MANIPAL UNIVERSITY JAIPUR

INSPIRED BY LIFE

Admission Booklet 2022-23

B.Tech(Hons)

Computer Science and Engineering with specialization in Artificial Intelligence & Machine Learning

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ABOUT THE PROGRAMME

The four-year degree programme in Computer Science & Engineering with specialization in Artificial Intelligence and Machine Learning offers cutting-edge courses in the field of Machine Learning & Artificial Intelligence.

Program curriculum has been designed with a proper blend of theory and practical and keeping in view the future industry demand in the field of AI and Machine Learning. The program focuses on the forefront subjects like Deep Learning, Soft Computing, Text Analytics, Information Retrieval, and the programming skills required to excel in this domain.

Machine Learning has been very ubiquitous nowadays and has played a critical role in improving our daily lives. There exists a vast scope of AI & ML in Speech Recognition, Medical Diagnosis, Sentiment Analysis, Smart City Project, Predictive Analysis, Recommendation System, etc.

The university adopts Choice Based Credit System (CBCS) and offers credit exchange programs for students to study in foreign universities of repute. The University provides a unique environment for the overall development of students under the able guidance of experienced, qualified, and dedicated faculty members. Students can register for multiple elective subjects and have the option to choose elective subjects from various streams. Industry experts are invited at regular intervals to address the students and give them important industry perspective in the curriculum.

KEY HIGHLIGHTS OF THE PROGRAMME

- **State-of-the-art Computing Labs:** High computing labs powered by NVIDIA graphics card and PARAM Shavak of CDAC, Pune.
- **Well-Designed Curriculum:** The curriculum has been designed as per the latest industry demands.
- **Choice Based Credit System (CBCS):** Students have the option to choose program electives based on their interests.
- **Academic Flexibility:** Students have the option to choose open electives from other domains (other than computer science) with the aim to enhance their skills and more scope of taking up case studies, projects, assignments, and vocational training including entrepreneurship.
- **Experiential Learning:** Students gain practical knowledge through projects and research.
- **Global Exposure to Students:** MoU signed with leading industries and academia to facilitate students with state of art technologies and to make them industry-ready. Directorate of International Collaborations (DoIC) also facilitates collaborations and partnerships with institutions globally for academic strategies, Student Exchange Programs, Semester Abroad Program (SAP), student mobility (short or long term), and higher education opportunities. These all students related international activities further serve the determination of enhancing academic standards to meet international dimensions.
- **Professional Memberships:** Association for Computing Machinery (ACM), Computer Society of India, IEEE, and IEEE Women in Engineering (WIE).
- **Holistic Development of Students:** Music, Literature, and Dramatics Clubs facilitate students to show their prowess in the cultural arena, under the able guidance of expert faculty. Technical Clubs like the

Green Club, Robotics Club, IEEE Students' chapter, IE(I) and ICEIT chapters, etc. allow the students to learn and update themselves with the latest technologies and showcase their abilities in various fields, outside their scope of the study.

- **Placements:** Placements assistance (Mock Drives/Interviews), Internships Assistance, Placement classes by the expert team of Training and Placement.

CAREER OPPORTUNITIES

As per the report published by Gartner, Artificial Intelligence & Machine Learning Domain will create 23 Lakhs Job Opening by 2020-21 and this Industry demand will subsequently increase in the upcoming years. The 4-year degree program will nurture and transform the students into a highly skilled professional to land a high paying AI-ML job in various Nationals & International Platforms. The potential roles as career opportunities after completing the course are ML Experts, Data Scientist, Data Engineer, Project Manager, Business Intelligence Analyst, Database Administrator, etc.

THE MUJ EDGE (Why MUJ)

Best-in-Class Infrastructure with Focus on Health and Hygiene, Excellent Placement & Internship Opportunities, State of the Art Labs, More than 100 National & International; Academic and Industrial Collaborations, Career- Oriented Courses at all levels, Academic Excellence, Flexible Curriculum-Curriculum Revision at Regular Interval Based on the Feedback of its Stake Holder's (Students, Alumni, Parents, Employers & Faculty), Atal Incubation Centre, Overall Student Development via Co-Curricular and Extra-Curricular Activities, Excellent Sports Facilities, Excellent Hostel Facilities.

For more details visit the official webpage: https://jaipur.manipal.edu/foe/schools-faculty/schools-list/scit/computer-science.html

ELIGIBILITY CRITERIA

ET 2021 Rank Holders
The candidate must have passed 10+2 or A Level or IB or American 12th grade or equivalent examination with Physics, Mathematics and English as Compulsory subjects, along with any one of Chemistry or Computer Science or Biotechnology or Biology or Statistics or Engineering Drawing as optional subject for admission to B Tech, with minimum of 50% marks in Physics, Mathematics and the optional subject, put together.

Direct Admission to the B Tech Programme
For direct admission (in branches where seats are likely to remain vacant) the following candidates will be eligible:
All remaining MET 2021 rank holders, i.e., those who did not/could not come for counselling

<div align="center">OR</div>

All students who have a JEE rank and have qualified for JEE Advanced in that year

<div align="center">OR</div>

All other Students with Physics, Mathematics and English as compulsory subjects and who have 50% or equivalent (in PMX subjects) in their 12th std. (where X could be Chemistry/Computers Science/Biotechnology/Biology/Statistics/ Engineering Drawing).

B. Tech (Lateral Entry)
Candidates are admitted directly to second year, who have passed 3 year diploma in relevant field of Engineering/BSc (PCM) with a minimum of 50% marks in aggregate can apply for Lateral Entry to B Tech Programmes.

FEE DETAILS

Program	Program Fee	
	Indian (Rs)	International (USD)
B Tech	13,84,600	28,300

PLACEMENTS STATISTICS

The first batch is yet to be passed out.

PROMINENT RECRUITERS

The first batch is yet to be passed out.

NATIONAL AND INTERNATIONAL COLLABORATIONS

To prepare students profession and industry ready, the department is having collaborations with the following renowned IT industries:

Cisco Academy:
- Cisco Certified Network Associate (CCNA)
- Networking Essentials
- Cybersecurity Essentials

EC Council Global Certification:
- Computer Secured Certified User (CSCU)
- EC Council Security Specialist (ECSS)
- Certified Ethical Hacker (CEH)
- EC Council Certified Security Analyst (ECSA)
- Licensed Penetration Tester (LPT)
- Computer Hacking Forensic Investigator (CHFI)

CompTIA Certification:
- A+ Certification
- Network + Certification
- Security + Certification
- Data + Certification

VM Ware IT Academy
Microsoft Imagine Academy
Dell Technologies
Secure Meters
IBM Academy

MOUs from Academia (Exchange Programme)

DoIC supports the local student committee of the International Association for the Exchange of Students for Technical Experience (IAESTE). It aims to connect students with the real work environment, industries, research institutes, employers, consulting firms, and laboratories in foreign countries. The Local Committee

of IAESTE at MUJ assists students both incoming and outgoing with documentation, local hospitality, and travel. DoIC also facilitates collaborations and partnerships with institutions globally for academic strategies, Student Exchange Programs, Semester Abroad Program (SAP), student mobility (short or long term), and higher education opportunities. These all students related international activities further serve the determination of enhancing academic standards to meet International dimensions. Manipal University Jaipur not only promotes student related international activities but also promotes faculty exchange, collaborative research, credit transfers, curriculum building, and joint conferences/events, etc. The directorate is also participating in International Joint-projects and funding.

- The University of Newcastle, Australia
- Iowa State University of Science & Technology, USA
- Prince Sultan University Riyadh, Saudi Arabia
- The Southern Federal University
- Deakin University Victoria, Australia
- University of Florida, USA
- Florida International University.
- Polytechnic Institute of Leiria, Portugal
- University of Ostrava Czech Republic
- Technical University of Varna, Bulgaria

UNIQUE RESEARCH AND LAB FACILITIES

LAB FACILITIES
- Professional tools such as Nessus and Burpsuite Professional for performing live practicals on Penetration testing.
- High Performance Computing lab equipped with PARAM SHAVAK (India's first compact supercomputer)
- Advanced Computing Lab with GPUs platform in association with NVIDIA
- Data Analytics lab on Python platform in association with EMC2
- IoT lab supported by Texas Instruments, ARM, and Intel
- Wireless Communication lab equipped with Qualnet, WARP boards and modern sensors.

CURRICULUM (Only Scheme)

Year	Sub. Code	THIRD SEMESTER Subject Name	L	T	P	C	Sub. Code	FOURTH SEMESTER Subject Name	L	T	P	C
II	EO2001	Economics	3	0	0	3	BB0025	Value, Ethics and Governance	2	0	0	2
	MA2101	Engineering Mathematics - III	3	0	0	3	MA2201	Engineering Mathematics - IV	3	0	0	3
	AI2101	Relational Database Management Systems	3	1	0	4	AI2201	Software Project Management	3	1	0	4
	AI2102	Computer Organization and Architecture	3	1	0	4	AI2202	Operating Systems	3	1	0	4
	AI2103	Data Structures and Algorithms	3	1	0	4	AI2203	Principles of Artificial Intelligence	3	1	0	4
	AI2104	Object Oriented Programming	3	1	0	4	AI2204	Automata Theory	3	0	0	3
	AI2130	Relational Database Management Systems Lab	0	0	2	1	*** ***	Open Elective - I	3	0	0	3
	AI2131	Data Structures and Algorithms Lab	0	0	2	1	AI2230	Operating System Lab	0	0	2	1
	AI2132	Object Oriented Programming Lab using Python	0	0	2	1	AI2231	Web Technology Lab	0	0	2	1
	AI2170	Project Based Learning	0	0	2	2	AI2232	Principles of Artificial Intelligence Lab	0	0	2	1
							AI2270	Project Based Learning	0	0	2	2
		Total	**18**	**4**	**8**	**27**		**Total**	**20**	**3**	**8**	**28**

		FIFTH SEMESTER						SIXTH SEMESTER				
III	AI3101	Soft Computing Methods	3	1	0	4	BB0026	Organization and Management	3	0	0	3
	AI3102	Design and Analysis of Algorithms	3	1	0	4	AI3201	Machine Learning	3	1	0	4
	AI3103	Computer Networks	3	1	0	4	AI3202	Computer Vision and Pattern Recognition	3	1	0	4
	AI3104	Foundation of Data Science	3	1	0	4	AI3204	Natural Language Processing	3	1	0	4
	AI3105	Game Theory	3	1	0	4	AI32XX	Program Elective - I	3	0	0	3
	*** ****	Open Elective - II	3	0	0	3	*** ****	Open Elective - III	3	0	0	3
	AI3130	Design and Analysis of Algorithm Lab	0	0	2	1	AI3230	Machine Learning Lab	0	0	2	1
	AI3131	Computer Networks Lab	0	0	2	1	AI3231	Computer Vision and Pattern Recognition Lab	0	0	2	1
	AI3132	Foundation of Data Science Lab	0	0	2	1	AI3270	Minor Project (Thematic projects)	0	0	6	3
	AI3170	Project Based Learning	0	0	2	2						
		Total	**18**	**5**	**8**	**28**		**Total**	**18**	**3**	**10**	**26**

		SEVENTH SEMESTER						EIGHTH SEMESTER				
IV	AI4101	Deep Learning	3	1	0	4	AI4270	Major Project	-	-	-	12
	AI4102	Text Mining	3	1	0	4						
	AI4103	Recommender Systems	3	1	0	4						
	AI41XX	Program Elective - II	3	0	0	3						
	AI41XX	Program Elective - III	3	0	0	3						
	AI41XX	Program Elective - IV	3	0	0	3						
	AI4170	Industrial Training	0	0	2	1						
		Total	**18**	**3**	**2**	**22**		**Total**	**0**	**0**	**0**	**12**

FEATURED ALUMNI
The first batch is yet to be passed out.

ADMISSIONS PROCESS
https://admissions.jaipur.manipal.edu/
You may also write to: admissions@jaipur.manipal.edu

HOSTEL DETAILS
Please visit:
https://jaipur.manipal.edu/muj/life-at-muj/hostel-facility.html

FAQs
https://jaipur.manipal.edu/muj/admission/faqs.html

COUNSELLOR CONTACT DETAILS
Please visit our departments' webpage at:
https://jaipur.manipal.edu/muj/admission/admission-team-contact-details.html