

M.TECH FOR WORKING PROFESSIONALS (JANUARY 2022)



**Department of Computer Science and Engineering
INDIAN INSTITUTE OF INFORMATION TECHNOLOGY KOTTAYAM**

Overview

The Department of Computer Science and Engineering, IIIT Kottayam has introduced the M.Tech programme in the year 2019. M.Tech for Working Professionals is a **self-paced** programme of 60 credits that can be taken over 3-5 years. Students will do 32 credits of coursework in the first two years. In the third year, they would be working on a project of two phases with 14 credits in each phase. The students have the option of taking lesser number of courses in different semesters and complete the coursework requirement in 2-4 years. The projects can be taken only after the coursework requirement is complete. The number of credits done by the candidates in this M.Tech programme is equivalent to the number of credits needed to be done by the students of full time M.Tech programme

Significance

Demand for engineers is rising with each passing year and with the fierce competition in this field, engineers with required skills for the particular job type has become the more important criteria of selection. Good Engineers are vital for the formation of the skilled and educated workforce for any country. They are responsible for the improvement and development of the existing technology as well as the introduction of new technology to ease as much human efforts as possible. Enrolling for an MTech programme after completing a Bachelor's degree gives you the opportunity to explore both managerial as well as professional engineering roles. Indian Institute of Information Technology Kottayam provides an opportunity to pursue MTech for working professionals, to help them elevate their position in an organisation. A Master's degree allows you to specialize in your interested technical field along with giving you an edge over your colleagues.

Programme Highlights

- The curriculum covers areas that prepare you for most lucrative careers in the space of Cyber Security, Data Science, Data Engineering and Advanced Analytics.

- Proficient faculty members with Research & Industry experience.
- Benefit from Case Studies, Simulations, Virtual Labs & Remote Labs that allow learners to apply concepts to simulated and real-world situations.
- Encourage and prepare engineers to present journal or conference publication during the programme period.
- The thesis (Project Work) in the final two semesters enables students to apply concepts and techniques learnt during the programme.
- **Course break** is possible for those who go for an onsite job.
- The programme uses a Continuous Evaluation System that assesses the learners over convenient and regular intervals.
- Can be extended to an integrated PhD programme.

Why IIIT Kottayam?

- **Entrepreneurial Ecosystem**

IIIT Kottayam is designed to impart an entrepreneurial ecosystem in the campus. For instance, AIC-IIIT Kottayam, an incubation centre of IIIT Kottayam, is a vital resource to IIIT Kottayam students; AIC-IIIT Kottayam is a 10000 sq.feet incubation unit supported by AIM-NITI Aayog of India to the tune of Rs. 3.46 crores. It has attracted connections with leading industries, including RELIANCE JioGenNext (Entrepreneurial Unit) for motivating our student start-ups and for promoting student/faculty exchange. In addition, it has established an Entrepreneurial Innovation Club jointly with Wadhvani Foundation (Ongoing), an MNC from the Silicon Valley, USA. IIIT Kottayam, thus, helps students to continue championing in their career and attain goals with an entrepreneurial support. It provides tens of thousands of opportunities for them to develop their business ideas or thesis to products through MSME schemes – For each successful business ideas, our MSME Business Incubation unit could offer Rs.15 lakhs for students.

- **Memorandum of Understanding with top universities/industries**

IIIT Kottayam has already established MoU with some leading industrial / academic institutions in order to ensure placements or organize knowledge transfer programmes -- MoUs with Government of India, Government of Kerala, Rolta, and CIAL has manifested the organization of knowledge transfer programme. In addition, it has signed MoUs with world leading Universities such as Technical University Munich Germany and University of New Brunswick Canada, in order to conduct HPC/Cloud/Datascience specific joint research and to organize student exchange programmes. In addition, in order to boost up the innovation ambience at our Institute, we have joined hands with leading industries over the globe such as RELIANCE RIL, Wadhvani Foundation, BOSE Info Tech, Germany, and so forth.

- **Faculty Strength**

IIIT Kottayam is composed of the world-class qualified faculty members who are eager to continue research and contribute to the Indian/International society along with their wards. They design the courses as per the needs of the partnered industries and international requirements.

They are passionate enough to mentor/guide students apart from their working hours while ensuring the technological growth of individuals.

Eligibility

Duration	Self-paced over Three to Five years
Intake	Maximum 60
Eligibility	<ol style="list-style-type: none"> 1. The candidate must have a minimum one year of work experience in Industry/R&D/Academics and must be employed at the time of applying. Only the work experience acquired after the award of the qualifying degree will be considered. 2. The candidate must have a B.Tech /BE /AMIE degree in any discipline or MCA or MSc / MS degree in CS /IT / Mathematics/ Physics/Statistics. The candidate should have scored at least 60% aggregate in the degree examination.

Selection Procedure	<ol style="list-style-type: none"> 1. Candidates must fill an online application. 2. Shortlisted candidates will have to give written test and / or interview. 3. Prior research exposure and/or industry experience in areas related to Artificial Intelligence/ Data Science/ Cyber Security will be considered as a desirable aspect. 4. The final selection of the candidate will be based on performance in the written test and the interview, and any other criteria as found deemed suitable by the admission committee. 5. The department reserves the right to set any cut off criteria for shortlisting the candidates. 																								
Fee structure	<ol style="list-style-type: none"> 1. The fee for online application is ₹500/-. 2. Once selected, if for any reason not willing to register or taking a break for a particular semester a registration fee of ₹10,000 per semester to be paid to keep the enrolment active. 3. For the successful completion of the programme, the students have to complete 32 Course credits and 28 Project credits. 4. The course fee is ₹8500 per credit. 5. The following are typical tuition fee figures to be paid by the students per semester <table border="1" data-bbox="655 958 1283 1227"> <thead> <tr> <th>Semester</th> <th>Credits</th> <th>Fees (Rs 8500/- per credit)</th> </tr> </thead> <tbody> <tr> <td>I</td> <td>8</td> <td>68000/-</td> </tr> <tr> <td>II</td> <td>8</td> <td>68000/-</td> </tr> <tr> <td>III</td> <td>9</td> <td>76,500/-</td> </tr> <tr> <td>IV</td> <td>7</td> <td>59,500/-</td> </tr> <tr> <td>V</td> <td>14</td> <td>1,19,000/-</td> </tr> <tr> <td>VI</td> <td>14</td> <td>1,19,000/-</td> </tr> <tr> <td>Total</td> <td>60</td> <td>5,10,000/-</td> </tr> </tbody> </table>	Semester	Credits	Fees (Rs 8500/- per credit)	I	8	68000/-	II	8	68000/-	III	9	76,500/-	IV	7	59,500/-	V	14	1,19,000/-	VI	14	1,19,000/-	Total	60	5,10,000/-
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Documents required while submitting online application	<ol style="list-style-type: none"> 1. Experience Certificate from the place of work (industry) 2. Scanned copy of Qualifying degree, Mark lists and Certificates from Class X onwards. 																								
Application Fee	<ul style="list-style-type: none"> • The fee for online application is ₹500/- (Except for Woman/SC/ST Candidate). • All Women candidates and Scheduled Castes (SC)/ Scheduled Tribes (ST) candidates are required to pay ₹250/- as Application Fee. 																								

Important Dates

Release of online application form	Nov 17, 2021
Last date for submitting online applications	Dec 10, 2021
Announcement of Selection List for written test and/ interview	Dec 14, 2021
Date of written test and /interviews	Dec 15-19, 2021
Announcement of selected candidates	Dec 21, 2021
Last date for fee payment	Dec 28, 2021
Last date for online verification	Dec 31, 2021
Registration	Jan 01, 2022
Commencement of classes	Jan 02, 2022

Course Mode

The programme features a hybrid mode of in-person classes, live online classes and virtual labs conducted over weekends as per the decision of the Senate. The time slot in which a course would be taught would be informed to students beforehand to help them in deciding electives.

Course Venue

The course will be offered as a combination of online and in-person classes in the off-campus centre at Thiruvananthapuram.

About IIIT Kottayam

Please visit www.iiitkottayam.ac.in

General Course Structure

M. Tech in AI and Data Science

Subject		L-T-P	Credits
Semester I			
DSC 511	Statistical Foundations for Data Science	2-0-0	2
DSC512	Programmaming and Data Structures	2-0-3	3
DSC513	Introduction to AI and Data Science	2-0-3	3
Semester II			
DSC 514	Mathematical Foundations for Data Science	2-0-0	2
DSC 515	Artificial Intelligence	2-0-3	3
DSC 516	Data Mining	2-0-3	3
Semester III			
DSC 521	Machine Learning	2-0-3	3
DSC XXX	Elective I	2-0-3	3
DSC XXX	Elective II	2-0-3	3
Semester IV			
DSC XXX	Elective III	3-0-3	4
DSC XXX	Elective IV	2-0-0	2
DSC XXX	Business Analytics	1-0-0	1
Semester V			
CSE611	Project (Phase 1)		14
Semester VI			
CSE621	Project (Phase 2)		14
Total Credits			60

Electives:

- Real time-Analytics (2-0-3)
- Information Retrieval (2-0-0)
- Ethics for Data Science (1-0-0)
- Natural Language Processing (2-0-3)
- Advanced Topics in Data Processing (3-0-3)
- Deep Learning (2-0-3)
- Big Data Analytics (2-0-3)
- Data Visualization and Predictive analytics (3-0-3)
- Graphs Algorithms and Mining (2-0-0)

M. Tech in Cyber Security

Subject		L-T-P	Credits
Semester I			
CBM XXX	Mathematical Foundations for Cyber Security I	2-0-0	2
DCS 512	Programming and Data Structures	2-0-3	3
CBM XXX	Computer Networks and Security	2-0-3	3
Semester II			
CBM XXX	Secure Software Engineering	2-0-0	2
CBM XXX	Information Security and Applied Cryptography	2-0-3	3
CBM XXX	Decision Support and Artificial Intelligence	2-0-3	3
Semester III			
CBM XXX	Operating System Security	2-0-3	3
CBM XXX	Elective I	2-0-3	3
CBM XXX	Elective II	2-0-3	3
Semester IV			
CBM XXX	Elective III	3-0-3	4
CBM XXX	Elective IV	2-0-0	2
CBM XXX	Criminal Psychology and Behaviour Intelligence	1-0-0	1
Semester V			
CBE XXX	Project (Stage 1)		14
Semester VI			
CBE XXX	Project (Stage 2)		14
Total Credits			60

Electives:

- Distributed System Security (2-0-3)
- Digital Forensics (2-0-0)
- AI, Machine Learning and Security (2-0-3)
- Cloud Computing and Security (2-0-3)
- Advanced Database Security (2-0-3)
- Secure Hardware Design (2-0-3)
- Blockchain Architecture and Applications (2-0-3)
- Network, Wireless, IOT, Mobile & Security (2-0-3)
- Forensics, Malware, and Penetration Testing (3-0-3)
- Intrusion Detection Systems and Firewall (3-0-3)
- Legal Aspects of Computing (2-0-0)
- Information Security Policies, Security Standards, Audits, Cyber Ethics, Privacy and Legal Issues (2-0-0)

Frequently Asked Questions

1. Who conducts the classes?

All classes are conducted by IIIT Kottayam faculty. Industry experts are also invited for sharing their valuable experience.

2. What is the Teaching Methodology?

The pedagogy is highly interactive and incorporates expansive teaching methods and approaches.

3. What PG Degree do we get?

On successful completion of the course the candidates will be awarded **MTech Degree in Artificial Intelligence and Data Science / Cyber Security**.

4. Can I visit the campus and have face to face interaction with the faculty members?

Participants are welcome to visit the campus and meet the faculty members, with prior appointments.

5. What is the duration of the course?

Six Semesters, which should be completed within a duration of minimum three to five years.

6. What do minimum and maximum durations refer to?

Minimum duration is the minimum period required to get your degree. Maximum duration indicates that you have to finish your degree within that period failing which your academic programme will be terminated unless Senate approves any extension.

7. As a part-time student, can I get any form of assistantship?

No, you are not eligible for an assistantship from Institute sources.

8. What is the fee structure?

It is Rs 8500/- per credit. The students shall be required to earn a minimum of 60 credits for award of the M.Tech degree. Thus, total course fees will be $(60 \times 8500) =$ Rs 5,10,000/-

9. I am a BTech Graduate in a non-computer science background. Can I join this course?

Yes, you can. The candidate must have a BTech /BE /AMIE degree or MCA or MSc / MS degree in CS /IT / Mathematics/ Physics/Statistics.

10. I still have questions regarding admissions/PG degree programmes at IIIT Kottayam, whom shall I contact?

Please drop an email to pgacademics@iiitkottayam.ac.in / registrar@iiitkottayam.ac.in.

Reach us for further details

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