

**UNIVERSITY SCHOOL
OF
INFORMATION AND COMMUNICATION TECHNOLOGY**
DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

PROGRAMME STRUCTURE

MASTER OF SCIENCE (M.Sc.) COMPUTER SCIENCE
WITH SPECILIZATION IN DATA SCIENCE
2 YEAR PROGRAMME
2021-23



GAUTAM BUDDHA UNIVERSITY
GAUTAM BUDH NAGAR, GREATER NOIDA, UP, INDIA

SEMESTER I

S.No.	Course Code	Course Name	L	T	P	Credits	Types
1	MDS101	Computer Fundamental and MS Excel	3	0	0	3	CC1 / FC
2	MDS103	Software Engineering	3	0	0	3	CC2
3	MDS105	Artificial Intelligence	3	0	0	3	CC3 / FC
4	MDS107	Discrete Mathematics	3	0	0	3	CC4
5	MDS109	Theory of Automata	3	0	0	3	CC5
6	MDS111	Operating System	3	0	0	3	CC6
7	MDS113	Data Base Management System	3	0	0	3	CC7
8	ES401	Fundamental of Environmental Science	3	0	0	3	OE1 / AECC
9	MDS181	MS Excel Lab	0	0	3	2	CC-L1 / SEC
10	MDS183	Data Base Management System Lab	0	0	3	2	CC-L2 / SEC
11	GP	General Proficiency	Non Credit				
Total Hours and Credits			24	0	6	28	

SEMESTER II

S.No.	Course Code	Course Name	L	T	P	Credits	Types
1	MDS102	Data Modelling and Visualization-I	3	0	0	3	CC8 / SEC
2	MDS104	Data Structure and Algorithms	3	0	0	3	CC9 / SEC
3	MDS106	Data Security and Privacy	3	0	0	3	CC10
4	MDS108	Data Analytics using R	3	0	0	3	CC11
5	MDS110	Data Mining	3	0	0	3	CC12
6		Elective-1	3	0	0	3	E1 / DSE
7		Elective-2	3	0	0	3	E2 / DSE
8	EN532	Fundamental of Language Science	3	0	0	3	OE2 / AECC
9	MDS182	Data Structure and Algorithms Lab	0	0	3	2	CC-L3 / SEC
10	MDS184	Data Analytics using R Lab	0	0	3	2	CC-L4 / SEC
11	GP	General Proficiency	Non Credit				
Total Hours and Credits			24	0	6	28	

SEMESTER III

S.No.	Course Code	Course Name	L	T	P	Credits	Types
1	MDS201	Analysis and Design of Algorithm	3	0	0	3	CC13
2	MDS203	Data Modeling and Visualization-II	2	0	0	2	CC14
3	MDS205	Intelligent Information Retrieval	3	0	0	3	CC15
4	MDS207	Python Programming	2	0	0	2	CC16 / SEC
5		Elective-3	3	0	0	3	E3 / DSE
6		Elective-4	3	0	0	3	E4 / DSE
7	MA033	Numerical Algorithms for Machine Learning	3	0	0	3	GE1
8	MDS291	Minor Project	0	0	10	5	MP1
9	MDS281	Analysis and Design of Algorithm Lab	0	0	3	2	CC-L5 / SEC
10	MDS283	Python Programming Lab	0	0	3	2	CC-L6 / SEC
11	GP	General Proficiency	Non Credit				
Total Hours and Credits			19	0	16	28	

SEMESTER IV

S.No.	Course Code	Course Name	L	T	P	Credits	Types
1	MDS390	Seminar	0	0	3	2	S / E
2	MDS392	Major Project	0	0	20	10	MP2 / E
3	MDS394	Internship	0	0	32	16	I / E
4	GP	General Proficiency	Non Credit				
Total Hours and Credits			0	0	55	28	

GRAND TOTAL OF CREDITS = 112

Swayam/NPTEL courses will also be offered as **Discipline Specific Elective** during the II and III semester and Swayam/NPTEL courses list will be provided by the deptt. OR if USICT will offer the course as an Discipline Specific Elective, students will complete it through regular class. It will be evaluated as per University Examination Rules.

In the **Seminar**, student need to study and present individually, on latest research paper of their specialized area and It will be evaluated as per University Examination Rules.

The **Internship** in Industry will be done by candidate individually during the 4th semester and it will be for a minimum of 4 (-6) months. It will be evaluated as per University Examination Rules.

Minor and Major Project will be in a group and It will be evaluated as per University Examination Rules.

USICT will provide a **mentor/supervisor** seminar, internship, minor and major projects.

ELECTIVES FROM DCSE

S.No.	Course Code	Course Name	L	T	P	Credits	Types
1	MDS112	Data Science Life Cycle	3	0	0	3	E1
2	MDS114	Integrated Development Environment	3	0	0	3	E1
3	MDS116	Machine Learning Techniques	3	0	0	3	E1
4	MDS118	Internet of Things	3	0	0	3	E1
5	MDS120	Advanced Java Programming (J2EE Technologies)	3	0	0	3	E2
6	MDS122	Data Storage Technologies and Networking	3	0	0	3	E2
7	MDS124	Introduction to Statistical Learning	3	0	0	3	E2
8	MDS126	Research Techniques for Data Science	3	0	0	3	E2
9	MDS209	High Performance Computing	3	0	0	3	E3
10	MDS211	Big Data Platforms	3	0	0	3	E3
11	MDS213	Introduction to Blockchain Technologies	3	0	0	3	E3
12	MDS215	Business Intelligence	3	0	0	3	E3
13	MDS217	Data Visualization using Tableau	3	0	0	3	E4
14	MDS219	Web Analytics	3	0	0	3	E4
15	MDS221	Social Media Analytics and Techniques	3	0	0	3	E4
16	MDS223	Time Series Analysis	3	0	0	3	E4

OPEN AND GENERIC ELECTIVES FROM OTHER SCHOOLS

17	MA033	Numerical Algorithms for Machine Learning	3	0	0	3	GE1
18	ES401	Fundamentals of Environmental Science	3	0	0	3	OE1
19	ES507	Energy and Environment	3	0	0	3	OE1
20	EN532	Fundamental of Language Science	3	0	0	3	OE2

MDS Master of Science and Data Science for Course Code**MSC** Master of Science**CC** Core Course from USICT for Course Type**FC** Foundation Course**CC-L** Core Course Lab from USICT**GE** General Elective from related discipline of other Deptt./School**AECC** Ability Enhancement Compulsary Course**OE** Open Elective from other discipline of other Deptt./School**CS** Computer Science**SEC** Skill Enhancement Course**DSE** Discipline Specific Course**MP1** Minor Project**MP2** Major Project**S** Seminar**I** Industrial Training / Internship