

**Kolhapur Institute of Technology's
College of Engineering
(Autonomous), Kolhapur**



Department of Computer Science & Engineering
Curriculum and Syllabus for
B. Tech. Computer Science & Engineering
Scheme 2024-25 (As Per NEP, 2020)

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ABOUT THE DEPARTMENT

The department was established in the year 1999 with an initial intake of 60. However, in 2018, due to demand from the industry and engineering aspirants the intake was increased to 180. The department has been accredited by the National Board of Accreditation (NBA) in 2008, 2018 and recently in 2023. The institution is accredited with A+ grade by National Assessment and Accreditation Council (NAAC) with CGPA 3.33 in 2023.

We have a highly committed and competitive team of faculty fraternity, who experiments and adapts new innovative pedagogy methods for making all the technical concepts clear as well to keep our students abreast with the latest technologies, skills and developments emerging in this field. We have one Doctorate Faculty member and 8 Faculty members are pursuing Ph.D. from various universities. This practice has proved our students very challenging and successful in various domains of competitions at university, state and national level.

DEPARTMENT

VISION

To be preferred choice of stakeholders by building core theoretical and practical skills in the students and abreast them to be globally competent with the latest technologies, skills and developments emerging in the field of Computer Science and Engineering.

DEPARTMENT MISSION

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|-----|---|
| M1: | To empower students with essential technical comprehension and skills. |
| M2: | To create awareness of societal and ethical needs in the field of Computer Science and Engineering. |
| M3: | To build competency among the students with modern tools & technologies and collaborative research. |

PROGRAMME EDUCATIONAL OBJECTIVES (PEO)

PEO1	Graduates will possess the fundamental knowledge of computer science and engineering needed to address challenges in the real world.
PEO2	Graduates will excel at using their theoretical knowledge in practice, which will enable them to reach professional success and corporate standards.
PEO3	Graduates will acquire humanity skills, professionalism, ethics, entrepreneurial skills and multidisciplinary approach for wider societal and environmental context
PEO4	Graduates will get a platform for research and development that will assist them in recognizing and addressing the challenges of the IT sector.

PROGRAMME OUTCOMES (PO)	
PO1:	Engineering knowledge: Apply knowledge of mathematics, natural science, computing engineering fundamentals, in depth technical competence in computer science and engineering discipline and an engineering specialization to develop the solution of complex engineering problems.
PO2:	Problem analysis: Identify, formulate, review various computer science research literatures and analyze complex engineering problems reaching substantiated conclusions with consideration for sustainable development.
PO3:	Design/Development of solutions: Design creative solutions for complex computer science and engineering problems and design/develop systems/components/processes to meet identified needs with consideration for the public health and safety, whole-life cost, net zero carbon, culture, society and environment as required.
PO4:	Conduct investigations of complex problems: Conduct investigations of complex computer science and engineering problems using research-based knowledge including design of experiments, modelling, analysis & interpretation of data to provide valid conclusions.
PO5:	Engineering Tool Usage: Create, select and apply appropriate techniques, resources and modern engineering & IT tools, including prediction and modelling recognizing their limitations to solve complex computer science and engineering problems.
PO6:	The Engineer and The World: Analyze and evaluate societal and environmental aspects while solving complex computer science and engineering problems for its impact on sustainability with reference to economy, health, safety, legal framework, culture and environment.
PO7:	Ethics: Apply ethical principles and commit to professional ethics, human values, diversity and inclusion; adhere to national & international laws.
PO8:	Individual and Collaborative Team work: Function effectively as an individual, and as a member or leader in diverse/multi-disciplinary teams.
PO9:	Communication: Communicate effectively and inclusively within the engineering community and society at large, such as being able to comprehend and write effective reports and design documentation, make effective presentations considering cultural, language, and learning differences.
PO10:	Project Management and Finance: Apply knowledge and understanding of engineering management principles and economic decision-making and apply these to one's own work, as a member and leader in a team, and to manage projects and in multidisciplinary environments.
PO11:	Life-Long Learning: Recognize the need for and have the preparation and ability for i) independent and life-long learning ii) adaptability to new and emerging technologies and iii) critical thinking in the broadest context of technological change in computer science and engineering discipline.

PROGRAMME SPECIFIC OUTCOMES (PSO)

PSO1:	Learn and adapt the latest software technologies in the field of computer science and engineering.
PSO2:	Identify and analyze real life problems and provide innovative software solutions.

**As per NEP Guidelines Proposed
Scheme of Credit Distribution**

Year											
FY											
SY											
TY											
B. Tech.											
Sr No		I	II	III	IV	V	VI	VII	VIII	Actual	NEP Guidelines
1	Basic Science course	8	8							16	14-18
2	Engineering Science course	7	6							13	12-16
3	Programme Core Courses	3		15	16	10	10	11		61	44-56
4	Programme Elective course					3	4	3	6	16	20
5	Multi Minor			2	3	3	3	3		14	14
6	Open elective					3	3	2		8	8
7	Vocational and Skill Enhancement course	1	3		1		1			6	8
8	Ability enhancement course		3			1				4	4
9	Entrepreneurship /Economics/ Management courses (Mgt/Economics/Mkt/Finance)			2		2				4	4
10	Indian knowledge system	2								2	2
11	Value Education course			2	2					4	4
12	Research Methodology (Project)							4		4	4
13	Comm. Engg Project/Field Project (PBL/Seminar/Mini Project)					1	1			2	2
14	Project								4	4	4
15	Internship/OJT (PBL/Seminar/Mini Project/Virtual Internship/Physical)			1	1				6	8	12
16	Co-curricular courses		1		1		1		1	4	4
		20-22	20-22	20-22	20-22	20-22	20-22	20-22	20-22	174	
		21	21	22	24	23	23	23	17	174	

SEMESTER III												
Sr No	Category	Course Code	Course Name	L	T	P	Hrs /Week	Credits	Evaluation Scheme (Components)			
1	PC	UCSPC0301	Discrete Mathematical Structures	3	-	-	3	3	ISE1	10		40
									MSE	30		
									ISE2	10		
									ESE	50	20	
2	PC	UCSPC0302	Advanced Data Structures and Algorithms	3	-	-	3	3	ISE1	10		40
									MSE	30		
									ISE2	10		
									ESE	50	20	
3	PC	UCSPC0303	Design Thinking	2	-	-	2	2	ISE1	10		40
									MSE	30		
									ISE2	10		
									ESE	50	20	
4	PC	UCSPC0304	Computer Networks	3	-	-	3	3	ISE1	10		40
									MSE	30		
									ISE2	10		
									ESE	50	20	
5	HSSM	UCSEM0305	Software Project Management	2	-	-	2	2	ESE	50	20	
6	VEC	UCSVE0306	Constitution of India	2	-	-	2	2	ISE	50	20	
7	PC	UCSPC0331	Advanced Data Structures and Algorithms Laboratory	-	-	2	2	1	ISE	25	10	
									ESE (POE)	25	10	
8	PC	UCSPC0332	Computer Networks Laboratory	-	-	2	2	1	ISE	25	10	
9	PC	UCSPC0333	Object Oriented Programming Laboratory	-	-	4	4	2	ISE	25	10	
									ESE (POE)	50	20	
10	OJT	UCSIL0371	Mini Project- I	-	-	2	2	1	ISE	50	20	
11	MM	UCSMM034*	Multi-Disciplinary Minor (MDM-I)	2	-	-	2	2	ESE	100	40	
Total							27	22	Total Marks: 800 Total Credit: 22			

SEMESTER IV												
Sr. No.	Category	Course Code	Course Name	L	T	P	Hrs P/Week	Credits	Evaluation Scheme (Components)			
1	PC	UCSPC0401	Computational Mathematics	3	-	-	3	3	ISE1	10	20	40
									MSE	30		
									ISE2	10		
									ESE	50		
2	PC	UCSPC0402	Web Technologies	3	-	-	3	3	ISE1	10	20	40
									MSE	30		
									ISE2	10		
									ESE	50		
3	PC	UCSPC0403	Automata Theory	3	-	-	3	3	ISE1	10	20	40
									MSE	30		
									ISE2	10		
									ESE	50		
4	PC	UCSPC0404	Introduction to Artificial Intelligence	2	-	-	2	2	ISE1	10	20	40
									MSE	30		
									ISE2	10		
									ESE	50		
5	PC	UCSPC0405	Operating Systems	3	-	-	3	3	ISE1	10	20	40
									MSE	30		
									ISE2	10		
									ESE	50		
6	VEC	UCSVE0406	Environmental Studies	2	-	-	2	2	ISE	50	20	
7	PC	UCSPC0431	Web Technologies Laboratory	-	-	2	2	1	ISE	25	10	
									ESE (POE)	25	10	
8	PC	UCSPC0432	Operating Systems Laboratory	-	-	2	2	1	ISE	25	10	
9	OJT	UCSIL0471	Mini-Project -II	-	-	2	2	1	ISE	25	10	
10	VSEC	UCSVS0433	Advanced Programming Laboratory	-	-	2	2	1	ISE	25	10	
									ESE (POE)	25	10	
11	CC	UCSCC0434	Co-Curricular Activities-II	-	-	2	2	1	ISE	50	20	
12	MM	UCSMM044*	Multi-Disciplinary Minor	3	-	-	3	3	ESE	100	40	
Total							29	24	Total Marks: 850 Total Credit: 24			

SEMESTER V												
Sr. No.	Category	Course Code	Course Name	L	T	P	Hrs /Week	Credits	Evaluation Scheme (Component)			
1	PC	UCSPC0501	Database Management Systems	3	-	-	3	3	ISE1	10		40
									MSE	30		
									ISE2	10		
									ESE	50	20	
2	PC	UCSPC0502	Compiler Design	3	-	-	3	3	ISE1	10		40
									MSE	30		
									ISE2	10		
									ESE	50	20	
3	PC	UCSPC0503	Machine Learning	2	-	-	2	2	ISE1	10		40
									MSE	30		
									ISE2	10		
									ESE	50	20	
4	PEC	UCSPE051*	Program Elective-I (PE-I)	3	-	-	3	3	ISE1	10		40
									MSE	30		
									ISE2	10		
									ESE	50	20	
5	OE	UCSOE052*	Open Elective-I (OE-I)	3	-	-	3	3	ISE1	10		40
									MSE	30		
									ISE2	10		
									ESE	50	20	
6	HSSM	UCSEM0504	Agile Project Management	2	-	-	2	2	ESE	50	20	
7	PC	UCSPC0531	Database Management Systems Laboratory	-	-	2	2	1	ISE	25	10	
									ESE (POE)	25	10	
8	PC	UCSPC0532	Machine Learning Laboratory	-	-	2	2	1	ISE	25	10	
									ESE (POE)	25	10	
9	AEC	UCSAE0533	Business Communication and Value Science	-	-	2	2	1	ISE	25	10	
10	CEP	UCSIL0571	Mini Project-III	-	-	2	2	1	ISE	25	10	
11	MM	UCSMM054*	Multi-Disciplinary Minor (MDM-III)	3	-	-	3	3	ESE	100	40	
Total							28	23	Total Marks: 800 Total Credit: 23			

PROGRAM ELECTIVE-I (PE-I)		
Sr. No.	Course Code	Course Name
1	UCSPE0511	IoT System Design
2	UCSPE0512	Computer Graphics
3	UCSPE0513	Linux Internals
4	UCSPE0514	Human Computer Interface (UI and UX)

SEMESTER VI													
Sr. No.	Category	Course Code	Course Name	L	T	P	Hrs/ Week	Credits	Evaluation Scheme (Component)				
1	PC	UCSPC0601	Advanced Database Management Systems	3	-	-	3	3	ISE1	10		40	
									MSE	30			
									ISE2	10			
									ESE	50	20		
2	PC	UCSPC0602	Information Security	3	-	-	3	3	ISE1	10		40	
									MSE	30			
									ISE2	10			
									ESE	50	20		
3	PC	UCSPC0603	Mobile Application Development	2	-	-	2	2	ISE1	10		40	
									MSE	30			
									ISE2	10			
									ESE	50	20		
4	PEC	UCSPE061*	Program Elective-II (PE-II)	3	-	-	3	3	ISE1	10		40	
									MSE	30			
									ISE2	10			
									ESE	50	20		
5	OE	UCSOE062*	Open Elective-II (OE-II)	3	-	-	3	3	ISE1	10		40	
									MSE	30			
									ISE2	10			
									ESE	50	20		
6	VSEC	UCSVS0631	Data Visualization Laboratory	-	-	2	2	1	ISE	25	10	10	
7	PC	UCSPC0632	Advanced Database Systems Laboratory	-	-	2	2	1	ISE	25	10		
									ESE (POE)	50	25		
8	PC	UCSPC0633	Information Security Laboratory	-	-	2	2	1	ISE	25	10		
									ESE (POE)	25	10		
9	PC	UCSPC0634	Mobile Application Development Laboratory	-	-	2	2	1	ISE	25	10		
10	FP	UCSIL0671	Mini Project IV	-	-	2	2	1	ISE	25	10		
11	CC	UCSCC0635	Co-Curricular Activities-III	-	-	2	2	1	ISE	50	20		
12	MM	UCSMM064*	Multi-Disciplinary Minor (MDM-IV)	3	-	-	3	3	ESE	100	40		
Total							29	23	Total Marks: 850 Total credits: 23				

PROGRAM ELECTIVE-II (PE-II)		
Sr. No.	Course Code	Course Name
1	UCSPE0611	Embedded Systems & RTOS
2	UCSPE0612	Business Intelligence
3	UCSPE0613	Augmented Reality (AR) and Virtual Reality (VR)
4	UCSPE0614	Ethical Hacking

SEMESTER VII													
Sr. No	Category	Course Code	Course Name	L	T	P	Hrs / Week	Credits	Evaluation Scheme (Component)				
1	PC	UCSPC0701	Big Data Analytic	3	-	-	3	3	ISE1	10		40	
									MSE	30			
									ISE2	10			
									ESE	50	20		
2	PC	UCSPC0702	Cloud Computing	3	-	-	3	3	ISE1	10		40	
									MSE	30			
									ISE2	10			
									ESE	50	20		
3	PC	UCSPC0703	Software Testing & Quality Assurance	2	-	-	2	2	ISE1	10		40	
									MSE	30			
									ISE2	10			
									ESE	50	20		
4	PEC	UCSPE071*	Program Elective-III (PE-III)	3	-	-	3	3	ISE1	10		40	
									MSE	30			
									ISE2	10			
									ESE	50	20		
5	OE	UCSOE072*	Open Elective-III (OE-III)	2	-	-	2	2	ISE1	10		40	
									MSE	30			
									ISE2	10			
									ESE	50	20		
7	PC	UCSPC0731	Cloud Computing Laboratory	-	-	2	2	1	ISE	25	10		
									ESE (POE)	25	10		
8	PC	UCSPC0732	Devops Laboratory	-	-	4	4	2	ISE	25	10		
									ESE (OE)	25	10		
9	RM	UCSIL0771	Project-I	-	-	8	8	4	ISE	50	20		
									ESE (OE)	50	20		
10	MM	UCSMM074*	Multi-Disciplinary Minor (MDM-V)	3	-	-	3	3	ESE	100	40		
Total:							30	23	Total Marks: 800 Total Credit: 23				

PROGRAM ELECTIVE-III (PE-III)		
Sr. No.	Course Code	Course Name
1	UCSPE0711	Deep Learning
2	UCSPE0712	IoTSecurity and Privacy
3	UCSPE0713	Natural Language Processing
4	UCSPE0714	Digital Image Processing

SEMESTER VIII												
Sr. No.	Category	Course Code	Course Name	L	T	P	Hrs/ Week	Credits	Evaluation Scheme (Component)			
1	PEC	UCSPE081*	Program Elective - IV (PE-IV)	3	-	-	3	3	ISE1	10		40
									MSE	30		
									ISE2	10		
									ESE	50	20	
2	PEC	UCSPE081*	Program Elective - V (PE-V)	3	-	-	3	3	ISE1	10		40
									MSE	30		
									ISE2	10		
									ESE	50	20	
3	RP	UCSIL0871	Project-II	-	-	8	8	4	ISE I	50	20	
									ESE (OE)	50	20	
4	OJT	UCSIL0872	Internship	-	-	12	12	6	ISE1	75	30	
									ISE2	75	30	
5	CC	UCSCC0831	Co-Curricular Activities-IV	-	-	2	2	1	ISE	50	20	
Total							28	17	Total Marks: 500 Total Credit: 17			

PROGRAM ELECTIVE IV (PE-IV)		
Sr. No.	Course Code	Course Name
1	UCSPE0811	Computer Vision
2	UCSPE0812	Cyber Security & Forensics
3	UCSPE0813	Robotic Process Automation

PROGRAM ELECTIVE V (PE-V)		
Sr. No.	Course Code	Course Name
1	UCSPE0814	Introduction to Blockchain
2	UCSPE0815	High Performance Computing
3	UCSPE0816	Quantum Computing

PROGRAM CORE								
Sr. No.	Semester	Course Code	Course Name	L	T	P	Hrs. / Week	Credits
1	III	UCSPC0301	Discrete Mathematical Structures	3	-	-	3	3
2	III	UCSPC0302	Advanced Data Structures and Algorithms	3	-	-	3	3
3	III	UCSPC0303	Design Thinking	2	-	-	2	2
4	III	UCSPC0304	Computer Networks	3	-	-	3	3
5	III	UCSPC0331	Advanced Data Structures and Algorithm lab	-	-	2	2	1
6	III	UCSPC0332	Computer Networks Lab	-	-	2	2	1
7	III	UCSPC0333	Object Oriented Programming Lab	-	-	4	4	2
8	IV	UCSPC0401	Computational Mathematics	3	-	-	3	3
9	IV	UCSPC0402	Web Technologies	3	-	-	3	3
10	IV	UCSPC0403	Automata Theory	3	-	-	3	3
11	IV	UCSPC0404	Introduction to Artificial Intelligence	2	-	-	2	2
12	IV	UCSPC0404	Operating Systems	3	-	-	3	3
13	IV	UCSPC0431	Web Technologies Laboratory	-	-	2	2	1
14	IV	UCSPC0432	Operating Systems Laboratory	-	-	2	2	1
15	V	UCSPC0501	Database Management Systems	3	-	-	3	3
16	V	UCSPC0502	Compiler Design	3			3	3
17	V	UCSPC0503	Machine Learning	2	-	-	2	2
18	V	UCSPC0531	Database Management Systems	-	-	2	2	1
19	V	UCSPC0532	Machine Learning Laboratory	-	-	2	2	1
20	VI	UCSPC0601	Advanced Database Systems	3	-	-	3	3
21	VI	UCSPC0602	Information Security	3	-	-	3	3
22	VI	UCSPC0603	Mobile Application Development	2	-	-	2	2
23	VI	UCSPC0631	Advanced Database Systems Laboratory	-	-	2	2	1
24	VI	UCSPC0632	Information Security Laboratory	-	-	2	2	1
25	VI	UCSPC0633	Mobile Application Development Laboratory	-	-	2	2	1
26	VII	UCSPC0701	Big Data Analytics	3	-	-	3	3
27	VII	UCSPC0702	Cloud Computing	3	-	-	3	3

28	VII	UCSPC0703	Software Testing & Quality Assurance	2	-	-	2	2
29	VII	UCSPC0731	Cloud Computing laboratory	-	-	2	2	1
30	VII	UCSPC0732	Devops Laboratory			4	4	1
				Total:			73	61

VOCATIONAL AND SKILL ENHANCEMENT COURSE								
Sr. No.	Semester	Course Code	Course Name	L	T	P	Hrs. / Week	Credits
1	IV	UCSVS0433	Advanced Programming Laboratory			2	2	1
2	VI	UCSVS0631	Data Visualization Laboratory			2	2	1
			Total				4	2

ABILITY ENHANCEMENT COURSE								
Sr. No.	Semester	Course Code	Course Name	L	T	P	Hrs. / Week	Credits
1	V	UCSAE0533	Business Communication and Value Science			2	2	1
			Total				2	1

VALUE EDUCATION COURSE								
Sr. No.	Semester	Course Code	Course Name	L	T	P	Hrs. / Week	Credits
1	III	UCSVE0306	Constitution of India	2	-	-	2	2
2	IV	UCSVE0406	Environmental studies	2	-	-	2	2
			Total				4	4

RESEARCH METHODOLOGY (PROJECT)								
Sr. No.	Semester	Course Code	Course Name	L	T	P	Hrs. / Week	Credits
1	VII	UCSIL0771	Project-I			8	8	4
2	VIII	UCSIL0871	Project-II			8	8	4
			Total				16	8

ENTREPRENEURSHIP /ECONOMICS/MANAGEMENT COURSES								
Sr. No.	Semester	Course Code	Course Name	L	T	P	Hrs. / Week	Credits
1	III	UCSEM0305	Software Project management	2			2	2
2	V	UCSEM0504	Agile Project management	2	-	-	2	2
			Total				4	4

COMMUNITY ENGINEERING PROJECT/FIELD PROJECT (PBL/SEMINAR/Mini Project)								
Sr. No.	Semester	Course Code	Course Name	L	T	P	Hrs. / Week	Credits
1	III	UCSIL0371	Mini Project-I	-	-	2	2	1
2	VI	UCSIL0471	Mini-Project-II	-	-	2	2	1
3	V	UCSIL0571	Mini-Project-III	-	-	2	2	1
4	VI	UCSIL0671	Mini-Project-IV	-	-	2	2	1
			Total				8	4

INTERNSHIP/ON JOB TRAINING								
Sr. No.	Semester	Course Code	Course Name	L	T	P	Hrs. / Week	Credits
1	VIII	UCSIL0872	Internship			12	12	6
			Total				12	6

CO-CURRICULAR COURSES								
Sr. No.	Semester	Course Code	Course Name	L	T	P	Hrs. / Week	Credits
1	IV	UCSCC0434	Co-Curricular Activities-II	-	-	2	2	1
2	VI	UCSCC0635	Co-Curricular Activities-III	-	-	2	2	1
3	VIII	UCSCC0831	Co-Curricular Activities-IV	-	-	2	2	1
			Total				6	3

OPEN ELECTIVE COURSES

Sr. No.	Semester	Course Code	Course Name	L	T	P	Hrs. / Week	Credit
1	V	UCSOE0521	Customer Relationship Management (OE-I)	3	-	-	3	3
			Total				3	3

Exit Courses after Semester – IV (For awarding a UG Diploma)

Course Code	Course Name	Teaching Scheme	Evaluation Scheme		
		Credits	Component	Marks	
				Max. Marks	Min. for Passing
UCSEX0491	Certification Course in Web Development / App Development	3	ISE	50	20
UCSEX0492	Certified Database Engineer	3	ISE	50	20
UCSEX0493	Training (Vocational)	2	ISE (OE)	50	20
	Total	8	Total Marks: 150 Total Credit: 8		

Exit Courses after Semester – VI (For awarding a Bachelor Degree)

Course Code	Course Name	Teaching Scheme	Evaluation Scheme		
		Credits	Component	Marks	
				Max. Marks	Min. for Passing
UCSEX0691	Certification Course in Cloud Computing	3	ISE	50	20
UCSEX0692	Certification Course in Networking	3	ISE	50	20
UCSEX0693	Training (Vocational)	2	ISE (OE)	50	20
	Total	8	Total Marks: 150 Total Credit: 8		

Multi-Disciplinary Minor (MDM) Courses offered to the CSE Students

Business Analytics

S. No	Course Code	Name of the course	Credits	Semester
1.	UCSMM0341	Business Statistics	2-0-0	III
2.	UCSMM0441	Optimization Methods for Analytics	3-0-0	IV
3.	UCSMM0541	Multivariate Data Analysis	3-0-0	V
4.	UCSMM0641	Social Media Analytics	3-0-0	VI
5.	UCSMM0741	Financial Analytics	3-0-0	VII

Internet of Things

S. No	Course Code	Name of the course	Credits	Semester
1.	UCSMM0342	Introduction to Internet of Things	2-0-0	III
2.	UCSMM0442	Introduction to Security of Cyber Physical Systems	3-0-0	IV
3.	UCSMM0542	Ubiquitous Sensing, Computing and Communication	3-0-0	V
4.	UCSMM0642	Embedded Systems for IoT	3-0-0	VI
5.	UCSMM0742	IoT with Arduino, ESP, and Raspberry Pi	3-0-0	VII

Smart Healthcare

S. No	Course Code	Name of the course	Credits	Semester
1.	UCSMM0343	AI in Healthcare	2-0-0	III
2.	UCSMM0443	Bioimaging	3-0-0	IV
3.	UCSMM0543	Bio-Statistics and Data Analysis	3-0-0	V
4.	UCSMM0643	AR VR applications for healthcare	3-0-0	VI
5.	UCSMM0743	Algorithms in Computational Biology	3-0-0	VII

Emerging Minor in Data Science

Emerging Minor in Data Science										
Course Code	Course Name	L			Hrs /Week	Credits	Evaluation Scheme (Components)			Semester
UCSMN0361	Mathematics for Data Science	3	1		4	4	ESE	100	40	III
UCSMN0461	Introduction to Data Science	3	1		4	4	ESE	100	40	IV
UCSMN0561	Computational Data analytics	3	1		4	4	ESE	100	40	V
UCSMN0661	Web Data Mining	3	1		4	4	ESE	100	40	VI
UCSMN0761	Python for Data Science	2			2	2	ESE	100	40	VII
		14	4		18	18	Total Marks: 500			
							Total Credit: 18			

B. Tech (Hons.) Computer Science & Engineering with Specialization of Artificial Intelligence & Data Science

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Course Code	Course Name	L	T	P	Hrs /Week	Credits	Evaluation Scheme (Components)			Semester
UCSHN0351	Mathematical Foundations for AI and ML	3	1		4	4	ESE	100	40	III
UCSHN0451	Data Engineering	3	1		4	4	ESE	100	40	IV
UCSHN0551	Artificial Intelligence and Machine Learning Programming	4		2	6	5	ESE	100	40	V
UCSHN0651	Deep Learning	3	1		4	4	ESE	100	40	VI
UCSHN0751	Mini Project			2		1	ESE	100	40	VII
		13	3	4	18	18	Total Marks: 500			
							Total Credit: 18			

