

**PROGRAM CODE: DS7A**

**PROGRAM TITLE: Master of Technology (M.Tech.)**

- **Data Science**

- **BATCH: 2021-23**

## **PROGRAMME PROFILE**

### **Introduction:**

There are many applications, such as climate change, social media, healthcare, e-commerce, weather forecast, etc., that are generating massive amounts of data with volume, velocity, variety, veracity and value at an unprecedented scale. This has led to a critical demand of skilled professionals, Data Scientists, who can mine and interpret the data. Making sense of this massive data is a very difficult challenge for scientific, technological and industrial disciplines. Data science is concerned with the acquisition, storage, retrieval, processing and finally the conversion of data into knowledge where the quantum of data is very large. Three disciplines that have strong relationships with data science are computer science, mathematics and statistics.

The Master of Technology (M.Tech.) programme in Data Science is designed to meet such demands and train the next generation of data scientists. This is a two year postgraduate interdisciplinary course spread over four semesters. M.Tech. in Data Science is approved by the AICTE, New Delhi.

The curriculum covers subjects such as linear algebra, calculus, forecasting methods, operations research, statistical research methods, Hadoop/Spark, R, Python, Big data, cloud computing, system dynamics, etc. Students have the opportunity to gain hands-on experience with a variety of analytical tools available for the purpose of structuring large data sets to unearth hidden information to allow the organizations to build and sustain a long-term competitive advantage. The capstone of the programme is a dissertation during second year in which students apply the acquired theoretical knowledge in data science to solve real-world business problems.

### **Objectives:**

The broad objectives of the programme are as follows:

- To train and develop in depth understanding of the key technologies in data science such as database management, data mining, data visualization techniques, Hadoop, R, forecasting methods, and statistics.
- To provide opportunities of higher studies in the area of data science.
- To impart knowledge on various theoretical and practical aspects of data science.
- To practice problem analysis and decision-making.
- To gain practical, hands-on experience with statistical programming languages and big data tools.

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## **Eligibility:**

At least 55% aggregate marks in B.E./B.Tech. in any relevant branch of Engineering or Masters degree in Physics / Mathematics/ Statistics / Computer Science or any other equivalent degree. Relaxation of 5% marks in eligibility for sponsored/ SC/ ST candidates. Maximum age limit is 28 years as on 1<sup>st</sup> July of the admission year. No age limit for female / sponsored candidates. Relaxation in age for SC/ST/OBC/PH candidates is 3 years.

For sponsored candidates minimum two years working experience after qualifying degree is required. The sponsored candidates have to submit a certificate from the employer on the prescribed Performa.

## **Admission Procedure:**

GATE qualified candidates will be preferred for admission. Admissions will be given as per GATE score. However, if seats are vacant due to non-availability of the GATE qualified candidates, then NON-GATE candidates will be admitted as per the merit developed on the basis of % of marks obtained in the qualifying examination.

The sponsored candidates will be admitted as per the merit developed on the basis of % of marks obtained in the following categories:

Category	Qualifying examination	Written Test	Interview	Service Experience*	Total
Max. Marks	100	50	30	20	200

\* Service experience - 2 marks per year limited to max. 20 marks.

**Seats:** Unreserved-10; SC-1; ST-2; Sponsored-5 (Total seats: 18).

**Duration:** Four Semesters (Two Years).

## **Scholarships:**

Scholarship is provided directly to the GATE qualified candidates by AICTE through DBT (Direct Benefit Transfer). Candidates must note that the University/School does not take any responsibility in this regard.

## **Fee Structure:**

Semester	Academic Fee	Development & Maintenance Fee	Students' Services Fee		Examination Fee	Total (Rs.)	
			Boys	Girls		Boys	Girls
First	7000	5500	3300	3111	2500	18300	18111
Second	7000	5500	2911	2722	2500	17911	17722
Third	7000	5500	3300	3111	2500	18300	18111

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Fourth	7000	5500	2911	2722	2500	17911	17722
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- An additional academic fee of Rs. 5000/- per semester will be charged from sponsored candidates.
- If a student repeats a paper(s) in a semester, an additional fee of Rs.500/- per paper shall be payable.
- Hostel Fee and Central Library Fee will be extra.
- For NRI/ NRI Sponsored/ PIO/ Foreign Nationals Belong to SAARC or BIMSTEC: Fee in each semester will be 2.5 times of the above mentioned existing total fee.
- Foreign Nationals Belong to other than SAARC or BIMSTEC: Fee of US\$ 3500 per annum shall be payable on yearly basis.
- Caution Money (Refundable) and Alumni Fee (Chargeable in the First Semester):

Category	Caution Money	Alumni Fee
For Indian Nationals	Rs. 4,000	Rs. 500
For NRI/ NRI Sponsored/ PIO/ Foreign Nationals Belong to SAARC or BIMSTEC	Rs. 10,000	Rs. 1,000
Foreign Nationals Belong to other than SAARC or BIMSTEC	USD 500	USD 100

### **Learning Outcomes:**

Students after completing the M.Tech. programme in Data Science will be able to:

- Work with messy data, applying models, and understanding the business context.
- Work with unstructured data from various sources like video and social media.
- Use Data Visualization techniques.
- Write the programming codes in R and Python.
- Employ cutting edge tools and technologies to analyze Big Data.
- Demonstrate knowledge of mathematical and statistical skills.
- Demonstrate use of team work, leadership skills, and decision making.