



NEW HORIZON COLLEGE OF ENGINEERING

Autonomous College Permanently Affiliated to VTU, Approved by AICTE & UGC
Accredited by NAAC with 'A' Grade, Accredited by NBA

DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

9th BOARD OF STUDIES MEETING

Minutes of Meeting ACADEMIC YEAR 2023-24

DATE : 28-08-2023
VENUE : A104 – Netaji Subhash Chandra Bose Block, NHCE
TIME : 10.30 AM-1:30 PM

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AGENDA FOR THE MEETING

- 1. Welcome address by the chairman of BOS**
- 2. Presentation by chairman of BOS about department achievements**
- 3. Presentation of proceedings of the previous BOS meeting by chairman of BOS**
- 4. Proposed course details of 2021-scheme (5th to 8th), 2022-scheme (3rd to 8th) & syllabus for the academic year 2023-24**
- 5. Presentation of draft scheme & syllabus for the commencement semesters of (Agenda-4) schemes for ratification**
- 6. Recommendations/ suggestions of BOS members**
- 7. Implementation of recommendation of BOS members**
- 8. Approval of scheme & syllabus (Agenda 6 & 7)**
- 9. Proposed course details of 3rd & 4th M. Tech (CSE) of 2022-scheme**
- 10. Presentation of draft scheme & syllabus for the commencement semesters of (Agenda-9) schemes for ratification.**
- 11. Recommendations/ suggestions of BOS members.**
- 12. Implementation of recommendation of BOS members**
- 13. Approval of scheme & syllabus (Agenda 11 & 12)**
- 14. Vote of Thanks**

LIST OF MEMBERS-BOARD OF STUDIES

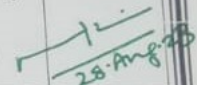
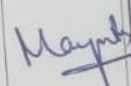
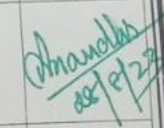
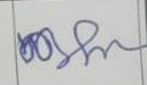
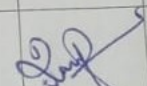
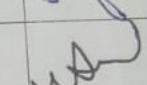
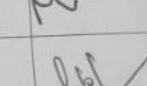
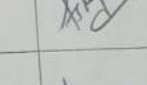
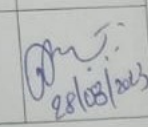
DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

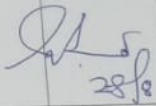

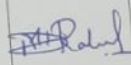



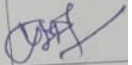
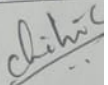
A.Y: 2023-24

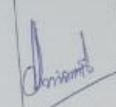
S. No	Category	Nomination of the committee	Name of the person	Designation & Affiliation
1	Head of the Department	Chairperson	Dr. B Rajalakshmi	Professor & Head of the Department, Dept of CSE, NHCE hod_cse@newhorizonindia.edu 9841711347
2	Special Invitees (one academician from Institution of National Eminence, IIT,NIT,IIM,IISC)	Principal	Dr. Manjunatha	Head of the Institution, New Horizon College of Engineering, principal@newhorizonindia.edu +91-80-662977 Extn: 5002
		IIT Ropar	Dr. S.R Sudarshan,	Associate Professor, IIT Ropar, Ropar sudarshan@iitrpr.ac.in 9023978851
		Dean Academics	Dr. R J Anandhi	Professor & Dean Academics, New Horizon College of Engineering, dean.academics@newhorizonindia.edu 91-80-66297777 Extn: 2026
3	Faculty member at different level with different specialization	Members		
		1	Dr.B.Meenakshi Sundaram	Professor, Dept of CSE, NHCE bmsundaram@gmail.com 9943460520
		2	Dr. Rachana P	Assoc. Prof, Dept of CSE, NHCE 2000.rachana@gmail.com 8075817202
		3	Dr. M. Nirmala	Associate Prof, Dept of CSE, NHCE drmnirmala15@gmail.com 9902441541
		4	Dr. Ashok K	Associate Prof, Dept of CSE, NHCE kashok16@gmail.com 9747339431
		5	Dr. Suganya	Associate Prof, Dept of CSE, NHCE suganyadurga@gmail.com 9036909112
4	Subject expert from outside the college nominated by Academic Council	Members		
		1	Dr.Jagdish S Kallimani	Professor & Head, Dept of AI&ML, MSRIT, Bangalore. hod_aiml@msrit.edu 9844094962

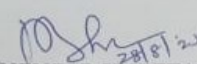
5	Experts from outside the college nominated by VTU	Member		
		1	Dr. Thippeswamy	Professor, Dept. of CSE BMSITM – Bengaluru gt_swamy@bmsit.in 9448864856
6	Representative from Industry / Corporate sector / allied area related to placements, nominated by Academic Council	Members		
		1	Mr Mohammed Anvar	Senior Technical Lead, Happiest Minds, Bangalore mohammed.anvar@happiestminds.com
7	Meritorious alumni nominated by Principal	Members		
		1	Mr. Rahul M Dinesh	Associate Software Engineer, Oracle Cerner, Bangalore. rahulmdinesh@yahoo.com +91 8197004171
8	Co-opted members	Members		
		1	Dr. B V Santosh Krishna	Associate Prof, Dept of CSE, NHCE santhoshkrishna1987@gmail.com 8610196443
		2	Ms. Soja Rani S	Sr. Asst. Professor, Dept of CSE, NHCE sojars@newhorizonindia.edu 9482598037
		3	Ms. Srividhya	Sr. Asst. Professor, Dept of CSE, NHCE v.vidhya8@gmail.com 9566507553
		4	Dr. Manikanda Kumar	Sr. Asst. Professor, Dept of CSE, NHCE manikandakumar.nhce@gmail.com 9943124384
		5	Ms. Chitra	Sr. Asst. Professor, Dept of CSE, NHCE chitra.014c@gmail.com 9738789080
		6	PROF. ANIS MIRZA	Head- IIIC & Corporate Relations Department of HRD tpo@newhorizonindia.edu 9900072558

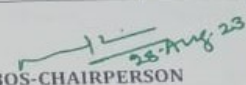
LIST OF MEMBERS PRESENT

LIST OF MEMBERS-BOARD OF STUDIES						
DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING						
A.Y: 2023-24						
S. No	Category	Nomination of the committee	Name of the person	Designation & Affiliation	Signature	
1	Head of the Department	Chairperson	Dr. B Rajalakshmi	Professor & Head of the Department, Dept of CSE, NHCE hod_cse@newhorizonindia.edu 9841711347	 28 Aug 23	
2	Special Invitees (one academician from Institution of National Eminence, IIT,NIT,IIM,IISC)	Principal	Dr. Manjunatha	Head of the Institution, New Horizon College of Engineering, principal@newhorizonindia.edu +91-80-662977 Extn: 5002		
		IIT Ropar	Dr. S.R Sudarshan,	Associate Professor, IIT Ropar, Ropar sudarshan@iitrpr.ac.in 9023978851	online	
		Dean Academics	Dr. R J Anandhi	Professor & Dean Academics, New Horizon College of Engineering, dean.academics@newhorizonindia.edu 91-80-66297777 Extn: 2026	 28/8/23	
3	Faculty member at different level with different specialization	Members				
		1	Dr.B.Meenakshi Sundaram	Professor, Dept of CSE, NHCE bmsundaram@gmail.com 9943460520		
		2	Dr. Rachana P	Assoc. Prof, Dept of CSE, NHCE 2000.rachana@gmail.com 8075817202		
		3	Dr. M. Nirmala	Associate Prof, Dept. of CSE, NHCE drmnirmala15@gmail.com 9902441541		
		4	Dr. Ashok K	Associate Prof, Dept of CSE, NHCE kashok16@gmail.com 9747339431		
		5	Dr. Suganya	Associate Prof, Dept of CSE, NHCE suganyadurga@gmail.com 9036909112		
4	Subject expert from outside the college nominated by	Members				
		1	Dr. Jagdish S Kallimani	Professor & Head, Dept of AI&ML, MSRIT, Bangalore. jagdish.k@msrit.edu	 28/08/2023	

	Academic Council			<u>hod_aiml@msrit.edu</u> 9844094962	
5	Experts from outside the college nominated by VTU	Member			
		1	Dr. Thippeswamy	Professor, Dept. of CSE BMSITM – Bengaluru <u>gt_swamy@bmsit.in</u> 9448864856	
6	Representative from Industry / Corporate sector / allied area related to placements, nominated by Academic Council	Members			
		1	Mr Mohammed Anvar	Senior Technical Lead, Happiest Minds, Bangalore mohammed.anvar@happiestminds.com	
7	Meritorious alumni nominated by Principal	Members			
		1	Mr. Rahul M Dinesh	Associate Software Engineer, Oracle Cerner, Bangalore. <u>rahulmdinesh@yahoo.com</u> +91 8197004171	
8	Co-opted members	Members			
		1	Dr. B V Santosh Krishna	Associate Prof, Dept of CSE, NHCE <u>santhoshkrishna1987@gmail.com</u> 8610196443	
		2	Ms. Soja Rani S	Sr. Asst. Professor, Dept of CSE, NHCE <u>sojars@newhorizonindia.edu</u> 9482598037	
		3	Ms. Srividhya	Sr. Asst. Professor, Dept of CSE, NHCE <u>v.vidhya8@gmail.com</u> 9566507553	
		4	Dr. Manikanda Kumar	Sr. Asst. Professor, Dept of CSE, NHCE <u>manikandakumar.nhce@gmail.com</u> 9943124384	
		5	Ms. Chitra	Sr. Asst. Professor, Dept of CSE, NHCE <u>chitra.014c@gmail.com</u> 9738789080	

		6	PROF. ANIS MIRZA	HEAD- IIIC & CORPORATE RELATIONS DEPARTMENT OF HRD TPO@NEWHORIZONINDIA.EDU 9900072558	
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BOS-MEMBER SECRETARY


BOS-CHAIRPERSON

AGENDA -1

Welcome Address by the Chairman of BOS

The 9th Board of Studies meeting for Department of Computer Science and Engineering was scheduled on 28th August 2023 at 10.30 AM.

At the outset, Chairperson **Dr. B. Rajalakshmi** – Professor & Head – Department of Computer Science and Engineering, welcomed all the members to the 9th Board of Studies meeting.

The Chairperson introduced **Dr. R. J. Anandhi**, Prof & Dean – Academics, New Horizon College of Engineering to the members of Board of Studies and welcomed her for the ensuing proceedings.

The Chairperson further expressed special thanks to **Dr. Thippeswamy**, an expert, nominated by VTU, Special Invitees from IIT Ropar, **Dr. S.R Sudarshan** and a subject expert from outside the college nominated by Academic Council **Dr. Jagdish S Kallimani**, Professor & Head, Department of AI & ML, MSRIT, Bangalore.

The chairperson also expressed her gratitude to industrial nominee by Academic Council, **Mr. Mohammed Anvar**, Senior Technical Lead, Happiest Minds, Bangalore, for sparing the time from his busy schedule to attend the meeting.

The meeting was also attended by meritorious alumnus **Ms. Rahul M Dinesh**, Associate Software Engineer, Oracle Cerner, Bengaluru, nominated by the Principal, Co-opted members **Dr. B V Santosh Krishna**, **Ms. Soja Rani S**, **Ms. Srividhya**, **Dr. Manikanda Kumar**, **Ms. Chitra**, **Prof. Anis Mirza** – Head IIC, HRD, and internal faculty members **Dr. B. Meenakshi Sundaram**, **Dr. Rachana**, **Dr. M Nirmala**, **Dr. Ashok K**, **Dr. Suganya R** with different specialization.

AGENDA -2

Presentation by chairman of BOS about department achievements

Chairperson of BOS Dr. B. Rajalakshmi, Professor & Head, Department of Computer Science and Engineering, presented the achievements of the department in the current academic year 2022-23.

AGENDA -3

Presentation of proceedings of the previous BOS meeting by chairman of BOS

Chairperson of BOS Dr. B. Rajalakshmi, Professor & Head, Department of Computer Science and Engineering, briefed the proceedings of previous BOS meeting acknowledging their contribution for betterment in framing the scheme & syllabus.

AGENDA -4

Proposed course details of 2021-scheme (5th to 8th), 2022-scheme (3rd to 8th) & syllabus for the academic year 2023-24

NEW HORIZON COLLEGE OF ENGINEERING
B. E. in Computer Science and Engineering
Scheme of Teaching and Examinations for 2021- 2025 BATCH (2021 Scheme)

V - Semester													
S. No.	Course and Course Code		Course Title	BoS	Credit Distribution				Overall Credits	Contact Hours	Marks		
					L	T	P	S			CIE	SEE	Total
1	PCC	21CSE51	Design and Analysis of Algorithms	CS	3	0	0	0	3	3	50	50	100
2	PCCL	21CSL51	Design and Analysis of Algorithms Lab	CS	0	0	1	0	1	2	50	50	100
3	PCC	21CSE52	Database Management Systems	CS	3	0	0	0	3	3	50	50	100
4	PCCL	21CSL52	Database Management Systems Lab	CS	0	0	1	0	1	2	50	50	100
5	PCC	21CSE53	Cyber Security Essentials	CS	3	0	0	0	3	3	50	50	100
6	PEC	21CSE54X	Professional Elective Course-I	CS	3	0	0	0	3	3	50	50	100
7	AEC	21CSL55X	Ability Enhancement Course-V	CS	0	0	1	0	1	2	50	50	100
8	MP	21CSE56	Mini Project	CS	0	0	1	0	1	2	50	50	100
9	AEC	21CSK57	Research Methodology and IPR	CS	1	0	0	0	1	2	50	50	100
10	UHV	21CSK58	Innovation and Design Thinking	CS	1	0	0	0	1	1	50	50	100
Total									18	23	500	500	1000

NCMC	21NSS84	National Service Scheme (NSS)	NSS coordinator	<p>All students have to register for any one of the courses namely National Service Scheme, Physical Education (PE) (Sports and Athletics) and Yoga with the concerned coordinator of the course during the first week of V semester. The activities shall be carried out from (for 4 semesters) between V semester to VIII semester.</p> <p>SEE in the above courses shall be conducted during VIII semester examinations and the accumulated CIE marks shall be added to the SEE marks.</p> <p>Successful completion of the registered course is mandatory for the award of the degree.</p> <p>The events shall to be reflected in the calendar prepared for the NSS, PE and Yoga activities.</p>
	21PES84	Physical Education (PE) (Sports and Athletics)	Physical Education Director	
	21YOG84	Yoga	Yoga Teacher	
<p>PCC: Professional Core Course, PCCL: Professional Core Course laboratory, UHV: Universal Human Value Course, NCMC: Non-Credit Mandatory Course, AEC: Ability Enhancement Course, PEC: Professional Elective Course, PROJ: Mini Project work L: Lecture, T: Tutorial, P: Practical S: SDA: Self Study for Skill Development, CIE: Continuous Internal Evaluation, SEE: Semester End Evaluation</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.

Professional Elective Course-I			
21CSE541	Finite Automata and Compiler Design	21CSE544	Web of Things and IoT
21CSE542	Software Testing	21CSE545	Advanced Java
21CSE543	Social Network Analysis		

Ability Enhancement Course-V			
21CSL551	Mobile App Development	21CSL554	IoT deployment
21CSL552	VR App Development	21CSL555	Web scraping for data analysis
21CSL553	Wearable Technology Programming		

Mini-project work: Mini Project is a laboratory-oriented/hand 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/sand recommendations of the mentor. A student can do mini project as

- (i) A group of 2 if mini project work is single discipline (applicable to all IT allied branches)
- (ii) A group of 2-4 if mini project work is single discipline (applicable to all Core Branches)
- (iii) A group of 2 -4 students if the Mini Project work is a multidisciplinary (Applicable to all Branches)

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 batches 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 percentage ratio of 50:25:25. The marks awarded for the project report shall be the same for all the batch mates

<p>Credit Definition: 1-hour Lecture (L) per week=1Credit 2-hours Tutorial (T) per week=1Credit 2-hours Practical / Drawing (P) per week=1Credit 2-hous Self Study for Skill Development (SDA) per week = 1 Credit</p>	<p>03-Credits courses are to be designed for 40 hours in Teaching-Learning Session 02- Credits courses are to be designed for 25 hours of Teaching-Learning Session 01-Credit courses are to be designed for 15 hours of Teaching-Learning Sessions</p>
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NEW HORIZON COLLEGE OF ENGINEERING
B. E. in Computer Science and Engineering
Scheme of Teaching and Examinations for 2021- 2025 BATCH (2021 Scheme)

VI - Semester													
S. No.	Course and Course Code		Course Title	BoS	Credit Distribution				Overall Credits	Contact Hours	Marks		
					L	T	P	S			CIE	SEE	Total
1	HSMC	21CSE61	Software Engineering and Project Management	CS	3	0	0	0	3	3	50	50	100
2	PCC	21CSE62	Data Mining and Machine Learning	CS	3	0	0	0	3	3	50	50	100
3	PCCL	21CSL62	Data Mining and Machine Learning Lab	CS	0	0	1	0	1	2	50	50	100
4	PCC	21CSE63	Computer Networks	CS	3	0	0	0	3	3	50	50	100
5	PCCL	21CSL63	Network Simulation Lab	CS	0	0	1	0	1	2	50	50	100
6	PEC	21CSE64X	Professional Elective Course-II	CS	3	0	0	0	3	3	50	50	100
7	UHV	21CSK65	Social Connect and Responsibility	CS	0	0	1	0	1	2	50	-	50
8	INT	21CSE66	Innovation/Entrepreneurship/ Societal Internship	CS	0	0	3	0	3	0	50	50	100
9	MP	21CSE67	Mini project	CS	0	0	1	0	1	2	50	50	100
10	OEC	21NHOP6XX	Industrial Open Elective Course-I	Offering Dept.	3	0	0	0	3	3	50	50	100
Total									22	23	500	450	950

HSMC: Humanity and Social Science & Management Course, **PCC:** Professional Core Course, **PCCL:** Professional Core Course laboratory, **NCMC:** Non-Credit Mandatory Course, **AEC:** Ability Enhancement Course, **PEC:** Professional Elective Course, **OEC:** Open Elective Course, **PROJ:** Project work, **L:** Lecture, **T:** Tutorial, **P:** Practical **S:** **SDA:** Self Study for Skill Development, **CIE:** Continuous Internal Evaluation, **SEE:** Semester End Evaluation.

Industrial Open Elective Course (OEC): Credit for OEC is 03 (L: T: P:S) can be considered as(3: 0:0 : 0). The teaching and learning of these Courses will be based on hands-on. The Course Assessment will be based on CIE and SEE in practical mode. This Courses will be offered by Centre of Excellence to students of all the branches. Registration to Industrial open electives shall be documented and monitored on college level.

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.

21XXX61 (HSMC)- This course must be pertaining to economics and management of the concerned degree program. The course syllabus should have both economics and management topics and the course title should bear the word Management.

For IT allied Branches: Software Product Management

For Core Branches:Engineering Economics and Management / Industrial Management/ Construction Management

Professional Elective Course-II			
21CSE641	Computational Intelligence	21CSE644	Embedded Programming
21CSE642	Cloud Computing	21CSE645	Advanced Databases
21CSE643	Bio Inspired Design and Innovation		

NEW HORIZON COLLEGE OF ENGINEERING
B. E. in Computer Science and Engineering
Scheme of Teaching and Examinations for 2021- 2025 BATCH (2021 Scheme)

VII - Semester													
S. No.	Course and Course Code		Course Title	BoS	Credit Distribution				Overall Credits	Contact Hours	Marks		
					L	T	P	S			CIE	SEE	Total
1	PCC	21CSE71	Full Stack Technologies	CS	3	0	0	0	3	3	50	50	100
2	PCC	21CSE72	Deep Learning	CS	3	0	0	0	3	3	50	50	100
3	PEC	21CSE73X	Professional Elective Course-III	CS	3	0	0	0	3	3	50	50	100
4	PROJ	21CSE74	Project Work	CS	0	0	10	0	10	10	100	100	200
5	OEC	21NHOP7XX	Industrial Open Elective Course-II	Offering Dept.	3	0	0	0	3	3	50	50	100
Total									22	22	300	300	600

PCC: Professional Core Course, **PCCL:** Professional Core Course laboratory, **PEC:** Professional Elective Course, **OEC:** Open Elective Course, **PROJ:** Project work, **L:** Lecture, **T:** Tutorial, **P:** Practical **S:** SDA: Self Study for Skill Development, **CIE:** Continuous Internal Evaluation, **SEE:** Semester End Evaluation.

Industrial Open Elective Course (OEC): Credit for OEC is 03 (L: T: P: S) can be considered as(3: 0: 0: 0). The teaching and learning of these Courses will be based on hands-on. The Course Assessment will be based on CIE and SEE in practical mode. This Courses will be offered by Centre of Excellence to students of all the branches. Registration to Industrial open electives shall be documented and monitored on college level.

Professional Elective Course-III

21CSE731	Fundamentals of Data Science	21CSE734	Industrial Robotics and Applications
21CSE732	Cloud Architecture Design & Security	21CSE735	Advanced Data Structures
21CSE733	Green IT and Sustainability		

Project Work:

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 percentage ratio of 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 percentage ratio of 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 percentage ratio of 50:25:25.

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VIII - Semester													
S. No.	Course and Course Code		Course Title	BoS	Credit Distribution				Overall Credits	Contact Hours	Marks		
					L	T	P	S			CIE	SEE	Total
1	SEM	21CSE81	Technical Seminar	CS	0	0	1	0	1	0	100	-	100
2	INT	21CSE82	Research Internship/ Industry Internship /Rural Internship	CS	0	0	14	0	14	0	100	100	200
3	AEC	21CSK83	Scientific Foundations of Health	CS	1	0	0	0	1	1	50	50	100
4	NCCM	21NSS84	National Service Scheme (NSS)	NSS coordinator	0	0	0	0	0	0	50	50	100
		21PES84	Physical Education (PE) (Sports and Athletics)	Physical Education Director									
		21YOG84	Yoga	Yoga Teacher									
Total									16	1	300	200	500

NCCM: Non-Credit Mandatory Course, **AEC:** Ability Enhancement Course, **SEM:** Seminar, **INT:** Industry Internship/Research Internship / Rural Internship, **L:** Lecture, **T:** Tutorial, **P:** Practical **S:** SDA: Self Study for Skill Development, **CIE:** Continuous Internal Evaluation, **SEE:** Semester End Evaluation.

Elucidation:

Research/Industry Internship/ Rural Internship / Innovation - Incubation Center Internship / Start-up 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 **24 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 SEE examination after satisfying the internship requirements.

Research internship: A research internship is intended to offer the flavour 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.

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 favourable facilities are available for the internship and the student remains regularly in contact with the internal guide.

TECHNICAL SEMINAR(21XXX81):The objective of the 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, preferably, a recent topic of his/her interest relevant to the programme of specialization.

- (i) Carry out literature survey, systematically organize the content.
- (ii) Prepare the report with own sentences, avoiding a cut and paste act.
- (iii) Type the matter to acquaint with the use of Micro-soft equation and drawing tools or any such facilities.
- (iv) Present the seminar topic through PowerPoint slides.
- (v) Answer the queries and involve in debate/discussion.
- (vi) Submit a typed report with a list of references.

The participants shall take part in the discussion to foster a friendly and stimulating environment in which the students are motivated to reach high standards and become self-confident.

Evaluation Procedure:

The CIE marks for the seminar shall be awarded (based on the relevance of the topic, presentation skill, participation in the question and answer session, and quality of report) by the committee constituted for the purpose by the Head of the Department. The committee shall consist of three teachers from the department with the senior-most acting as the Chairman.

Marks distribution for CIE of the course:

Seminar Report:50 marks

Presentation skill:25 marks

Question and Answer: 25 marks.

Non- credit mandatory courses(NCMC):

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

- (1)Securing 40 % or more in CIE,35 % or more marks in SEE and 40 % or more in the sum total of CIE + SEE leads to successful completion of the registered course.
- (2) In case, students fail to secure 35 % marks in SEE, they have to appear for SEE during the subsequent examinations conducted by the University.
- (3) In case, any student fails to register for NSS, PE or Yoga / fails to secure the minimum 40 % of the prescribed CIE marks, he/she shall be deemed to have not completed the requirements of the course. In such a case, the student has to fulfil the course requirements during subsequently to earn the qualifying CIE marks subject to the maximum programme period.
- (4)Successful completion of the course shall be indicated as satisfactory in the grade card. Non-completion of the course shall be indicated as Unsatisfactory.
- (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.

VII semester Class work and Research Internship/Industry Internship(21INT82)

Swapping Facility:

(1) Institutions can swap VII and VIII Semester Scheme of Teaching and Examinations to accommodate research internship/ industry internship 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 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 year of the programme i.e., after VI semester, VII semester class work and VIII semester Research Internship /Industrial Internship shall be permitted to be operated simultaneously by the University so that students have ample opportunity for internship.

In other words, a good percentage of the class shall attend VII semester class work and similar percentage of others shall attend to Research Internship or Industrial Internship.

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

The mandatory Research internship /Industry internship is for **24 weeks**. The internship shall be considered as a head of passing and shall be considered for the award of degree. Those, who do not take up/complete the internship shall be declared fail and shall have to complete during the subsequent University examination after satisfying the internship requirements.

Professional Elective Tracks – Summary (2021 Scheme)

SNO	TRACK	DEFINITION	PE-1 in 5th Sem	PE-2 in 6 th Sem	PE-3 in 7th Sem	Aspiring Roles
1	Advanced Computing and Data Science Specialization	Explores advanced computational techniques with in-depth data science skills, equipping students for the complex challenges of modern data-driven industries	Finite Automata and Compiler Design	Computational Intelligence	Fundamentals of Data Science	Data Science Architect
2	Cloud Computing and Software Testing Pathway	Approach by integrating cloud technologies and robust software testing methodologies, preparing professionals for reliable and scalable software solutions in cloud environment	Software Testing	Introduction to cloud computing	Cloud Architecture Design & Security	Cloud Quality Assurance Engineer
3	Sustainable Innovation and Network Analysis	Explores the synergy between eco-friendly innovation and comprehensive network analysis, fostering solutions that balance environmental responsibility with effective network optimization	Social Network Analysis	Bio Inspired Design and Innovation	Green IT and sustainability	Sustainable Network Strategist
4	IoT and Robotics Integration	Enabling students to design intelligent, interconnected systems that bridge the physical and digital worlds.	Web of Things and IoT	Embedded Programming	Industrial Robotics and Applications	IoT Robotics Integration Specialist
5	Advanced Software Development Technologies	Emerging software development paradigms, tools, and methodologies, equipping professionals to lead innovation in the software industry	Advanced Java Programming	Advanced Databases	Advanced Data Structures	Software Technology Innovator

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III - Semester													
S. No.	Course and Course Code		Course Title	BoS	Credit Distribution				Overall Credits	Contact Hours	Marks		
					L	T	P	S			CIE	SEE	Total
1	BSC	22CSE31	Mathematical Foundation for Computing Sciences	BS	3	0	0	0	3	3	50	50	100
2	PCC	22CSE32	Digital Logic Design	CS	3	0	0	0	3	3	50	50	100
3	PCCL	22CSL32	Digital Logic Design Laboratory	CS	0	0	1	0	1	2	50	50	100
4	PCC	22CSE33	Problem Solving using Data Structures	CS	3	0	0	0	3	3	50	50	100
5	PCCL	22CSL33	Problem Solving using Data Structures Lab	CS	0	0	1	0	1	2	50	50	100
6	PLC	22CSE34X	Programming Language Course	CS	2	0	1	0	3	3	50	50	100
7	AEC	22CSE35X	Ability Enhancement Course - III	CS	0	0	1	0	1	2	50	50	100
8	BSC	22BIK36	Bio Inspired Design and Innovation	MECH	3	0	0	0	3	3	50	50	100
9	NCCM	22NSK37	National Service Scheme (NSS)	NSS coordinator	0	0	0	0	0	2	50	--	50
		22PEK37	Physical Education (PE) (Sports and Athletics)	Physical Education Director									

		22YOK37	Yoga	Yoga Teacher										
10	UHV	22SCK38	Social Connect and Responsibility	Any Dept	0	0	1	0	1	2	50	--	50	
Total										19	25	500	400	900
11	NCMC	22DMAT311*	Diploma Mathematics -1	BS	0	0	0	0	0	2	50	--	50	
<p>BSC: Basic Science Course, PCC: Professional Core Course, PCCL: Professional Core Course laboratory, UHV: Universal Human Value Course, NCMC: Non-Credit Mandatory Course, AEC: Ability Enhancement Course, L: Lecture, T: Tutorial, P: Practical S: SDA: Self Study for Skill Development, 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, CIE: Continuous Internal Evaluation, SEE: Semester End Evaluation.</p>														

22DMAT311*: This non-credit mandatory course to be offered with only CIE and no SEE to Lateral entry students.

Engineering Science Course / Emerging Technology Course / Programming Language Course(ESC/ETC/PLC)			
22CSE341	Linux System Programming	22CSE344	Programming for IoT
22CSE342	Advanced Excel for Data Analysis	22CSE345	Ruby Programming
22CSE343	Prompt Engineering		

Ability Enhancement Course–III(For IT allied Branches, all are Laboratory Courses 0-0-1-0) (Other branches can have 1-0-0-0 or 0-0-1-0)			
22CSE351	Web Design Technologies	22CSE354	NLP toolkit
22CSE352	Game Development Libraries	22CSE355	Web Analytics Tools
22CSE353	Data Analytics Tools and Libraries		

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.

Credit Definition:

1-hour Lecture (L) per week=1Credit

2-hoursTutorial(T) per week=1Credit

2-hours Practical / Drawing (P) per week=1Credit

2-hous Self Study for Skill Development (SDA)
per week = 1 Credit

03-Credits courses are to be designed for 40 hours in Teaching-Learning Session

02- Credits courses are to be designed for 25 hours of Teaching-Learning Session

01-Credit courses are to be designed for 15 hours of Teaching-Learning Sessions

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IV - Semester													
S. No.	Course and Course Code		Course Title	BoS	Credit Distribution				Overall Credits	Contact Hours	Marks		
					L	T	P	S			CIE	SEE	Total
1	BSC/PC C	22CSE41	Discrete Mathematics and Graph Theory	BS	3	0	0	0	3	3	50	50	100
2	PCC	22CSE42	Computer Architecture with ARM	CS	3	0	0	0	3	3	50	50	100
3	PCCL	22CSL42	ARM Processor Lab	CS	0	0	1	0	1	2	50	50	100
4	PCC	22CSE43	Object-Oriented Programming	CS	3	0	0	0	3	3	50	50	100
5	PCCL	22CSL43	Object-Oriented Programming Lab	CS	0	0	1	0	1	2	50	50	100
6	PCC	22CSE44	Operating System	CS	3	0	0	0	3	3	50	50	100
7	PCCL	22CSL44	Operating System Lab	CS	0	0	1	0	1	2	50	50	100
8	PLC	22CSE45X	Programming Language Course	CS	2	0	1	0	3	3	50	50	100
9	AEC	22CSE46X	Ability Enhancement Course – IV	CS	0	0	1	0	1	2	50	50	100
10	NCMC	22NSK47	National Service Scheme (NSS)	NSS coordinator	0	0	0	0	0	2	50	--	50
		22PEK47	Physical Education (PE) (Sports and Athletics)	Physical Education Director									

		22YOK47	Yoga	Yoga Teacher									
11	UHV	22UHK48	Universal Human Values	Any Dept	1	0	0	0	1	2	50	--	50
12	PROJ	22CSE49	Mini Project	CS	0	0	1	0	1	2	50	50	100
Total									21	29	600	500	1100

13	NCMC	22DMAT411*	Diploma Mathematics -2	BS	0	0	0	0	0	2	50	--	50
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BSC: Basic Science Course, **PCC:** Professional Core Course, **PCCL:** Professional Core Course laboratory, **UHV:** Universal Human Value Course, **NCMC:** Non-Credit Mandatory Course, **AEC:** Ability Enhancement Course, **PROJ:** Mini Project work, **L:** Lecture, **T:** Tutorial, **P:** Practical **S:** SDA: Self Study for Skill Development, **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, **CIE:** Continuous Internal Evaluation, **SEE:** Semester End Evaluation.

22DMAT411*: This non-credit mandatory course to be offered with only CIE and no SEE to Lateral entry students.

Engineering Science Course / Emerging Technology Course / Programming Language Course(ESC/ETC/PLC)			
22CSE451	C# and .NET	22CSE454	Typescript Programming
22CSE452	PHP Programming	22CSE455	Web Scraping and Data Analysis
22CSE453	Haskell programming		

Ability Enhancement Course–IV(For IT allied Branches, all are Laboratory Courses 0-0-1-0) (Other branches can have 1-0-0-0 or 0-0-1-0)			
22CSE461	UI / UX Toolkit	22CSE464	Tools for Hosting platform
22CSE462	Cloud based collaborative tools	22CSE465	Search Engine Optimization Techniques
22CSE463	Graphics design and photo editing tools		

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 student can do mini project as

- (i) A group of 2 if mini project work is single discipline (applicable to all IT allied branches)
- (ii) A group of 2-4 if mini project work is single discipline (applicable to all Core Branches)
- (iii) A group of 2 -4 students if the Mini Project work is a multi-disciplinary (Applicable to all Branches)

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 batches mates.

(ii) **Inter-disciplinary:** 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 percentage ratio of 50:25:25. The marks awarded for the project report shall be the same for all the batch mates

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.

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V - Semester													
S. No.	Course and Course Code		Course Title	BoS	Credit Distribution				Overall Credits	Contact Hours	Marks		
					L	T	P	S			CIE	SEE	Total
1	HSMS	22CSE51	Software Engineering and Project Management	CS	3	0	0	0	3	3	50	50	100
2	PCC	22CSE52	Design and Analysis of Algorithms	CS	3	0	0	0	3	3	50	50	100
3	PCCL	22CSL52	Design and Analysis of Algorithms Lab	CS	0	0	1	0	1	2	50	50	100
4	PCC	22CSE53	Database Management Systems	CS	3	0	0	0	3	3	50	50	100
5	PCCL	22CSL53	Database Management Systems Lab	CS	0	0	1	0	1	2	50	50	100
6	PEC	22CSE54X	Professional Elective Course-I	CS	3	0	0	0	3	3	50	50	100
7	AEC	22RMK55	Research Methodology and IPR	CS	2	1	0	0	3	4	50	50	100
8	UHV	22ESK56	Environmental Studies	Any Dept	2	0	0	0	2	2	50	50	100
9	NCMC	22NSK57	National Service Scheme (NSS)	NSS coordinator	0	0	0	0	0	2	50	--	50
		22PEK57	Physical Education (PE) (Sports and Athletics)	Physical Education Director									

		22YOK57	Yoga	Yoga Teacher									
10	PROJ	22CSE58	Mini Project	CS	0	0	1	0	1	2	50	50	100
Total									20	26	500	450	950

PCC: Professional Core Course, **PCCL:** Professional Core Course laboratory, **UHV:** Universal Human Value Course, **NCMC:** Non-Credit Mandatory Course, **AEC:** Ability Enhancement Course, **PEC:** Professional Elective Course, **PROJ:** Mini Projectwork **L:** Lecture, **T:** Tutorial, **P:** Practical **S:** **SDA:** Self Study for Skill Development, **CIE:** Continuous Internal Evaluation, **SEE:** Semester End Evaluation

Professional Elective Course-I			
22CSE541	Finite Automata and Compiler Design	22CSE544	Web of Things and IOT
22CSE542	Introduction to Cloud Computing	22CSE545	Advanced Java Programming
22CSE543	R-Statistical Analysis		

22XXX51(HSMS)- This course must be pertaining to economics and management of the concerned degree program. The course syllabus should have both economics and management topics and the course title should bear the word Management.

For IT allied Branches: Software Product Management

For Core Branches: Engineering Economics and Management / Industrial Management and Entrepreneurship

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/application etc. Based on the ability/abilities of the student/s and recommendation of the mentor. A

student can do mini project as

- A group of 2 if mini project work is single discipline (applicable to all IT allied branches)
- A group of 2-4 if mini project work is single discipline (applicable to all Core Branches)
- A group of 2 -4 students if the Mini Project work is a multi-disciplinary(Applicable to all Branches)

CIE procedure for Mini-project:

(iii) 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 batches mates.

(iv) Inter-disciplinary: Continuous Internal Evaluations 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 percentage ratio of 50:25:25. The marks awarded for the project report shall be the same for all the batch mates.

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 can be added to supplement the latest trend and advanced technology in the selected stream of engineering.

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.

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VI - Semester													
S. No.	Course and Course Code		Course Title	BoS	Credit Distribution				Overall Credits	Contact Hours	Marks		
					L	T	P	S			CIE	SEE	Total
1	PCC	22CSE61	Data Mining and Machine Learning	CS	3	0	0	0	3	3	50	50	100
2	PCCL	22CSL61	Data Mining and Machine Learning Lab	CS	0	0	1	0	1	2	50	50	100
3	PCC	22CSE62	Computer Networks	CS	3	0	0	0	3	3	50	50	100
4	PCCL	22CSL62	Network Simulation Lab	CS	0	0	1	0	1	2	50	50	100
5	PCC	22CSE63	Cyber Security Essentials	CS	3	0	0	0	3	3	50	50	100
6	PEC	22CSE64X	Professional Elective Course-II	CS	3	0	0	0	3	3	50	50	100
7	PROJ	22CSE65	Project Phase-I	CS	0	0	2	0	2	0	50	50	100
8	OEC	22NHOP6XX	Industrial Open Elective Course-I	Offering Dept.	3	0	0	0	3	3	50	50	100
9	AEC	22CSE66X	Ability Enhancement Course – V	CS	0	0	1	0	1	2	50	50	100
10	NCMC	22NSK67	National Service Scheme (NSS)	NSS coordinator	0	0	0	0	0	2	50	--	50
		22PEK67	Physical Education (PE) (Sports and Athletics)	Physical Education Director									

		22YOK67	Yoga	Yoga Teacher									
Total									20	23	500	450	950

PCC: Professional Core Course, **PCCL:** Professional Core Course laboratory, **NMC:** Non-Credit Mandatory Course, **AEC:** Ability Enhancement Course, **PEC:** Professional Elective Course, **OEC:** Open Elective Course, **PROJ:** Project work, **L:** Lecture, **T:** Tutorial, **P:** Practical **S:** **SDA:** Self Study for Skill Development, **CIE:** Continuous Internal Evaluation, **SEE:** Semester End Evaluation.

Professional Elective Course-II			
22CSE641	Artificial Intelligence Fundamentals	22CSE644	Embedded Programming
22CSE642	Cloud Architecture Design & Security	22CSE645	Advanced Data Structures
22CSE643	Fundamentals of Data Science		

Ability Enhancement Course-V			
22CSE661	Mobile App Development	22CSE664	IoT Architect and Security
22CSE662	Data Visualization Tools	22CSE665	Containerization tools
22CSE663	Wearable Technology Programming		

Industrial Open Elective Courses-I:

Credit for OEC is 03 (L: T: P: S) can be considered as(3: 0: 0 : 0). The teaching and learning of these Courses will be based on hands-on. The Course Assessment will be based on CIE and SEE in practical mode. These Courses will be offered by Centre of Excellence to students of all the branches. Registration to Industrial open electives shall be documented and monitored on college level.

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.

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 can be added to supplement the latest trend and advanced technology in the selected stream of engineering.

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.

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VII - Semester													
S. No.	Course and Course Code		Course Title	BoS	Credit Distribution				Overall Credits	Contact Hours	Marks		
					L	T	P	S			CIE	SEE	Total
1	PCC	22CSE71	Full Stack Technologies	CS	3	0	0	0	3	3	50	50	100
2	PCCL	22CSL71	Full Stack Lab	CS	0	0	1	0	1	2	50	50	100
3	PCC	22CSE72	Deep Learning Techniques	CS	3	0	0	0	3	3	50	50	100
4	PCCL	22CSL72	Deep Learning Lab	CS	0	0	1	0	1	2	50	50	100
5	PCC	22CSE73	Finite Automata and Compiler Design	CS	3	1	0	0	4	5	50	50	100
6	PEC	22CSE74X	Professional Elective Course-III	CS	3	0	0	0	3	3	50	50	100
7	PROJ	22CSE75	Project Phase - II	CS	0	0	6	0	6	0	50	50	100
8	OEC	22NHOP7XX	Industrial Open Elective Course-II	Offering Dept.	3	0	0	0	3	3	50	50	100
Total									24	21	400	400	800

PCC: Professional Core Course, **PCCL:** Professional Core Course laboratory, **PEC:** Professional Elective Course, **OEC:** Open Elective Course, **PROJ:** Project work, **L:** Lecture, **T:** Tutorial, **P:** Practical **S:** **SDA:** Self Study for Skill Development, **CIE:** Continuous Internal Evaluation, **SEE:** Semester End Evaluation.

Professional Elective Course-III

22CSE741	Computational Intelligence Paradigms	22CSE744	Industrial Robotics and Applications
22CSE742	Bio Inspired Design and Innovation	22CSE745	Advanced Data Structures
22CSE743	Business Intelligence and Analysis		

Industrial Open Elective Courses-II:

Credit for OEC is 03 (L: T: P: S) can be considered as(3: 0: 0 : 0). The teaching and learning of these Courses will be based on hands-on. The Course Assessment will be based on CIE and SEE in practical mode. This Courses will be offered by Centre of Excellence to students of all the branches. Registration to Industrial open electives shall be documented and monitored on college level.

Project Phase-II:

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 percentage ratio of 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 percentage ratio of 50:25:25. The marks awarded for the project report shall be the same for all the batch mates.

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

NEW HORIZON COLLEGE OF ENGINEERING
B. E. in Computer Science and Engineering
Scheme of Teaching and Examinations for 2022- 2026 BATCH (2022 Scheme)

VIII- Semester													
S. No.	Course and Course Code		Course Title	BoS	Credit Distribution				Overall Credits	Contact Hours	Marks		
					L	T	P	S			CIE	SEE	Total
1	PEC	22CSE81X	Professional Elective Course -IV	CS	3	0	0	0	3	3	50	50	100
2	PEC	22CSE82X	Professional Elective Course -V	CS	3	0	0	0	3	3	50	50	100
3	INT	22CSE83	Internship (Industry/Research/ Rural) (14 - 20 weeks)	CS	0	0	10	0	10	0	100	100	200
Total									16	6	200	200	400

PEC: Professional Elective Course, **L:** Lecture, **T:** Tutorial, **P:** Practical **S:** SDA: Self Study for Skill Development, **INT:** Industry Internship / Research Internship / Rural Internship, **CIE:** Continuous Internal Evaluation, **SEE:** Semester End Evaluation.

Professional Elective Course-IV			
22CSE811	Computer Vision	22CSE814	Green IT and Sustainability
22CSE812	Micro Services Design Pattern	22CSE815	Concurrent Programming
22CSE813	Randomized Algorithms		

Professional Elective Course-V			
22CSE821	Natural Language Processing	22CSE824	Quantum Computing
22CSE822	Ethical Hacking Practices	22CSE825	Mobile Computing
22CSE823	Social Network Analysis		

Elucidation:

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 SEE examination after satisfying the internship requirements.

Research internship: A research internship is intended to offer the flavour 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.

Professional Elective Tracks – Summary (2021 Scheme)								
SNO	TRACK	DEFINITION	PE-1 in 5	PE-2 in 6	PE-3 in 7	PE-4 in 8	PE-5 in 8	Aspiring Roles
1	INTELLIGENT SYSTEMS DEVELOPMENT	1. Enabling students to create advanced and adaptable systems that can learn, reason, and make intelligent decisions	Finite Automata and Compiler Design	Artificial Intelligence Fundamentals	Computational Intelligence Paradigms	Computer Vision	Natural Language Processing	Cognitive Architect
2	FUTURE TECH FUSION	2. A dynamic convergence of emerging technologies and innovative practices to explore the boundless possibilities at its intersection	Introduction to Cloud Computing	Cloud Architecture Design & Security	Bio Inspired Design and Innovation	Micro Services Design Pattern	Ethical Hacking Practices	Emerging Technology Integrator
3	DATA-DRIVEN DECISION SCIENCE AND NETWORK INSIGHTS	3 Empowers individuals to harness data analytics, business intelligence, and social network analysis to drive informed decision-making and uncover valuable insights within interconnected systems	R - Statistical Analysis	Fundamentals of Data Science	Business Intelligence and Analytics	Randomized Algorithms	Social Network Analysis	Decision Science Network Analyst

4	TECHCONVERGE: BRIDGING TOMORROW'S WORLD	4. Emphasizes the convergence of different technology domains, ranging from IoT and embedded programming to quantum computing, all while considering sustainability and industrial applications	Web of Things and IoT	Embedded Programming	Industrial Robotics and Applications	Green IT and Sustainability	Quantum Computing	Technology Convergence Strategist
5	ADVANCED SOFTWARE DEVELOPMENT TECHNOLOGIES	5. Dynamic program delving into cutting-edge software development methodologies, tools, and frameworks to empower students with the skills needed for the ever-evolving tech landscape	Advanced Java Programming	Advanced Databases	Advanced Data Structures	Concurrent Programming	Mobile Computing	Software Technology Innovator

AGENDA-5

Presentation of draft scheme & syllabus for the commencement semesters of (Agenda-4) schemes for ratification

The Chairperson presented the draft of scheme and contents of syllabus. The details were scrutinized by the members of the Board.

The presentation for the ratification of a draft scheme and syllabus for semester courses is a crucial step in the academic process. The members formally accepted and appreciated the proposal of new courses. The objective of this presentation is to provide a comprehensive overview of the proposed courses, including their structure, content, assessment methods, and alignment with learning objectives.

In summary, the presentation session for draft scheme and syllabus ratification was very informative aimed at presenting comprehensive details about all intrinsic details of Core (Theory & Lab), Professional Electives, OEC (Open Elective Courses), PLC (Programming Language Courses) and AEC (Ability Enhancement courses). After emphasizing the courses' content, structure, assessment methods, and alignment with learning outcomes, ultimately seeking approval and endorsement from panel of external experts and university nominee.

AGENDA-6

Recommendations/ Suggestions of BOS Members

Board members appreciated the incorporation of advanced courses as electives in the UG curriculum

- The subjects appear well chained with the pre-requisites handled properly.
- Subjects should always have a lab component. It is great to see that the subjects are designed with a separate lab component. This is commendable.
- The Self study (S) part of the LTPS is zero for some reason. It is good to indicate this for the student.
- ACM guideline is in the draft stage and one can take a look at it for better designing of the CSE curriculum.
- Digital Logic Design – verification methods need to be incorporated
- PLC course – 2 0 1 0 (Contact hours to be marked as 2 + 2 = 4 hours)
- Action plan for social connect and responsibility need to be prepared well in advance
- NLP toolkit can be replaced with any other courses, since NLP comes in later semesters
- Operating system T & L and Design and Analysis of Algorithms T & L can be swapped
- List of electives to be put in a track for depth analysis / study of specialized courses by the students
- Mini project contact hours must be included in scheme to reflect on the workload
- Project work contact hours must be included in scheme to reflect on the workload
- AI needs to be included instead of software testing
- Industrial open elective must be opted by other dept students, It can be offered as professional elective for parent department students
- Embedded systems / programming to be included as core
- CO's should not be mapped to module content
- In syllabus template, remove the small box indicating the CO

AGENDA -7

Implementation of Recommendation of BOS Members

The chairperson constituted the following groups to review and implement the recommendations of the BOS members in the scheme and syllabus of the curriculum based on industry needs

5th Semester Courses (2023-24)

DAA (T + L) - Design and Analysis of Algorithms - Ms. Jayasree

DBMS (T + L) - Dr Suganya

Cyber Security Essentials - (Dr. MS and Ms. Naga Manjula)

Adv Java Programming - Prof Elective with hands-on - Dr. Rachana

Software Testing - Prof Elective with hands-on Ms. chitra sekhar

WoT & iot - Prof Elective with hands-on Ms. SriVidya

MAD - AEC - 1 credit - Ms. Lakshmi

6th Semester Courses (2023-24)

SE & PM - Dr. Dhanalakshmi

DM & ML (with lab) - Ms. Soja Rani

Comp Networks (with Lab) - Dr. BVS

3rd Semester Courses (2023-24)

Problem solving using Data structures - Dr. Sonali / Ms. Florance

Digital Logic and Design - Dr BVS

LSP - PLC - Ms. Pramila Rani

WDT - AEC - Mr. Geluvaraj

PLC course contents: (2-0-1-0)

Prompt Engineering - Dr. Manikanda Kumar

Programming for IOT - Mr. Santosh Kumar B

Ruby Programming - Ms. C. Lavanya

AEC course contents: (0-0-1-0)

Game Development Libraries - Ms. Nayana Kumar

Data Analytics Tools and Libraries - Ms. Thanga Subha

NLP toolkit - Ms. Naga Manjula

Web Analytics Tools - Ms. Soja

4th Semester - Syllabus (2023-24)

Computer Architecture with ARM Processor and Lab - Mr. Bhaskar

OOP - Ms. Devi Naveen

Operating System - Ms. Uma

PLC - C#.Net - Dr. Rachana

PLC - PHP programming –Ms. Florance

PLC - Haskell Programming - Ms. Lavanya

PLC - Typescript Programming - Ms. Yogitha

PLC - Web scraping and data analysis - Dr. Roja Ramani

AEC - UI/UX toolkit - Ms.SubhashreeRath

AEC - Google Workspace - Ms. AnuMohan

AEC - Graphics Design and Photo editing tools - Ms. Lakshmi

AEC - Tools for Hosting Platform - version control and collaboration - Mr. Geluvaraj

AEC - Search Engine Optimization - Dr. Nirmala

AGENDA -8

Approval of scheme & syllabus (Agenda 6 & 7)

The Board of Studies members reviewed the modified draft of the scheme & syllabus with their recommendations/suggestions being incorporated appropriately for the following:

- 1. Scheme-21 (5th to 8th Semester) and 5th - 6th BE (CSE) scheme & syllabus**
- 2. Scheme-22 (3rd to 8th Semester) and 3rd - 4th BE (CSE) scheme & syllabus**

Finally, the members approved the draft of the same with the modifications for final implementation.

AGENDA-9**Proposed course details of 3rd & 4th M.Tech (CSE)****of****2022-scheme****III - Semester (2022 Scheme - 80 Credits)**

Sl. No	Course Code	Course Name	Credits distribution				Total Credits	Marks		Remark (LAB/ Hands on Programs)
			L	T	P	S		CIE	SEE	
1.	22SCS31	Advanced computer network & security	3	1	0	0	4	50	50	100
2.	22SCS32X	Professional Elective – 3	3	0	0	0	3	50	50	100
3.	20NHOPXXX	Open Elective Courses – 1	3	0	0	0	3	50	50	100
4.	22SCS34	Project work phase – 1	0	0	3	0	3	100	--	100
5.	22SCS35	Societal Project	0	0	3	0	3	100	--	100
6.	22SCSI36	Internship (6 weeks)	0	0	6	0	6	50	50	100
Total Credits							22	400	200	600

SPECIALIZATION ELECTIVE-II		
SNO	COURSE	COURSE NAME
1	22SCS321	CYBER SECURITY MANAGEMENT
2	22SCS322	DESIGN THINKING
3	22SCS323	ENTREPRENEURSHIP & INNOVATION MANAGEMENT
4	22SCS324	GEOGRAPHIC INFORMATION SYSTEMS
5	22SCS325	BIOINFORMATICS

20NHOPXXX - OpenelectiveCourses-1			
20NHOP601	Big Data Analytics using HP Vertica- 1	20NHOP615	Product Life Cycle Management
20NHOP602	VM Ware Virtualization Essentials-1	20NHOP618A	Physical Design
20NHOP604	Big Data Analytics using HP Vertica - 2	20NHOP619A	AI Data Analysis with Python
20NHOP605	VM WARE Virtualization Essentials -2	20NHOP620A	Robotic Process Automation
20NHOP607	SAP	20NHOP621A	Industry 4.0
20NHOP608	Schneider - Industrial Automation	20NHOP622A	Programming of Industrial Robot
20NHOP609	Cisco - Routing & Switching - 1	20NHOP623A	5G Communication
20NHOP612	Cisco - Routing & Switching - 2	20NHOP624A	C# and .Net
20NHOP614	Blockchain		

IV - Semester (2022 Scheme - 80 Credits)

Sl. No	Course Code	Course Name	Credits distribution				Total Credits	Marks		Remark (LAB/ Hands on Programs)	
			L	T	P	S		CIE	SEE		
1.	22SCS41	PROJECT WORK PHASE-2	0	0	18	0	18	100	100	200	
2.	22MOOC2	BOS Recommended Online Courses	Classes and evaluation procedures are as per the policy of the on line course providers.								PP
Total Credits							18	100	100	200	

Note:

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 -1 to 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/s and co-guide/s (if any) and a senior 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 of 50:25:25.

SEE shall be at the end of IV semester. Project work evaluation and Viva-Voce examination (SEE), after satisfying the plagiarism check, shall be as per the University norms.

AGENDA -10

Presentation of draft scheme & syllabus for the commencement semesters of (Agenda-9) schemes for ratification

The Chairperson presented the draft of scheme and Contents of syllabus in each subject for Third & Fourth semester M.Tech (CSE) for scrutiny. The details were scrutinized by the members of the Board.

AGENDA -11

Recommendations/ suggestions of BOS members

Board members appreciated the incorporation of advanced courses as electives in the PG curriculum.

- The subjects appear well chained with the pre-requisites handled properly.
- Subjects should always have a lab component. It is great to see that the subjects are designed with a separate lab component. This is commendable.
- The Self-study (S) part of the LTPS is zero for some reason. It is good to indicate this for the student.
- ACM guideline is in the draft stage and one can take a look at it for better designing of the CSE curriculum.
- Expert member suggested to redefine the PO's, PEO's and PSO's in order to align with updated curriculum.
- Best Practices Adoption - Industry-oriented teaching should be practiced
- Stakeholder Feedbacks - Stakeholder feedback also discussed and incorporated into the curriculum
- MOOC courses may commence during the odd semester, while their assessment will take place during the even semester. Consequently, the Board of Studies has recommended that online courses be scheduled for the 2nd and 4th semesters.

AGENDA -12

Implementation of recommendation of BOS members

The chairperson constituted the following groups to review and implement the recommendations of the BOS members in the scheme and syllabus of the curriculum based on industry needs

MTech - 3rd semester

Advanced Computer Network & Security - Ms. SubhashreeRath

PE's

Internet of Things - Mr. B. Santoshkumar

Geographic Information system - Dr. Nirmala

Bioinformatics - Dr Meenakshi sundaram

Entrepreneurship & Innovation Managment - Dr Tejas

Design Thinking and innovation - Dr Dhanalakshmi

AGENDA -13

Approval of scheme & syllabus (Agenda 11& 12)

The Board of Studies members reviewed the modified draft of the scheme & syllabus with their recommendations/suggestions being incorporated appropriately.

Finally, the members approved the draft of the same with the modifications for final implementation.

AGENDA -14

Vote Of Thanks

The chairman of BOS thanked the external members for their fruitful participation on behalf of the Principal and the Management. She also thanked Dr. S R Sudarshan, Dr. Jagdeesh S Kallimani, Dr. Thippeswamy, Mr. Mohd Anvar and Mr. Rahul M Dinesh and all the other members of the BOS for their active participation.

Dr.B. Rajalakshmi

BOS - Chairman

Prof & Head - CSE