

# Computer Science & Engineering

## General Structure (2022-26)

Year	Course Code	Semester-I	L	P	U	Course Code	Semester-II	L	P	U	
<b>I</b>		Mathematics-I	3	0	3		Mathematics-II	3	0	3	
		English Language Skills	2	2	3		Physics	3	2	4	
		Introduction to Electrical and Electronics Sciences	3	2	4		Environment Sciences & SDGs	2	0	2	
		Chemistry	3	2	4		Digital Signal Processing	2	2	3	
		Introduction to AI & DS	3	0	3		Professional Communication	3	0	3	
		Computer Programming	3	2	4		Digital Fabrication	0	6	3	
							Data Structures	2	4	4	
	<b>Total No of Credits</b>			<b>21</b>			<b>Total No of Credits</b>			<b>22</b>	
<b>II</b>	<b>Semester-III</b>					<b>Semester-IV</b>					
		Introduction to IoT	2	2	3		Database Management Systems	3	2	4	
		Object Oriented Programming Concepts	3	2	4		Computer Organization and Architecture	3	0	3	
		Mathematics-III	3	0	3		Artificial Intelligence	3	0	3	
		Discrete Structure for Computer Science	3	0	3		Web Enabled Technologies (Web 3.0)	3	0	3	
		Design and Analysis of Algorithm	3	0	3		Industry Coding practice (Python & R)	2	2	3	
		Theory of Computation	3	0	3		Speech Processing	3	0	3	
		Principles of Managerial Economics	3	0	3		Data Science	3	0	3	
		CRT	0	2	1		CRT	0	2	1	
		MOOCS (Python Programming// Julia Programming)	0	0	0						
<b>Total No of Credits</b>			<b>23</b>			<b>Total No of Credits</b>			<b>23</b>		
<b>SUMMER INTERNSHIP PROGRAM I (for Internship option only)</b>								<b>5</b>			
<b>III</b>	<b>Semester-V</b>					<b>Semester-VI</b>					
		Principal of Cryptography	3	0	3		Open Elective	3	0	3	
		Operating Systems	3	2	4		Computer Networks	3	2	4	
		Programming Language & Compiler Construction	3	0	3		Big Data Systems	3	0	3	
		Machine Learning	3	0	4		Cloud Computing	3	2	4	
		Software Engineering	3	0	3		Intelligent Transport Systems	3	0	3	
		Open Elective	3	0	3		Computer Vision	3	0	3	
	Audit Course	0	0	0		Special Project/Capstone Project	0	6	3		

	CRT	0	2	1		CRT	0	2	1
<b>Total No of Credits</b>		<b>21</b>			<b>Total No of Credits</b>		<b>24</b>		
<b>IV</b>	<b>Semester-VII</b>				<b>Semester-VIII</b>				
		Internship Program II /				Internship Program II /			
		Thesis & Seminar /				Thesis & Seminar /			
		Electives (4) + Professional/Discipline				Electives (4) + Professional/Discipline			
		Humanities Elective (1) (Digital Humanities)				Humanities Elective (1) (Digital Humanities)			
<b>Total No of Credits</b>		<b>20/18</b>			<b>Total No of Credits</b>		<b>20/18</b>		
<b>Total No of Credits</b>							<b>177</b>		

*The Program structure is tentative, subject to change (if required).*

Discipline Elective I (V Semester)				
Course Code	Course Title	L	P	U
	Advanced Java	3	0	3
	Advanced Computer Architecture	3	0	3
	Parallel Computing	3	0	3
	Blockchain Technology	3	0	3
Discipline Elective I (VI Semester)				
	Social Network Analysis	3	0	3
	Real Time Systems	3	0	3
	Human Computer Interface	3	0	3
	Combinatorial Optimization	3	0	3
Digital Humanities Electives I (VII/VIII Semester)				
Course Code	Course Title	L	P	U
	Social Innovation	3	0	3

Specialization Electives (VII/VIII Semester)

Machine Learning				
Course Code	Course Title	L	P	U
CS404	Deep Learning	3	0	3
CS405	Natural Language Processing	3	0	3
CS406	Information retrieval	3	0	3
CS407	Pattern Recognition	3	0	3

Cyber Security				
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Course Code	Course Title	L	P	U
CS404	Ethical Hacking	3	0	3
CS405	Information Security	3	0	3
CS406	IoT Security	3	0	3
CS407	Cyber Security	3	0	3

Networks				
Course Code	Course Title	L	P	U
CS404	Wireless Networks	3	0	3
CS405	Network Administration	3	0	3
CS406	Network Security	3	0	3
CS407	AI in Wireless Communications	3	0	3

Advanced Computing				
Course Code	Course Title	L	P	U
CS404	High Performance Computing	3	0	3
CS405	Advanced Computer Architecture	3	0	3
CS406	Multicore Architecture	3	0	3
CS407	Parallel Computing	3	0	3

Database				
Course Code	Course Title	L	P	U
CS401	Database Administration	3	0	3
CS402	SQL & DB Applications	3	0	3
CS403	Database Security & Privacy	3	0	3
CS404	Data Wrangling	3	0	3

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