PROGRAM CODE: DS5B

PROGRAM TITLE: Master of Science (M.Sc.)

- **Data Science and Analytics**

<u>**BATCH: 2021-23**</u>

Introduction:

In today's world the enormous amount of data is being generated continuously. This data flood has the potential to transform the way business, government, science and healthcare are carried out.The emerging discipline of data science and analytics holds the key to unlocking that potential. It uses automated methods to analyze massive amounts of data and extract knowledge from that. Data science combines aspects of computer science, applied mathematics and statistics.

With the exponential growth of Big Data over the past few years, the need for Data Scientists becomes more and more pronounced and urgent. The Master of Science (M.Sc.) programme in Data Science and Analytics is designedto meet such demands and train the next generation of data scientists.This is a two year postgraduate interdisciplinary course spread over four semesters.

The curriculum covers subjects such as probability and statistics, linear algebra, calculus, forecasting methods, operations research, Hadoop, R, Python, cloud computing and analytics using large data sets.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 final semester in which students apply the acquired theoretical knowledge in data science to solve real-world business problems. Ethical and leadership aspects will also be given covered.

Objectives:

The broad objectives of the programme are as follows:

- To train and develop in depth understanding of the key technologies in data science and analytics: data mining, data visualization techniques, 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.

Eligibility:

Bachelor degree with Mathematics / Statistics / Computer Science as one of the main subject *OR* B.E./ B.Tech. in any discipline with at least 50% marks in aggregate or an

equivalent grade for General / OBC candidates, and 45% marks in aggregate or an equivalent grade for SC/ST and Differently Abled (DA) categorycandidates from a recognized University/Institute.

OR

Candidates who have appeared in final year examination with above mentioned subject(s) can also apply. Admission will be finalized if the result is declared before August 14 in the admission year and the candidate secures min. % of marks as mentioned above.

Age Limit:

As per State Govt. Maximum age limit is 28 years as on 1st July of the admission year. No age limit for female / sponsored candidates. Relaxation in age for SC/ST/OBC/PH candidates is 3 years.

Admission Procedure:

The admission of Indian students will be done as per merit in the entrance test. No admission test will be conducted for NRI/ Foreign Students, but Foreign students should have working knowledge of English.

Syllabus for Entrance Test

As decided by the University.

Seats: Seats for Indian Students: 40 (reservation as per state Govt. rules).

Duration: Four Semesters (Two Years).

Fee Structure:

Semester	Academic Fee	Development & Maintenance Fee	Students' Services Fee		Examination Fee	Total (Rs.)	
			Boys	Girls		Boys	Girls
First	15500	12500	3300	3111	2500	33800	33611
Second	15500	12500	2911	2722	2500	33411	33222
Third	15500	12500	3300	3111	2500	33800	33611
Fourth	15500	12500	2911	2722	2500	33411	33222

- 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.Sc. programme in Data Science and Analytics will be able to:

- Apply data analysis techniques to the solution of real world business problems, communicate findings, and effectively present results.
- Recognize and analyze ethical issues in business related to intellectual property, data security, integrity, and privacy.
- Demonstrate knowledge of statistical data analysis techniques utilized in business decision making.
- Apply algorithms to build machine intelligence.
- 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.
- Demonstrate use of team work, leadership skills, and decision making.