

Faculty of Engineering, School of Information Technology  
Department of Data Science & Engineering

Degree: B. Tech. (Hons) Computer Science & Engineering (Data Science) Total Credit: 178 (160 + 18\*)

Third Semester						Fourth Semester						
Code	Subject Name	L	T	P	C	Code	Subject Name	L	T	P	C	
MEE2201	Engineering Economics	3	0	0	3	MAS2101	Statistics & Probability	3	0	0	3	
MBB2102	Management of Technology	3	0	0	3	DSE2201	Relational Database Management Systems	3	1	0	4	
DSE2101	Data Structures & Algorithms	3	1	0	4	DSE2202	Computer Networks	3	1	0	4	
DSE2102	Computer System Architecture	3	1	0	4	DSE2220 / DSE2221	Machine Learning / Data Analytics and Visualization	3	1	0	4	
DSE2103	Data Mining	3	1	0	4	DSE2240 / DSE2241	Cloud Computing / Digital Image Processing	3	0	0	3	
DSE2120 / DSE2121	Object Oriented Programming / Object Oriented Programming using Python	3	1	0	4	XXX0001	Open Elective 1	3	0	0	3	
DSE2130	Data Mining Lab	0	0	2	1	DSE2230	Relational Database Management Systems Lab	0	0	2	1	
DSE2131	Data Structures & Algorithms Lab	0	0	2	1	DSE2231	Computer Networks Lab	0	0	2	1	
DSE2170	Project-based Learning 1	0	0	2	1	DSE2270	Project-based Learning 2	0	0	2	1	
		18	4	6	25			18	3	6	24	
	<b>Total Contact Hours (L+T+P)</b>	<b>28</b>					<b>Total Contact Hours (L+T+P)</b>	<b>27</b>				

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Fifth Semester						Sixth Semester					
Code	Subject Name	L	T	P	C	Code	Subject Name	L	T	P	C
DSE3101	Design and Analysis of Algorithms	3	1	0	4	DSE3201	Software Engineering	3	1	0	4
DSE3102	Operating Systems	3	1	0	4	DSE3240 / DSE3241	Social Network Analysis / Data Forensics	3	0	0	3
DSE3120 / DSE3121	Deep Learning / Healthcare Data Analytics & Cognitive Intelligence	3	1	0	4	DSE3250 / DSE3251	Soft Computing Techniques / Web Technologies	3	0	0	3
DSE3140 / DSE3141	Computer Vision / NoSQL Database	3	0	0	3	DSE3260 / DSE3261	Big Data Analytics / Generative AI	3	0	0	3
DSE3150 / DSE3151	Theory of Computation / Graph Visualization	3	0	0	3	XXX00XX	Open Elective 3	3	0	0	3
XXX00XX	Open Elective 2	3	0	0	3	DSE3202	Professional Practice (Do the Coding as per the core course)	0	0	2	1
DSE3130	Design and Analysis of Algorithms Lab	0	0	2	1	DSE3230	Software Engineering Lab	0	0	2	1
DSE3131	Operating Systems Lab	0	0	2	1	DSE3231	Data Science Lab	0	0	2	1
DSE3170	Project-based Learning 3	0	0	2	1	DSE3270	Project-based Learning 4	0	0	2	3
DSE3180	Research Methodology	0	0	2	1	DSE3280	Honors Elective1	0	0	6	3
		18	3	8	25			15	1	14	25
	<b>Total Contact Hours (L+T+P)</b>	<b>29</b>					<b>Total Contact Hours (L+T+P)</b>	<b>30</b>			

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Seventh Semester						Eighth Semester						
Code	Subject Name	L	T	P	C	Code	Subject Name	L	T	P	C	
DSE4140 / DSE4141	Business Process Mining / Software Defined Networks	3	0	0	3	DSE4270	Major Project	0	0	0	12	
DSE4150 / DSE4151	Natural Language Processing / Nature Inspired Optimization Algorithms	3	0	0	3	DSE4280	Honors Project	0	0	0	8	
XXX00XX	Open Elective 4	3	0	0	3							
XXX00XX	Open Elective 5	3	0	0	3							
DSE4170	Internship (Industry or Research)	0	0	2	1							
DSE4180	Honors Elective 2	3	0	0	3							
DSE4181	Honors Elective 3	3	0	0	3							
		18	0	2	19						20	
	<b>Total Contact Hours (L+T+P)</b>	<b>20</b>					<b>Total Contact Hours (L+T+P)</b>					

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Flexi Core

Flexi Core 1	Flexi Core 2	Flexi Core 3
DSE2120 Object Oriented Programming DSE2121 Object Oriented Programming using Python	DSE2220 Machine Learning DSE2221 Data Analytics and Visualization	DSE3120 Deep Learning DSE3121 Healthcare Data Analytics & Cognitive Intelligence

Program Electives			
IV	V	VI	VII
<b>PE1</b> <ul style="list-style-type: none"> <li>• DSE2240: Cloud Computing</li> <li>• DSE2241: Digital Image Processing</li> </ul>	<b>PE2</b> <ul style="list-style-type: none"> <li>• DSE3140: Computer Vision</li> <li>• DSE3141: NoSQL Database</li> </ul> <b>PE3</b> <ul style="list-style-type: none"> <li>• DSE3150: Theory of Computation</li> <li>• DSE3151: Graph Visualization</li> </ul>	<b>PE4</b> <ul style="list-style-type: none"> <li>• DSE3240: Social Network Analysis</li> <li>• DSE3241: Data Forensics</li> </ul> <b>PE5</b> <ul style="list-style-type: none"> <li>• DSE3250: Soft Computing Techniques</li> <li>• DSE3251: Web Technologies</li> </ul> <b>PE6</b> <ul style="list-style-type: none"> <li>• DSE3260: Big Data Analytics</li> <li>• DSE3261: Generative AI</li> </ul>	<b>PE7</b> <ul style="list-style-type: none"> <li>• DSE4140: Business Process Mining</li> <li>• DSE4141: Software Defined Networks</li> </ul> <b>PE8</b> <ul style="list-style-type: none"> <li>• DSE4150: Natural Language Processing</li> <li>• DSE4151: Nature Inspired Optimization Algorithms</li> </ul>

Open Electives

Graded OE	
OE1 DSE0001: Introduction to Data Analytics OE2 DSE0002: Introduction to Python Programming OE3 DSE0003: Introduction to Data Visualization Techniques OE4 DSE0004: Soft Computing Techniques OE5 DSE0005: Cyber Crimes and its Measures	

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Program Electives for Hons.
VI / VII
DSE3180: Research Methodology DSE3280: Recommender Systems DSE4180: Affective Computing – NPTEL Link: <a href="https://onlinecourses.nptel.ac.in/noc24_cs12/preview">https://onlinecourses.nptel.ac.in/noc24_cs12/preview</a> DSE4181: Time Series Analysis DSE4182: Reinforcement Learning: – NPTEL Link: <a href="https://onlinecourses.nptel.ac.in/noc24_cs12/preview">Reinforcement Learning - Course (nptel.ac.in)</a>