

Integral University Lucknow
Department of Computer Science & Engineering

MTECH CSE (Spl. In Adv. Computing & Data Science)

The department of Computer Science & Engineering proposes a two-year M.Tech programme in Computer Science and Engineering, or CSE, with a specialization in “Advanced Computing & Data science”.

Salient features:

Intake: Twenty (20)

Duration: Two years, divided into four semesters. The programme will offer one year of research based dissertation work. To graduate, students must complete all academic requirements, including a dissertation.

Admissions: Admissions for the year 2018 will be managed by Integral University.

Eligibility and Admission Criteria:

The candidate must have passed any one of the following:

Bachelor of Engineering /Bachelor of Technology in CSE/IT/ EC from a recognized university,
MCA Degree (3 Year Programme)

Aggregate marks in the qualifying degree must be no less than 55% or equivalent cumulative grade point average (CGPA). Undergraduate candidates appearing for their final semester/year may also apply. If admitted, students in this category must submit their provisional degree certificate within 30 days of commencement.

Selection Procedure:

Applicants will be shortlisted on the basis of IUET/Academic Score and/or interview.

Those applicants who have a valid GATE score in any of these subjects: Computer Science, Information Technology, Electronics and Communication will be exempted from written test. The list of selected candidates, in order of merit, will be posted on the website. All admissions will be managed by Integral University.

Justification Why Advanced Computing & Data Science:

In an increasingly competitive marketplace, organizations need skilled professionals to interpret a growing stream and variety of data. Increasingly, industry focuses on how "big data" can be used to help decision makers improve organizational competitiveness.

The proposed M.Tech CSE programme with specialization in Advanced Computing & Data science is designed to meet this growing need. Our students gain hands-on experience with a variety of analytical tools available for the purpose of structuring large data sets, to unearth hidden information and patterns key to enterprise. Students also gain experience using different software tools and functions, including data mining, predictive modelling, and visual analytics using large data sets.

Program Educational Objectives:

Students will be prepared:

- To review and understand foundational Concepts in Computer Science, Data Science and Engineering.
- To critically analyze current trends and learn future issues from a system perspective at multiple levels of detail and abstraction.
- To design and implement databases, dimensional models, and data warehousing strategies.
- To apply advanced methods of data management and data mining in a variety of organizational environments.
- To transform large data sets into actionable information in an easy-to-understand format.
- To support organizational decision-making through the use of advanced analytical tools.
- To manage the quality, security, and privacy of data relevant to an organization to enhance its value.
- To apply the interaction between theory and practice for problem solving based on case studies
- To pursue lifelong multidisciplinary learning as professional engineers and scientists to effectively communicate technical information, function effectively on teams, and apply computer engineering solutions within a global, societal, and environmental context
- To critically analyze existing literature, identify the gaps in the existing literature, map the existing problems as Big Data and propose innovative and research oriented solutions.
- To process, model, analyze and visualize humongous data and uncover the data-driven latent insights
- To manage real life complex data analytics projects.

Program Outcomes:

Students will be enabled to:

- Assess alternative approaches and infrastructures for implementing big data analytics.
- Evaluate the appropriate methods and tools for data analysis in specific organizational contexts, including selecting a modeling approach, building a model using appropriate tools, validating the model, and deploying the model for prediction and analysis.
- Develop experience tackling industry and organization-specific problems and challenges using advanced analytics and computational methods.

Career Opportunities:

Our graduating students go on to become data scientists, data analytics specialists, and software engineers at companies and research labs. Their experience spans Indian industry, from e-commerce, financial services and online retail to meteorology, agriculture and entertainment.

Integral University Lucknow
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Study & Evaluation Scheme
MTECH CSE (Spl. In Adv. Computing & Data Science)

Semester I

S. No.	Subject Code	Category	Subject	Periods				Evaluation Scheme				Subject Total
				L	T	P	C	Sessional			Exam.	
								CT	TA	Total	ESE	
1	CS 540	DC	Advanced Artificial Intelligence	3	1	0	4	25	15	40	60	100
2	CS 546	DC	Mathematical Programming	3	1	0	4	25	15	40	60	100
3	CS 516	DC	Advance Data Structures & Algorithm	3	1	0	4	25	15	40	60	100
4	CS 542	DC	Advanced Database System	3	1	0	4	25	15	40	60	100
5	CS 541	DC	Advanced Artificial Intelligence Lab	0	0	2	2	30	30	60	40	100
6	CS 543	DC	Advanced Database System Lab	0	0	2	2	30	30	60	40	100
			Total	12	4	4	20	160	120	280	320	600

L-Lecture T-Tutorial P-Practical C-Credits CT-Class Test TA-Teacher Assessment

Sessional Total (CA) = Class Test + Teacher Assessment

Subject Total = Sessional Total (CA) + End Semester Examination (ESE)

DC- Departmental Core

DE- Departmental Elective

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Semester II

S. No.	Subject Code	Category	Subject	Periods				Evaluation Scheme				Subject Total
								Sessional			Exam.	
				L	T	P	C	CT	TA	Total	ESE	
1	CS 520	DC	Advance Distributed Operating Systems	3	1	0	4	25	15	40	60	100
2	CS 547	DC	Applied Data Mining	3	1	0	4	25	15	40	60	100
3	CS 548	DC	Advanced Cryptography & Data Security	3	1	0	4	25	15	40	60	100
4	CS 544	DC	Machine Learning: Theory and Methods	3	1	0	4	25	15	40	60	100
5	CS 545	DC	R Programming Lab	0	0	2	2	30	30	60	40	100
6	CS 549	DC	Machine learning Tools Lab	0	0	2	2	30	30	60	40	100
			Total	12	4	4	20	160	120	280	320	600

L-Lecture **T**-Tutorial **P**-Practical **C**-Credits **CT**-Class Test **TA**-Teacher Assessment

Sessional Total (CA) = Class Test + Teacher Assessment

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Semester III

S. No.	Subject Code	Category	Subject	Periods				Evaluation Scheme				Subject Total
								Sessional			Exam.	
				L	T	P	C	CT	TA	Total	ESE	
1	CS 616	DC	Big Data Analytics	3	1	0	4	25	15	40	60	100
2	CS 606	DC	Adv. Cloud Computing	3	1	0	4	25	15	40	60	100
3		DE	Elective-1	3	1	0	4	25	15	40	60	100
4	CS 600	DC	M.Tech. Dissertation	0	0	4	4	-	-	60	40	100
5	CS 617	DC	Big Data Management and Data Analytics Lab	0	0	2	2	30	30	60	40	100
			Total	09	3	6	18	-	-	240	260	500

Elective-1:

CS 618 Natural Language Processing
 CS 620 Information Retrieval
 CS 622 Web Mining/Web Intelligence
 CS 624 Advanced Statistical Techniques for data Analytics
 CS 626 Internet of Things

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Semester IV

S. No.	Subject Code	Category	Subject	Periods				Evaluation Scheme				Subject Total
				L	T	P	C	Sessional			Exam.	
								CT	TA	Total	ESE	
1	CS 699	DC	M.Tech. Dissertation	0	0	0	4	-	-	60	40	100
2	CS 699	DC	M.Tech. Dissertation	0	0	0	4	-	-	60	40	100
3	CS 699	DC	M.Tech. Dissertation	0	0	0	4	-	-	60	40	100
4	CS 699	DC	M.Tech. Dissertation	0	0	0	4	-	-	60	40	100
			Total	0	0	0	16	-	-	240	160	400

L-Lecture **T**-Tutorial **P**-Practical **C**-Credits **CT**-Class Test **TA**-Teacher Assessment

Sessional Total (CA) = Class Test + Teacher Assessment

Subject Total = Sessional Total (CA) + End Semester Examination (ESE)

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Total Credit of the Course: 20+20+18+16 = 74