

M.Sc.in Information Technology

Degree Duration : 2 Years (4 Semesters)

Intake Capacity :20

The fast and innovative development of new applications in science, engineering and business, Computer Science is rapidly changing the way in which we experience our world. Ability to apply the knowledge of Information Technology with recent trends aligned with research and industry and in the field of Computational Research, Soft Computing, Big Data Analytics, Data Science, Image Processing, Artificial Intelligence, Networking and Cloud Computing domains of Information Security, Machine Learning, Internet of Things and Embedded System, Infrastructure Services as specializations, Intellectual Property Rights, Cyber Laws and Cyber Forensics and various standards in interest of National Security and Integrity along with IT Industry. Ability to write effective project reports, research publications and content development and to work in multidisciplinary environment in the context of changing technologies. It is the combination of skills that enable the post graduates to keep pace with this fast-moving technology and secure rewarding careers that can be pursued almost anywhere in the world.

Eligibility:

A candidate for being eligible for admission to the two years M.Sc.in Information Technology leading to the B.Sc. in Information Technology of University of Mumbai or any recognized university / B.Sc. in Computer Science / B.E. Degree in any branch / B.Sc. Mathematics / B.Sc. Physics / B.Sc. Statistics / B.Sc. Electronics with Mathematics as one of the subjects at 10 + 2 or its equivalent examination.

Subjects:

Semester I		Semester II	
PSIT101	Research in Computing	PSIT201	Big Data Analytics
PSIT102	Data Science	PSIT202	Modern Networking
PSIT103	Cloud Computing	PSIT203	Microservices Architecture
PSIT104	Soft Computing Techniques	PSIT204	Image Processing
PSIT1P1	Research in Computing Practical	PSIT2P1	Big Data Analytics Practical
PSIT1P2	Data Science Practical	PSIT2P2	Modern Networking Practical
PSIT1P3	Cloud Computing Practical	PSIT2P3	Microservices Architecture
PSIT1P4	Computing Techniques Practical	PSIT2P4	Image Processing Practical

Artificial Intelligence Track
Image Processing Track
Cloud Computing Track
Security Track

Semester III			
Course Code	Theory	Course Code	Practical
PSIT301	Technical Writing and Entrepreneurship Development	PSIT3P1	Project Documentation and Viva
Elective 1: Select Any one from the courses listed below along with corresponding practical course			
PSIT302a	Applied Artificial Intelligence	PSIT3P2a	Applied Artificial Intelligence Practical
PSIT302b	Computer Vision	PSIT3P2b	Computer Vision Practical
PSIT302c	Cloud Application Development	PSIT3P2c	Cloud Application Development Practical
PSIT302d	Security Breaches and Countermeasures	PSIT3P2d	Security Breaches and Countermeasures Practical
Elective 2: Select Any one from the courses listed below along with corresponding practical course			
PSIT303a	Machine Learning	PSIT3P3a	Machine Learning Practical
PSIT303b	Biomedical Image Processing	PSIT3P3b	Biomedical Image Processing Practical
PSIT303c	Cloud Management	PSIT3P3c	Cloud Management Practical
PSIT303d	Malware Analysis	PSIT3P3d	Malware Analysis Practical
Elective 3: Select Any one from the courses listed below along with corresponding practical course			
PSIT304a	Robotic Process Automation	PSIT3P4a	Robotic Process Automation Practical
PSIT304b	Virtual Reality and Augmented Reality	PSIT3P4b	Virtual Reality and Augmented Reality Practical

PSIT304c	Data Center Technologies	PSIT3P4c	Data Center Technologies Practical
PSIT304d	Offensive Security	PSIT3P4d	Offensive Security Practical

Semester IV			
Course Code	Theory	Course Code	Practical
PSIT401	Blockchain	PSIT4P1	Blockchain Practical
Elective 1: Select Any one from the courses listed below along with corresponding practical course			
PSIT402a	Natural Language Processing	PSIT4P2a	Natural Language Processing Practical
PSIT402b	Digital Image Forensics	PSIT4P2b	Digital Image Forensics Practical
PSIT402c	Advanced IoT	PSIT4P2c	Advanced IoT Practical
PSIT402d	Cyber Forensics	PSIT4P2d	Cyber Forensics Practical
Elective 2: Select Any one from the courses listed below along with corresponding practical course			
PSIT403a	Deep Learning	PSIT4P3a	Deep Learning Practical
PSIT403b	Remote Sensing	PSIT4P3b	Remote Sensing Practical
PSIT403c	Server Virtualization on VMWare Platform	PSIT4P3c	Server Virtualization on VMWare Platform Practical
PSIT403d	Security Operations Center	PSIT4P3d	Security Operations Center Practical
Elective 3: Select Any one from the courses listed below along with corresponding practical course			
PSIT404a	Human Computer Interaction	PSIT4P4	Project Implementation and Viva
PSIT404b	Advanced Applications of Image Processing		
PSIT404c	Storage as a Service		
PSIT404d	Information Security Auditing		

Note :

- If a student selects all 6 papers of Artificial Intelligence Track, he should be awarded the degree M.Sc. (Information Technology), Artificial Intelligence Specialisation.

- If a student selects all 6 papers of Image Processing Track, he should be awarded the degree M.Sc. (Information Technology), Image Processing Specialisation.
- If a student selects all 6 papers of Cloud Computing Track, he should be awarded the degree M.Sc. (Information Technology), Cloud Computing Specialisation
- If a student selects all 6 papers of Artificial Security Track, he should be awarded the degree M.Sc. (Information Technology), Security Specialisation.
- All other students will be awarded M.Sc. (Information Technology) degree.

Evaluation Scheme

Internal Evaluation (40 Marks)

The internal assessment marks shall be awarded as follows:

1. 30 marks (Any one of the following):

- Written Test or
- SWAYAM (Advanced Course) of minimum 20 hours and certification exam completed or
- NPTEL (Advanced Course) of minimum 20 hours and certification exam completed or
- Valid International Certifications (Prometric, Pearson, Certiport, Coursera, Udemy and the like)
- One certification marks shall be awarded one course only. For four courses, the students will have to complete four certifications.

2. 10 marks

The marks given out of 40 for publishing the research paper should be divided into four course and should awarded out of 10 in each of the four course.

i) Suggested format of Question paper of 30 marks for the written test.

Q1.	Attempt any two of the following:	16
A		
B		
C		
D		
Q2	Attempt any two of the following:	14
A		
B		
C		

D		
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ii) 10 marks from every course coming to a total of 40 marks, shall be awarded on publishing of research paper in UGC approved Journal with plagiarism less than 10%. The marks can be awarded as per the impact factor of the journal, quality of the paper, importance of the contents published, social value.

External Examination: (60 marks)

	All questions are compulsory	
Q1	Q1 (Based on Unit 1) Attempt any two of the following	12
A		
B		
C		
D		
Q2	(Based on Unit 2) Attempt any two of the following	12
Q3	(Based on Unit 3) Attempt any two of the following	12
Q4	(Based on Unit 4) Attempt any two of the following	12
Q5	(Based on Unit 5) Attempt any two of the following	12

Practical Evaluation (50 marks)

A Certified copy journal is essential to appear for the practical examination.

1.	Practical Question1	20
2.	Practical Question2	20
3.	Journal	5
4.	Viva Voce	5

Career prospects:

On the successful completion of this program, you can make a career as:

- Software Engineer
- Computer Programmer
- Interface Engineer
- Java Developer
- Project Manager
- Information Security Analyst
- IT Consultant

- Network Administrator
- Web Developer
- Systems Support Administrator
- Security Agencies
- Security Expert
- Tracker
- Data scientist
- Cloud Administrator
- Application analyst
- Information system manager
- System Analyst
- Project Head

And many more.