the intervening period of III and IV semesters. The internship shall be slated for CIA only and will not have SEE. The letter grade earned through CIA shall be included in the IV semester grade card. The internship shall be considered as a head of passing and shall be considered for vertical progression and for the award of degree. Those, who do not take up / complete the internship shall be declared fail and shall have to complete during subsequently after satisfying the internship requirements. The faculty coordinator or mentor shall monitor the students' internship progress and interact with them for the successful completion of the internship.

Non–Credit Mandatory Courses (NCMC):

(A) Additional Mathematics II:

- 1) This course is prescribed in the IV semester to the lateral entry Diploma holders admitted to the second year of the B.E., programs. They shall attend the classes during the respective semesters to complete all the formalities of the course and appear for the Continuous Internal Assessment (CIA). These courses are slated for both CIA and SEE.
- 2) Additional Mathematics II shall not be considered for vertical progression as well as for the calculation of SGPA and CGPA, but completion of the courses shall be mandatory for the award of degree.
- 3) Successful completion of the course Additional Mathematics II shall be indicated with Pass (PP) grade in the grade card. Non-completion of the courses will lead to the award of Not Pass (NP) Grade.
- 4) In case, any student fails to register for the said course/fails to secure the minimum 40% of the prescribed CIA marks and 40% of the prescribed SEE marks, shall be deemed to have secured an NP grade. In such a case, the student has to fulfill the course requirements during subsequent semester/s

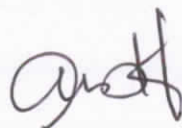
ABILITY ENHANCEMENT COURSE - IV

21CSL481	Competitive Programming Using GO	21CSL483	SENSOR SYSTEM and IOT
21CSL482	Data Visualization using R Programming		



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B.E. in Information Science & Engineering

SCHEME OF TEACHING AND EVALUATION 2021

OUTCOME BASED EDUCATION(OBE) AND CHOICE BASED CREDIT SYSTEM(CBCS)

(2021 SCHEME: EFFECTIVE FROM THE ACADEMIC YEAR 2023 - 24)

V SEMESTER

Sl. No.	Course	Course Code	CourseTitle	Teaching Department (TD)	Question Paper Setting Board (PSB)	Teaching Hours/ Week				Examination				Credits
						Theory Lecture	Tutorial	Practical/ Drawing	Self-Study	Duration in hours	CIA Marks	SEE Marks	Total Marks	
						L	T	P	S					
1	IPCC	21IS51	Data Science for Engineers	ISE	CSE	03	00	02	00	3	50	50	100	4
2	IPCC	21CS52	Data Communications and Networks	CSE Allied	CSE	03	00	02	00	3	50	50	100	4
3	PCC	21CS53	Automata Theory and Computability	CSE Allied	CSE	03	00	00	00	3	50	50	100	3
4	PCC	21CS54	Database Management Systems	CSE Allied	CSE	03	00	00	00	3	50	50	100	3
5	PCC (Lab)	21CSL55	Database Management Systems Laboratory	CSE Allied	CSE	00	00	02	00	3	50	50	100	1
6	PROJ	21ISMP56	Mini Project Work	ISE	CSE	00	00	04	00	3	50	---	50	2
7	AEC	21IPR57	Research Methodology and Intellectual Property Rights	CSE Allied	CSE	01	00	00	00	1	50	50	100	1
8	HSMC	21ENV58	Environmental Studies	BSC	BSC	01	00	00	00	1	50	50	100	1
9	AEC	21CS59X	Ability Enhancement Course V	CSE Allied	CSE	00	00	02	00	2	50	50	100	1
10	Scheduled activities for III to VI semesters		National Service Scheme (NSS)	NSS / PED / Yoga	00	00	02	00	Activities to be carried out by the student in the registered course				0	
			Physical Education (PE) (Sports and Athletics)											
			Yoga											
											450	400	850	20

ABILITY ENHANCEMENT COURSE – V			
21CS591	MongoDB	21CS593	Game Development
21CS592	Mobile Application Development	21CS594	GitHub: AI-Powered Developer Platform
Note: BSC: Basic Science Course, IPCC: Integrated Professional Core Course, PCC: Professional Core Course, INT –Internship, HSMC: Humanity and Social Science & Management Courses, AEC –Ability Enhancement Courses. UHV: Universal Human Value Course, MP: Mini Project L – Lecture, T – Tutorial, P - Practical/ Drawing, S – Self -Study Component, CIA: Continuous Internal Assessment, SEE: Semester End Examination, TD- Teaching Department, PSB: Paper Setting department.			
Integrated Professional Core Course (IPCC): Refers to Professional Theory Core Course Integrated with Practical 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 CIA and SEE. The practical part shall be evaluated by only CIA (no SEE). However, questions from the practical part of IPCC shall be included in the SEE question paper.			
Mini Project Work: Mini Project is a hands-on course which will provide a platform to students to enhance their practical knowledge and skills by the development of small systems/applications. The mini-project requires the students to carry out interdisciplinary work either as an individual student or to a group having not more than FOUR students. 1. The mini-project work will carry only the CIA component and will not have SEE component. 2. The mini project needs to be mandatorily done as Interdisciplinary work. 3. The Circuit branches (CSE/ISE/CSE-DS/CSE-CY/AI-DS/AI-ML) need to do the mini-project with non-circuit branches (ME/RA/ECE). 4. The circuit branches cannot do the mini-project with another Circuit branch, i.e. CSE with ISE/CSE-DS/CSE-CY/AI-DS/AI-ML. 5. The Start-up companies and LLPs may be involved in carrying out the Mini-project work. 6. The evaluation of the mini-project work will be done by two faculty members one faculty member from parent stream and another faculty member from the inter-disciplinary stream			
BoS SPECIFIED NPTEL COURSES (APPLICABLE ONLY TO THE STUDENTS WHO FAIL IN A COURSE MORE THAN FOUR TIMES)			
Course Code	Course Name	Alternative NPTEL Courses*	
21CS53	Automata Theory and Computability	Theory of Computation / Introduction to Automata Languages and Computation (12 Weeks)	
21CS54	Database Management Systems	Introduction to Database Systems (12 Weeks)	
*subjected to change depending on the courses offered by the NPTEL.			
Note: • The student has to provide the evidences for registering to the course, assignment submission, attending the examination and the certificate provided by NPTEL indicating the clearance of the Course by the candidate. • Only on submitting the valid documents, the student will be awarded with the credits mentioned against the course(s)			
Innovation/ Entrepreneurship/ Societal Internship: Students who missed the internship due to the Supplementary Semester have to complete the mandatory 4-week internship during the intervening period of the FIFTH and SIXTH semesters. The students need to satisfy all the requirements of the internship parameters. The evaluation of the Innovation/ Entrepreneurship/ Societal Internship will be done in the SIXTH semesters and the grades will be included in the SIXTH semester Grade card. In case, if the student fails to meet the internship requirements, they will be awarded with ‘F’ grade and will have to re-register and complete the same whenever offered.			



B.E. in Information Science & Engineering

SCHEME OF TEACHING AND EVALUATION 2021

OUTCOME BASED EDUCATION(OBE) AND CHOICE BASED CREDIT SYSTEM(CBCS)

(2021 SCHEME: EFFECTIVE FROM THE ACADEMIC YEAR 2023 - 24)

VI SEMESTER

Sl. No.	Course	Course Code	Course Title	Teaching Department (TD)	Question Paper Setting Board (PSB)	Teaching Hours/ Week				Examination				Credits
						Theory Lecture	Tutorial	Practical/ Drawing	Self-Study	Duration in hours	CIA Marks	SEE Marks	Total Marks	
						L	T	P	S					
1	HSMC	21CS61	Software Engineering and Project Management	CSE Allied	CSE	03	00	00	00	3	50	50	100	3
2	IPCC	21IS62	Big Data Analytics	ISE	CSE	03	00	02	00	3	50	50	100	4
3	PCC	21IS63	Artificial Intelligence and Machine Learning	ISE	CSE	03	00	00	00	3	50	50	100	3
4	PEC	21CS64X/ 21IS64X	Professional Elective Course I	CSE/ISE	CSE	03	00	00	00	3	50	50	100	3
5	PEC	21CS65X/ 21IS65X	Professional Elective Course II	CSE/ISE	CSE	03	00	00	00	3	50	50	100	3
6	PCC (Lab)	21ISL66	Artificial Intelligence and Machine Learning Laboratory	ISE	CSE	00	00	02	00	3	50	50	100	1
7	PROJ	21ISP67	Project Work Phase I	ISE	CSE	00	00	04	00	---	50	---	50	2
8	INT	21INT68	Innovation/ Entrepreneurship/ Societal Internship	ISE		Completed during the intervening period of IV and V Semester				100	---	100	3	
9	NMC	21NMC69	National Service Scheme (NSS)	Humanities		Completed during the intervening period of III and VI Semester				50	---	50	0	
Physical Education (PE) (Sports and Athletics)														
Yoga														
											500	300	800	22

PROFESSIONAL ELECTIVE COURSE I			
21IS641	Information Storage Management	21CS643	Social Network Analysis
21IS642	Industrial IoT and Analytics	21IS644	Drone Technology and Applications
PROFESSIONAL ELECTIVE COURSE II			
21CS651	Block Chain and Applications	21IS653	Cryptography and Network Security
21IS652	Computer Vision	21CS654	Software Architecture and Design Patterns
Note: BSC: Basic Science Course, IPCC: IntegratedProfessionalCoreCourse, PCC: ProfessionalCoreCourse, INT –Internship, HSMC: Humanity and Social Science &Management Courses, PEC –Professional Elective Course. OEC: Open Elective Course			
L – Lecture, T – Tutorial, P -Practical/ Drawing, S – Self -Study Component, CIA: Continuous Internal Assessment, SEE: SemesterEnd Examination, TD -TeachingDepartment, PSB: PaperSettingdepartment.			
Professional Elective Course (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 (OEC): 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.			
Selection of an Open Elective shall not be allowed if, - The candidate has studied the same course during the previous semesters of the program. - The syllabus content of open electives is similar to that of the Departmental core courses or Professional Elective courses. - A similar course, under any category, is prescribed in the higher semesters of the program. - In case, if any department is interested in offering courses from streams such as Law, Business (MBA), Medicine, Arts, Commerce etc. need to get the necessary approval from the respective Board of Studies and the Academic Council.			
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.			
Non-Credit Mandatory Courses (NCMC):			
National Service Scheme / Physical Education (Sport and Athletics) / Yoga: - Securing 40% or more in CIA, 40% or more marks in SEE and 40% or more in the sum total of CIA + SEE leads to successful completion of the registered course. - In case, students fail to secure 40 % marks in SEE, they have to appear for SEE during the subsequent examinations and obtain the minimum requirement. - In case, any student fails to register for NSS, PE or Yoga/fails to secure the minimum requirements as mentioned in (B).1, they shall be awarded with NP Grade. In such a case, the student has to fulfill the course requirements during subsequent semester/s. - Successful completion of the course shall be indicated with a PP Grade in the grade card. - These courses shall not be considered for vertical progression as well as for the calculation of SGPA and CGPA, but completion of the courses shall be mandatory for the award of degree.			

BoS SPECIFIED NPTEL COURSES
(APPLICABLE ONLY TO THE STUDENTS WHO FAIL IN A COURSE MORE THAN FOUR TIMES)

Course Code	Course Name	Alternative NPTEL Courses*
21IS63	Artificial Intelligence and Machine Learning	Introduction to Machine Learning / Fundamentals of Artificial Intelligence (12 Weeks)

***subjected to change depending on the courses offered by the NPTEL.**

Note:

- The student has to provide the evidences for registering to the course, assignment submission, attending the examination and the certificate provided by NPTEL indicating the clearance of the Course by the candidate.
- Only on submitting the valid documents, the student will be awarded with the credits mentioned against the course(s)



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B.E. in Information Science & Engineering

SCHEME OF TEACHING AND EVALUATION 2021

OUTCOME BASED EDUCATION(OBE) AND CHOICE BASED CREDIT SYSTEM(CBCS)

(2021 SCHEME: EFFECTIVE FROM THE ACADEMIC YEAR 2023 - 24)

VII SEMESTER

Sl. No.	Course	Course Code	Course Title	Teaching Department (TD)	Question Paper Setting Board (PSB)	Teaching Hours/ Week				Examination				Credits
						Theory Lecture	Tutorial	Practical/ Drawing	Self-Study	Duration in hours	CIA Marks	SEE Marks	Total Marks	
						L	T	P	S					
1	IPCC	21IS71	Cloud Computing, Security and Privacy	CSE/ISE	CSE	03	00	02	00	3	50	50	100	4
2	PCC	21IS72	Software Testing	ISE	CSE	03	00	00	00	3	50	50	100	3
3	PEC	21CS73X/ 21IS73X	Professional Elective Course III	CSE/ISE	CSE	03	00	00	00	3	50	50	100	3
4	OEC	21IS74X	Open Elective Course I	ISE	CSE	03	00	00	00	3	50	50	100	3
5	PCCL	21ISL75	Software Testing Laboratory	ISE	CSE	00	00	02	00	3	50	50	100	1
6	PROJ	21ISP76	Project Work Phase- II	ISE	CSE	00	00	16	00	3	100	100	200	8
											350	350	700	22

PROFESSIONAL ELECTIVE COURSE III

21CS731	Robotic Process Automation	21IS733	Natural Language Processing
21IS732	Data Visualization using Python	21IS734	High Performance Computing

OPEN ELECTIVE COURSE

21IS741	Information Management System	21IS743	Data Warehousing and Data Mining
21IS742	Introduction to Cloud Computing	21IS744	Introduction to Artificial Intelligence and Machine Learning

Note: **PCC:** Professional Core Course, **PEC**–Professional Elective Course. **OEC:** Open Elective Course, **PROJ:** Project Work

L – Lecture, **T** – Tutorial, **P**- Practical/ Drawing, **S** – Self -Study Component, **CIA:** Continuous Internal Assessment, **SEE:** Semester End Examination, **TD-** Teaching Department, **PSB:** Paper Setting department.

Professional Elective Course (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 (OEC): 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.

Selection of an Open Elective shall not be allowed if,

- i. The candidate has studied the same course during the previous semesters of the program.
- ii. The syllabus content of open electives is similar to that of the Departmental core courses or Professional Elective courses.
- iii. A similar course, under any category, is prescribed in the higher semesters of the program.

In case, if any department is interested in offering courses from streams such as Law, Business (MBA), Medicine, Arts, Commerce etc. need to get the necessary approval from the respective Board of Studies and the Academic Council.

The minimum numbers of student's 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.

Project Work:

The objective of the Project Work is to

- i. Encourage independent learning and the innovative attitude of the students
- ii. Develop interactive attitude, communication skills, Organization, Time Management and Presentation Skills.
- iii. Impart Flexibility and Adaptability
- iv. Inspire Team working
- v. Expand Intellectual capacity, credibility, judgment and intuition
- vi. Adhere to Punctuality, setting and meeting deadlines
- vii. Install responsibilities to oneself and others
- viii. Train students to present the topic of Project work without any fear, face the audience confidently, enhance communication skills, involve in group discussions to present and exchange ideas.

The CIA and SEE evaluation procedure for the Project work will be as provided by the Board of Studies in line with SCEM Academic Statute 2021 and approved by the Academic Council of SCEM.

BoS SPECIFIED NPTEL COURSES

(APPLICABLE ONLY TO THE STUDENTS WHO FAIL IN A COURSE MORE THAN FOUR TIMES)

Course Code	Course Name	Alternative NPTEL Courses*
21IS72	Software Testing	Software Testing (12 Weeks)

***subjected to change depending on the courses offered by the NPTEL.**

Note:

- The student has to provide the evidences for registering to the course, assignment submission, attending the examination and the certificate provided by NPTEL indicating the clearance of the Course by the candidate.
- Only on submitting the valid documents, the student will be awarded with the credits mentioned against the course(s)



SAHYADRI
COLLEGE OF ENGINEERING & MANAGEMENT
An Autonomous Institution
MANGALURU

B.E. in Information Science & Engineering

SCHEME OF TEACHING AND EVALUATION 2021

OUTCOME BASED EDUCATION(OBE) AND CHOICE BASED CREDIT SYSTEM(CBCS)

(2021 SCHEME: EFFECTIVE FROM THE ACADEMIC YEAR 2023 - 24)

VIII SEMESTER

Sl. No.	Course	Course Code	CourseTitle	Teaching Department (TD)	Question Paper Setting Board (PSB)	Teaching Hours/ Week				Examination				Credits
						Theory Lecture	Tutorial	Practical/ Drawing	Self-Study	Duration in hours	CIA Marks	SEE Marks	Total Marks	
						L	T	P	S					
1	SEM	21ISS81	Technical Seminar	ISE	CSE	One Contact hour per Week for interactions between the faculty and students				---	100	---	100	1
2	INT	21INT82	Research Internship/ Industrial Internship/ Rural Internship	ISE	CSE	Two Contact hours per week for interactions between Students and faculty members				3	100	100	200	15
											200	100	300	16

Note: INT: Internship, PCC: Professional Core Course, PEC–Professional Elective Course. OEC: Open Elective Course

L – Lecture, T – Tutorial, P- Practical/ Drawing, S – Self -Study Component, CIA: Continuous Internal Assessment, SEE: Semester End Examination, TD- Teaching Department, PSB: Paper Setting department.

Technical Seminar:In order to make the student aware of the technological and research application in various domains of the society, a comprehensive presentation need to be provided with all the supporting evidences for the claims in the presentation.

- The objective of the Technical Seminar is to inculcate self-learning, present the seminar topic confidently, enhance communication skill, involve in group discussion for exchange of ideas.
- Each student, under the guidance of a Faculty, shall choose a topic, preferably a recent topic in their interested specializations.
- The student has to
 - i. Carry out a detailed Literature survey, systematically organize the content
 - ii. Prepare the report as per their own intuition, without cut-paste activities.
 - iii. Use tools for writing equations, drawings etc. and gain proficiency of the tools used.
 - iv. Present the topics effectively through appropriate digital media.
 - v. Answer the queries posed and involve in healthy debates/discussions
 - vi. Submit a report in an error-free and professional way
 - vii. Present the findings of the seminar in the reputed Conferences/Journals for possible publications.

The evaluation procedure for the Technical Seminar will be as provided by the Board of Studies and approved by the Academic Council of SCEM.

21INT82 Research Internship/Industry Internship/Rural Internship

- **Research Internship:** This is intended to offer the flavor of current research happening in the Research fields. It helps students to get familiarize with the field and imparts the skill required for carrying out research.
- **Industry Internship:** An extended period of work experience undertaken by the students to supplement their degree for professional development. It also helps them learn to overcome unexpected obstacles and successfully navigate the organizations, perspectives and cultures. Dealing with contingencies helps the students recognize, appreciate and adapt to the organizational realities by tempering their knowledge with practical constraints.
- **Rural Internship:** A long term goal, as proposed under the AICTE rural internship programme, shall be counted as rural internship activity.
- The student may take up Interdisciplinary Research Internship or Industry Internship.
- The Faculty Mentor need to monitor the student's internship progress and interact with them to guide them for the successful completion of the internship requirements
- The students are permitted to carry out internship anywhere in India or Abroad. However, the institute will not bear any expenses incurred with respect to the internship.