

## B Tech in Computer Science and Engineering (Artificial Intelligence)

(Academic Year 2022 onwards)

Year	THIRD SEMESTER						FOURTH SEMESTER						
	Sub. Code	Subject Name	L	T	P	C	Sub. Code	Subject Name	L	T	P	C	
II	MAT_2155	Engineering Mathematics – III	2	1	0	3	MAT_2156	Engineering mathematics – IV	2	1	0	3	
	CSE_2151	Computer Organization & Architecture	3	1	0	4	CSE_2254	Formal Languages and Automata Theory	2	1	0	3	
	CSE_2152	Data Structures	3	1	0	4	CSE_2252	Design and Analysis of Algorithms	3	1	0	4	
	CSE_2153	Digital System Design	3	1	0	4	CSE_2253	Embedded Systems	4	1	0	4	
	CSE_2154	Object Oriented Programming	3	1	0	4	CSE_2251	Database Systems	3	1	0	4	
	CSE_2161	Data Structures Lab	0	0	2	1	CSE_2262	Database Systems Lab	0	0	2	1	
	CSE_2162	Digital System Design Lab	0	0	2	1	CSE_2261	Algorithms Lab	0	0	2	1	
	CSE_2163	Object Oriented Programming Lab	0	0	2	1	CSE_2263	Embedded Systems Lab	0	0	2	1	
			<b>14</b>	<b>5</b>	<b>6</b>	<b>22</b>				<b>13</b>	<b>5</b>	<b>6</b>	<b>21</b>
<b>Total Contact Hours (L + T + P)</b>			<b>28</b>			<b>Total Contact Hours (L + T + P)</b>			<b>27</b>				

## B Tech in Computer Science and Engineering (Artificial Intelligence)

Year	FIFTH SEMESTER						SIXTH SEMESTER					
	Sub. Code	Subject Name	L	T	P	C	Sub. Code	Subject Name	L	T	P	C
III	HUM_3152	Essentials of Management	3	0	0	3	HUM_3151	Engineering Economics and Financial Management	3	0	0	3
	CSE_3171	Principles of Computer Vision	2	1	0	3	CSE_3273	Neural Networks & Deep Learning	2	1	0	3
	CSE_3172	Natural Language Processing	2	1	0	3	CSE_3274	Pattern Recognition	2	1	0	3
	CSE_3173	Fundamentals of Machine Learning	2	1	0	3		PE – 1 / Minor Specialization	3	0	0	3
	CSE_3174	Artificial Intelligence	2	1	0	3		PE – 2 / Minor Specialization	3	0	0	3
		OE – Creativity, Problem	3	0	0	3		OE – 1** (MLC)	3	0	0	3

		Solving and Innovation** (MLC) – mandatory											
	CSE_3181	Computer Vision Lab	0	0	2	1	CSE_3283	Neural Networks & Deep Learning Lab	0	0	2	1	
	CSE_3182	Artificial Intelligence Lab	0	0	2	1	CSE_3284	Pattern Recognition Lab	0	0	2	1	
	CSE_3183	Machine Learning Lab	0	0	2	1	CSE_3285	Natural Language Processing Lab	0	0	2	1	
			14	4	6	21			16	2	6	21	
	<b>Total Contact Hours (L + T + P)</b>		<b>27</b>				<b>Total Contact Hours (L + T + P)</b>		<b>27</b>				

\*\* Performance of students to be recorded in Eighth semester grade sheet

**B Tech in Computer Science and Engineering (Artificial Intelligence)**

Year	SEVENTH SEMESTER						EIGHTH SEMESTER					
	Sub. Code	Subject Name	L	T	P	C	Sub. Code	Subject Name	L	T	P	C
IV		PE – 3 / Minor Specialization	3	0	0	3	CSE_4298	Industrial Training (MLC)				1
		PE – 4 / Minor Specialization	3	0	0	3	CSE_4299	Practice school/Project Work				12
		PE – 5	3	0	0	3	CSE_4296	Project Work (B Tech – honours)* (V - VIII sem)				20
		PE – 6	3	0	0	3		B Tech – honours Theory – 1* (V semester)				4
		PE – 7	3	0	0	3		B Tech – honours Theory – 2* (VI semester)				4
		OE – 2** (MLC)	3	0	0	3		B Tech – honours Theory – 3* (VII semester)				4
		Mini Project (Minor specialization)				8						
				18	0	0	18/26***					
	<b>Total Contact Hours (L + T + P)</b>		<b>18</b>				<b>Total Contact Hours (L + T + P)</b>					

\*Applicable to eligible students who opted for and successfully completed the B Tech – honours requirements

\*\* Performance of students to be recorded in Eighth semester grade sheet?

\*\*\*Applicable to students who opted for minor specialization

Minor Specializations	Other Programme Electives	
<p><b>I. AI in Healthcare</b></p> <ol style="list-style-type: none"> <li>1. Applications of AI in Medicine - CSE_4014</li> <li>2. AI for Medical Image Analysis - CSE_4011</li> <li>3. Bio-Informatics- CSE_4012</li> <li>4. AI in Population Health Management-CSE_4015</li> </ol> <p><b>II. Computer Vision</b></p> <ol style="list-style-type: none"> <li>1. Vision sensors-CSE_4016</li> <li>2. Human Computer Interface -CSE_4069</li> <li>3. Autonomous Systems- CSE_4023</li> <li>4. Augmented and Virtual Reality- CSE_4051</li> </ol> <p><b>III. Internet of Things</b></p> <ol style="list-style-type: none"> <li>1. Introduction to IoT- CSE_4019</li> <li>2. IoT in Agriculture- CSE_4020</li> <li>3. IOT for Smart Cities- CSE_4022</li> <li>4. Internet of Robotics- CSE_4017</li> </ol> <p><b>IV. Data Analytics</b></p> <ol style="list-style-type: none"> <li>1. Data Warehousing and Mining- CSE_4060</li> <li>2. Business Intelligence and Analytics- CSE_4018</li> <li>3. Text Analytics - CSE_4006</li> <li>4. Semantic Web- CSE_4007</li> </ol> <p><b>V. Applied Natural Language Processing</b></p> <ol style="list-style-type: none"> <li>1. Deep Learning for Natural Language Processing- CSE_4025</li> <li>2. Speech Processing- CSE_4026</li> <li>3. Machine Translation- CSE_4024</li> </ol>	<ul style="list-style-type: none"> <li>• Android Application Development- CSE_4062</li> <li>• Ethical Hacking and Cyber Security- CSE_4066</li> <li>• Cloud Computing - CSE_4063</li> <li>• Design Patterns - CSE_4065</li> <li>• Blockchain Technology - CSE_4033</li> <li>• Digital Forensics- CSE_3114</li> <li>• Robotics and Intelligent Systems- CSE_4037</li> <li>• Recommender Systems - CSE_4008</li> <li>• Intelligent Databases - CSE_4009</li> <li>• Web Mining- CSE_4010</li> <li>• Cognitive Systems- CSE_4029</li> <li>• Applications of AI in Government and Business- CSE_4060</li> <li>• Computational Neuroscience- CSE_4061</li> <li>• Software Engineering- CSE_3154</li> <li>• Software Agents- CSE_4083</li> <li>• Expert Systems- CSE_4084</li> <li>• Knowledge and Data Engineering- CSE_4085</li> <li>• Game Programming- CSE_4067</li> <li>• High Performance Computing- CSE_4086</li> <li>• Information Retrieval- CSE_4070</li> <li>• Pervasive Computing - CSE_4073</li> <li>• Social Network Analysis - CSE_4074</li> <li>• Wireless Networks- CSE_4078</li> </ul>	<ul style="list-style-type: none"> <li>• Software Defined Networks - CSE_4079</li> <li>• Quantum Computing - CSE_4082</li> <li>• Logical AI And Automated Reasoning - CSE_4026</li> <li>• Reinforcement Learning - CSE_4028</li> <li>• Multimedia Retrieval- CSE_4088</li> <li>• Soft Computing Paradigms- CS_4054</li> <li>• AI in Cybersecurity- CSE_4027</li> <li>• Vulnerability Analysis- CSE_4083</li> <li>• Information Assurance and Risk Management- CSE_4084</li> </ul> <p><b>Open Electives</b></p> <ul style="list-style-type: none"> <li>• Introduction to Artificial Intelligence- CSE_4310</li> <li>• Introduction to Machine Learning- CSE_4311</li> <li>• Introduction to Natural Language Processing - CSE_4312</li> <li>• Principles of Soft Computing - CSE_4305</li> <li>• Essentials of Web 3.0- CSE_4313</li> <li>• Principles of Software Engineering- CSE_4306</li> </ul> <p><b>Note: All minor specialization courses are also part of other programme electives.</b></p> <p>The additional theory courses:</p> <ol style="list-style-type: none"> <li>1. CSE_5151: Advanced Computer Networks</li> <li>2. CSE_5022: Advanced Machine Learning</li> <li>3. CSE_5040: Pattern Recognition</li> </ol>

4. Conversational AI- CSE_4087		
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