FAIRFIELD
INSTITUTE OF MANAGEMENT & TECHNOLOGY

ज्योतिर्विज्ञीत तमसो विज्ञानन्

**Affiliated to GGS IP University, an 'A+' Grade College by DHE, Govt. of NCT DELHI,
Approved by AICTE , Bar Council of India, NCTE and Recognised under 2(f) of UGC Act of 1956**

CERTIFICATE COURSE

ON

INTERNET OF THINGS (IOT), DATA ANALYTICS AND MACHINE LEARNING

APRIL 2025 – JUNE 2025

&

SEPTEMBER 2025 – NOVEMBER 2025

BLENDED LEARNING / समिश्रित अधिगम

ABOUT FAIRFIELD COLLEGE

The Fairfield Institute of Management and Technology (FIMT) is a NAAC accredited prestigious college in Delhi with an ambiance representing the academic culture of the capital town of the largest democracy in the world and a vibrant emerging economy. Established by the Fairfield Group of Institutions, it is an 'A' grade college approved by the Government of NCT of Delhi, affiliated with the prestigious Guru Gobind Singh Indraprastha University. FIMT is approved by All India Council of Technical Education (AICTE), Bar Council of India(BCI), National Council for Teacher Education (NCTE) and other authenticating bodies. Fairfield Group of Institutions is backed by a legacy of 50 years of shaping students' careers in the country in areas of Management, Commerce, Teachers' education, Journalism, Information and Communication Technology, Humanities, and Law & Legal Studies. The Institutional distinction includes social outreach, field studies, and job orientation programs in respective areas of Study with specialized Add On Courses.

OBJECTIVES OF THE COURSE

- To provide an understanding of the Internet of Things (IoT) and its applications in various industries.
- To familiarize learners with the basic concepts of data analytics and their importance in decision-making processes.
- To introduce learners to the principles and techniques of machine learning and their applications in various domains.
- To provide hands-on experience in using IoT sensors, data analytics tools, and machine learning algorithms.
- To equip learners with the skills necessary to design and implement IoT systems that integrate data analytics and machine learning.

OUTCOME OF THE COURSE

- Students will be able to identify and explain the key components of an IoT system and their functions.
- Students will be able to collect, process, and, analyses data from IoT sensors using data analytics techniques.
- Students will be able to apply machine learning algorithms to analyses and make predictions based on IoT data.
- Students will be able to design and implement end-to-end IoT solutions that integrate data analytics and machine learning.
- Students will be able to evaluate the performance of IoT systems using appropriate metrics and interpret the results.
- Students will be able to communicate and effectively discuss with stakeholders about the benefits and challenges of IoT, data analytics, and applications of machine learning in various contexts.

EVALUATION METHODOLOGY OF THE CERTIFICATE COURSE

Evaluation methodology includes Hybrid Mode, Subjective and Objective Assessment, Presentation, class contribution and any other component as decided by the respective course faculties. A minimum of 75% attendance is a prerequisite for the successful completion of this program.

The program may require participants to work on individual/group assignments and/or projects. The main objective of such assignments / projects will be to help the participants apply their conceptual learning in the program to actual organizational decision scenarios.

The participants will have to secure the minimum passing marks in the respective evaluation.

Participants who successfully complete the same and satisfy the requisite attendance criteria, will be awarded a certificate of completion. Participants who are unable to clear the evaluation criteria but have the requisite attendance will be awarded a participation certificate.

PEDAGOGY

The pedagogy will be highly interactive in hybrid mode.
It will consist of a judicious blend of lectures, real life case studies, quizzes & assignment.

HIGHLIGHTS OF THE CERTIFICATE COURSE

- This Certificate course holds significant merit for Teachers, seasoned In-Service Teachers, administrators and aspiring Professional Portfolio Pupil Teachers/Students.

- Duration of the Course: Three Months or 30 Hours.

- Mode: Hybrid (Offline/ Online).

- Medium of Instruction: Bilingual (Hindi/ English).

ADMISSION PROCESS

The Online Session will commence from April 2025 - June 2025 & September 2025 - November 2025 (on Saturdays only.)The Admission Committee of FIMT shall make admission based on screening / merit in 10+2 or Bachelor's degree in any discipline followed by Group Discussion.

PROGRAMME CONTENT

LECTURES: 16 HRS. | PRACTICAL: 20 HRS. | TOTAL: 36 HRS. | DETAILED SYLLABUS

- **Unit 1: Introduction to IoT** : Definition and history of IoT, Key components of an IoT system, IoT applications in various domains, IoT communication protocols and standards.
- **Unit 2: Sensors and Actuators** : Types of sensors and their applications in IoT, Sensor interfacing techniques, Actuators and their Applications in IoT, Controlling actuators with IoT devices.
- **Unit 3: IoT Communication** : IoT communication protocols and standards, Wireless communication technologies for IoT, IoT network topologies, IoT security and privacy issues.
- **Unit 4: Data Analytics for IoT**: Data collection and processing for IoT, Data analysis techniques for IoT, Predictive analytics for IoT, Data visualization for IoT.
- **Unit 5: Machine Learning for IoT**: Machine learning basics and their applications in IoT, Supervised, unsupervised, and reinforcement learning, Deep learning techniques for IoT, Implementing machine learning algorithms on IoT devices.
- **Unit 6: IoT Applications** : Smart homes and buildings, Smart cities and transportation, Industrial IoT, Healthcare IoT, Agriculture IoT
- **Unit 7: IoT Platforms and Tools**: IoT platforms for application development, IoT development tools and frameworks, Cloud computing and IoT, Edge computing and IoT

List of Laboratory Practical

- Practical 1: Arduino Installation and description of Arduino Board and Arduinos IDE.
- Practical 2: Blinking LED using Arduino Uno.
- Practical 3: Fading LED using Arduino Uno.
- Practical 4: Create a LED Bar Graph Using Arduino Uno.
- Practical 5: Playing Happy Birthday Tune Using Arduino Uno.
- Practical 6: Build a Soil Moisture Monitoring System Using Arduino Uno.
- Practical 7: Build a Temperature and Humidity Monitoring System Using Arduino Uno.
- Practical 8: Build a Sound Detection System Using Arduino Uno.
- Practical 9: Build a Motion Detection System Using Arduino Uno.
- Practical 10: Switch On/Off LED from Android Mobile.
- Practical 11: Raspberry Pi installation and description.
- Practical 12: Build A Water Detection System Using Arduino Uno.
- Practical 13: Blinking LED using Raspberry Pi and Python Programming.
- Practical 14: Displaying Time over 4-Digit 7-Segment Display using Raspberry Pi.
- Practical 15: IoT based Web Controlled Home Automation using Raspberry Pi.
- Practical 16: Fingerprint Sensor interfacing with Raspberry Pi
- Practical 17: GPS Module interfacing with Raspberry Pi
- Practical 18: Intelligent Toilet Monitoring System using Raspberry Pi
- Practical 19: Gas Leakage and Fire Detection using Raspberry Pi
- Practical 20: IoT-based wheelchair-person fall detection system.

CERTIFICATE

After Course Completion, Certificate will be provided by Guru Gobind Singh Indraprastha University(GGSIPU) New Delhi.

REGISTRATION

- All interested candidates should register through the link **https://forms.gle/ZiLKSeWFL1a3sXzr7**
- Fee Structure: 10,000/- (₹)
- Examination fee : 1,000/- (₹)
- Payable through Online Mode.

Scan QR to pay
FAIRFIELD INSTITUTE OF MANAGEMENT AND TECHNOLOGY
DELHIC | TID : 64004068

ACCOUNT HOLDER NAME	FAIRFIELD INSTITUTE OF MANAGEMENT & TECHNOLOGY
BANK NAME	HDFC BANK
ACCOUNT NUMBER	50200024027620
ACCOUNT TYPE	CURRENT
RTGS/NEFT/IFSC CODE	HDFC 0004404
BRANCH	MAHIPALPUR

PROFESSIONAL COURSES @FIMT

FIMT-SCHOOL OF LAW- BBA-LL.B. INTEGRATED(H.) , BA-LL.B. INTEGRATED(H.) , LL.M.

FIMT-SCHOOL OF ENGINEERING & TECHNOLOGY- BCA , B.TECH. (CSE / IT / AI&ML)

FIMT-SCHOOL OF JOURNALISM & MASS COMMUNICATION- BA(JMC)

FIMT-SCHOOL OF HUMANITIES & SOCIAL SCIENCES-. BA-(H) ENG.

FIMT-SCHOOL OF BUSINESS ADMINISTRATION- BBA(GEN.)

FIMT-SCHOOL OF COMMERCE- B.COM.(H)

FIMT-SCHOOL OF EDUCATION- B.ED.