Karmaveer Bhaurao Patil University, Satara

Faculty of Science and Technology

M. Sc. (Data Science)

Programme and Credit Structure as per NEP 2020

Title: The degree shall be titled as '**Master of Science (Data Science)** under the Faculty of Science and Technology.

M.Sc. Sem. I & II: To be implemented from Academic Year 2024-25

M.Sc. Sem. III & IV: To be implemented from Academic Year 2025-26

Programme Outcomes for M. Sc. (Data Science)

PO. NO.	Programme Outcomes After completing M.Sc. programme, the students will be able to...
PO-1	Understand the fundamental and advancements of subject
PO-2	Study, Plan and Conduct Experiments in the lab to validate the ideas principals and theories acquired in the classrooms.
PO-3	Define their area of focus academia, research and development.
PO-4	Enhance scientific knowledge of the subject.
PO-5	Purse careers in various fields such as science, engineering, education, banking, business, public services, etc. or become an entrepreneur with precision, analytical thinking, innovative ideas, clarity thought, expression, and systematic approach.

PSO. NO.	Programme Specific Outcomes After completing M.Sc. (Data Science) programme the students will be able to..
PSO-1	Data Analysis and Interpretation: Graduates will be able to apply statistical methods and data mining techniques to analyze and interpret complex data sets.
PSO-2	Data Management: Graduates will be proficient in using various data management tools and techniques for data cleaning, preprocessing, storage, and retrieval.
PSO-3	Machine Learning and Predictive Modeling: Graduates will be skilled in designing, implementing, and evaluating machine learning models and algorithms for predictive analytics.
PSO-4	Big Data Technologies: Graduates will have hands-on experience with big data technologies such as Hadoop, Spark, and NoSQL databases, enabling them to handle and analyze large-scale data
PSO-5	Acquire the ability to conduct experiments and analyses data and present findings, demonstrating a solid understanding of scientific methodologies, implementing improvements.

Semester, Credit Framework NSQF Level and Exit Points

Sr. No	Semester	Year	Year	Credits	Level	Exit Points &Award
1	Sem. I & II	2024-25	1 Year	44	6	**PG Diploma (Data Science)**
2	Sem. III & IV	2025-26	2 Year	44	6.5	**PG Degree (Data Science)**
			Total	**88**		**Master of Science (Data Science)**

Credit Distribution

Sr. No	Components	1 Year Master's Degree Programme			2 Year Master's Degree Programme		
		Courses	**Credits**	**%**	**Courses**	**Credits**	**%**
	Mandatory Courses	06	24	54.55	12	48	54.55
	Elective Courses	02	04	9.09	04	08	9.09
	Mandatory Practical	02	04	9.09	04	08	9.09
	Elective Practical	02	04	9.09	03	06	6.82
	Research Methodology	01	04	9.09	01	04	4.55
	Research Project	01	04	9.09	02	10	11.36
	OJT	--	--	--	01	04	4.55
	Total (Mandatory)-(A)	**09**	**32**	**72.73**	**19**	**70**	**79.55**
	Elective	04	08	18.18	07	14	15.91
	RM	01	04	9.09	01	04	4.55
	Total - (B)	**05**	**12**	**27.27**	**01**	**04**	**4.55**
	Grand Total (A+B)	**14**	**44**	**100**	**27**	**88**	**100**

Duration:

- The program shall be a full-time program.
- The duration of the program shall be One Year / Two years.

- Students will have to exit option with: - First Year (44 Credits) - PG Diploma
  Second Year (88 Credits) - Master's degree

Number of Students: A batch shall consist of not more than 20 students. An additional 20% of seats will be allotted as per Karmaveer Bhaurao Patil University, Satara Norms.

Eligibility of the Students:

- B.Sc. with (Data Science, Statistics, Mathematics, Computer Science,) B.Voc. Software Development, B.E./B. Tech
- Any other eligibility prescribed by UGC, Government of Maharashtra, Karmaveer Bhaurao Patil University, Satara.

Medium of Instruction: The medium of instruction shall be in English.

Eligibility of the Core Faculty:

- **Assistant Professor:** Master of Science with specialization in Data Science, Computer Science, Mathematics, Statistics, Electronics and NET/ SET/ Ph.D.
- Associate Professor: Master of Science in Data Science with NET/SET/Ph.D.
- Professor: Master of Science in Data Science with NET/ SET/Ph.D.

Eligibility for Professor of Practice or Professional Trainer:

Any other eligibility as per the Guidelines and Regulations Passed by the Board of Concerned Studies, Academic Council of the College / University and Rules and Regulations of Karmaveer Bhaurao Patil University, Satara, Government of Maharashtra, and UGC norms.

Eligibility for Adjunct Professor of Practice or Professional Trainer:

As per eligibility prescribed by UGC.

Scheme of Examination & Standard of Passing: (ESE and CCE)

End Semester Exam (ESE): 60 Marks (Min 24 Marks for Passing)

Continuous Comprehensive Evaluation (CCE): 40 Marks (Min 16 Marks for Passing)

Total Marks: 100 Marks for **DSC mandatory courses**.

End Semester Exam (ESE): 30 Marks (Min 12 Marks for Passing)

Continuous Comprehensive Evaluation (CCE): 20 Marks (Min 08 Marks for Passing)

Total Marks: 50 Marks for **DSE elective courses**.

Minimum 40% Marks Required for Passing and there is a separate head of passing as per the decision of the concerned Board of Studies or Competent Authority.

Evaluation of OJT and RP:

i. OJT: Total 100 marks for 4 credits

(Rubrics: Certificate = max 60 marks, Report = 20 marks, Viva = 20 marks)

ii. RP: Total 100 marks for 4 credits

(Rubrics: Decertation = 60 marks, Presentation & Viva = 40 marks)

M.Sc. (Data Science) Part -I

Semester –I

Sr. No.	Components	Course Code	Course (Subject)	Credits
1	Mandatory	MDST 411	Foundation for Data Science - I	4
2	Mandatory	MDST 412	Programming using R	4
3	Mandatory	MDST 413	Fundamentals of Data Science	4
4	Electives	MDST 414	Distributed Database Concept – E-I or IOT for Data Science I – E-II	2
5	RM	MDST 415	Research Methodology	4
6	Mandatory Lab	MDSP 416	Data Science Practical Course I	2
7	Electives Lab	MDSP 417	Data Science Practical Course II	2
		-	**Total**	**22**

Semester –II

Sr. No.	Components	Course Code	Course (Subject)	Credits
1	Mandatory	MDST 421	Foundation for Data Science - II	4
2	Mandatory	MDST 422	Python Programming	4
3	Mandatory	MDST 423	Data Preparation Analysis	4
4	Electives	MDST 424	AI for Data Science – E-I or IOT for Data Science II – E-II	2
5	RP	MDST 425	Research Project	4
6	Mandatory Lab	MDSP 426	Data Science Practical Course III	2
7	Electives Lab	MDSP 427	Data Science Practical Course IV	2
			Total	**22**

EXIT OPTION: PG Diploma with **44 Credits** after Three Year UG Degree.

M.Sc. (Data Science) Part -II Semester –III				
Sr. No.	**Components**	**Course Code**	**Course (Subject)**	**Credits**
1	Mandatory	MDST 531	Big Data Analytics	4
2	Mandatory	MDST 532	Data Storage Technologies & Networking	4
3	Mandatory	MDST 533	Image Processing	4
4	Electives	MDST 534	Machine Learning - E-I or Data Engineering - E-II	2
5	Mandatory Lab	MDSP 535	Data Science Practical Course V	2
7	RP	MDSP 536	Research Project	6
			Total	**22**
Semester –IV				
Sr. No.	**Components**	**Course Code**	**Course (Subject)**	**Credits**
1	Mandatory	MDST 541	Deep Learning	4
2	Mandatory	MDST 542	GPU Computing	4
3	Mandatory	MDST 543	Recommender System	4
4	Electives	MDST 544	Cloud Computing - E-I or Social Media Analytics - E-II	2
5	Mandatory Lab	MDSP 545	Data Science Practical Course VI	2
6	Electives Lab	MDSP 546	Data Science Practical Course VII	2
7	OJT	MDSP 547	On Job Training	4
			Total	**22**

**** PG Degree with **88 credits** after Three Year UG Degree.

Chairman
BoS in Data Science

Secretary
Academic Council

Chairman
Academic Council