![Summer School at MIT, India — 20th June - 17th July 2025, with MIT Academy of Engineering and Avantika University logos, Indian flag and campus building](image)

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Summer School at MIT, India

20th June - 17th July 2025

MIT Pune Campus

Overview of MIT Campuses, India

MIT, Alandi, Pune Campus

MIT Alandi campus, dedicated to holistic growth and academic performance has no bounds, fostering an atmosphere where students grow into successful, well-rounded individuals. At MIT Alandi campus, we value diversity and foster a lively environment that embraces different view points. The professional connections that are created on campus continue long after students graduate, providing a lifetime link to a worldwide network of successful graduates. In the academic journey, every student is given the opportunity to reach their greatest potential in this establishing, making a significant contribution to society and transforming the world in the process.

Avantika University, MIT Ujjain Campus

Avantika University at Ujjain, Madhya Pradesh, India is a State Private University recognised by the University Grants Commission and is a part of the MIT Group of Institutions, Pune. It has contributed towards the industrial, economic, and social growth of the society, and has helped realize the dreams and aspirations of lakhs of students. It makes an obvious destination for aspiring young minds who are in pursuit of the best scholastic experience. Avantika is envisioned as India's first design-centered university that links design thinking and creative spirit with multidisciplinary course offerings. Avantika aims to nurture and cultivate young minds who will serve as enlightened citizens, bringing positive change to society. With a rich legacy of fostering world-class academic excellence, Avantika University nurtures students to become the torchbearers of the future.

Program Overview

Program Name	• Summer School at MIT, India
Duration	• 4 Weeks
Areas/Verticals	• Engineering
Total Fee	• 850 Pounds
Fee Includes	• Accommodation on twin sharing basis, • 3 Meals per Day, • 2-3 Industrial Visits, 4 Cultural Experiences, • Tuition Fee
Fee Excludes	• Airfare, Visa Expenses, Insurance, Personal Expenses
Minimum Cohort Size	• 10 Students/Area/Vertical
Key Takeaways	• Diverse Offerings Across 2 Beautiful Campuses of MIT, India • Opportunity for Cultural Exchange • Once in a Lifetime Opportunity to Experience Rich Heritage of India coupled with Academic Exchange. • 2 Unique Certificates from MIT, Pune and Avantika University • Chance to earn Online Certification endorsed by Corporates.

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Draft Timetable – Week 1

Summer School Schedule MITAOE ,
(Dates 20th June to 3rd July 2025)

Week 1	Day 1 SATURDAY	Day 2 SUNDAY	Day 3 MONDAY	Day 4 TUESDAY	Day 5 WEDNESDAY	Day 6 THURSDAY	Day 7 FRIDAY
Morning Session 1 10:00 - 12:00	Induction and document check with MITAOE team followed by MITAOE campus tour	Theory Session AI ML		AI ML		AI ML	
12:00 - 13:30 Lunch							
After Noon Session 2 13:30-15:30	Introduction to Indian culture	Hands On Session	Industrial Visit	Hands On Session	Visit To Historical Place	Hands On Session	FREE DAY
15:30 - 16:00 Tea Break							
Evening Session 3 16:00 - 17:00	Introduction to Indian culture	Hands On Session		Hands On Session		Free evening	
Student Dinner and Free Evening							

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Draft Timetable – Week 2

Summer School Schedule MITAOE ,
(Dates 20th June to 3rd July 2025)

Week 2	Day 1 SATURDAY	Day 2 SUNDAY	Day 3 MONDAY	Day 4 TUESDAY	Day 5 WEDNESDAY	Day 6 THURSDAY	Day 7 FRIDAY
Morning Session 1 10:00 - 12:00			Theory Session AI ML	Theory Session AI ML		Project Presentation	
12:00 - 13:30 Lunch							
After Noon Session 2 13:30-15:30	Cultural visit Mumbai	FREE DAY	Hands On Session	Hands On Session	Visit To Industry	Project Presentation	Travel to Ujjain
15:30 - 16:00 Tea Break							
Evening Session 3 16:00 - 17:00			Hands On Session	Hands On Session		Certificate distribution / Closing ceremony	
Student Dinner and Free Evening							

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Program Highlights:

Module 1

Foundations of AI & ML: Understand core concepts, real-world applications, and data analysis techniques.

Module 2

Machine Learning & Deep Learning: Train models using no-code platforms like Google AutoML and Lobe AI for regression and classification tasks.

Module 3

Module 3-Generative AI: Gain hands-on experience with Generative AI APIs (OpenAI, Hugging Face) for text, image, and code generation.

Each Module : 4 hours (2 hours theory + 2 hours hands-on)

Overview of Syllabus

Module 1 Introduction to Artificial Intelligence and Machine Learning
Duration: 2 Hours

Objective To build foundational knowledge in AI/ML and explore its real-world applications.

Topics Covered

Foundations of AI and ML

Key concepts: AI, ML, and Deep Learning

Real-world applications of AI in industries like healthcare, finance, and retail.

Hands-on: Explore real-world examples of AI applications in industry scenarios.

Types of Data and Data Analysis

Structured, unstructured, and semi-structured data types

The role of correlation and data analysis in AI applications

Hands-on: Use no-code tools to visualize and calculate correlation in sample datasets.

Module 2

Machine Learning and Deep Learning with No-Code Platforms
Duration: 2 Hours

Objective

Introduce participants to machine learning and deep learning algorithms using no-code platforms.

Topics Covered

Overview of ML and DL Algorithms

Types of algorithms in ML and DL: Regression, Classification, Neural Networks, etc.

Hands-on: Model training and evaluation with no-code platforms such as Google AutoML and Lobe AI.

Training ML/DL Models Using No-Code Tools

Walkthrough of regression and classification tasks using pre-built models

Basics of neural network architecture and its applications in no-code platforms

Hands-on: Train, evaluate, and deploy simple models on platforms like Lobe AI.

Module 3   Generative AI Using APIs and Case Studies
Duration: 3 Hours

Objective   Provide hands-on experience with generative AI techniques and explore practical use cases.

Topics Covered

Introduction to Generative AI

Use cases and applications of generative AI.

Key models: GPT (Text),
DALL-E (Images),
Codex (Code generation)

Ethical implications and challenges in generative AI.

Exploring Generative AI APIs

Overview of popular APIs (OpenAI, Hugging Face, etc.)

Hands-on session: Implementing text generation, image synthesis, and code generation using these APIs.

Integrating APIs into workflows for custom AI solutions.

Industry Case Studies

Real-world use cases of generative AI in creative industries, business automation, and product development.

Hands-on: Building a custom application .
using generative AI APIs based on industry scenarios.

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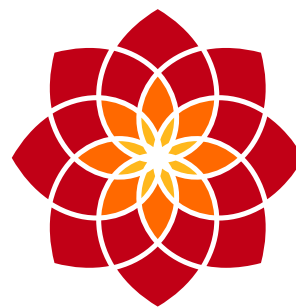
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MIT Pune Campus at Ujjain

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Draft timetable, School of Engineering — Week 1

Summer School Schedule, School of Engineering, (5th July–16th July, 2025)

Week 1

	Day 1 FRIDAY	Day 2 SATURDAY	Day 3 SUNDAY	Day 4 MONDAY	Day 5 TUESDAY	Day 6 WEDNESDAY	Day 7 THURSDAY
Morning							
Session 1 10:00 - 11:30		Induction & Avantika University Tour		Session on Machine Learning	Session on Data Science	Session on UX/UI Engineering	Session on Cloud Computing
11:30 - 11:45 Tea Break							
Session 2 11:45 - 13:00	Arrival		Rest Day with Indian Field Games				
13:00 - 14:00 Lunch							
After Noon							
Session 3 14:00 - 15:30					Invited Expert Session		
15:30 - 16:00 Tea Break		Session on Artificial Intelligence		Practical Session		Mahakal Lok Tour	Invited Expert Session
Evening							
Session 4 16:00 - 17:00					Ujjain City Tour		
Free Evening							

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Draft timetable, School of Engineering — Week 2

Summer School Schedule, School of Engineering, (5th July-16th July, 2025)

Week 2

	Day 1 FRIDAY	Day 2 SATURDAY	Day 3 SUNDAY	Day 4 MONDAY	Day 5 TUESDAY	Day 6 WEDNESDAY	Day 7 THURSDAY
Morning Session 1 10:00 - 11:30	Session on Artificial Intelligence	Workshop on Full Stack Development			Online Certification (CISCO)	Online Certification (Red Hat)	
11:30 - 11:45 Tea Break							
Session 2 11:45 - 13:00				Industrial Visit (IT-Industry) Indore			Travel Towards Mumbai
13:00 - 14:00 Lunch			Rest Day				
After Noon Session 3 14:00 - 15:30	Networking & Project working with SoE Students(AI-ML)	Workshop on Cyber Security			Cultural Session with Avantika Students	Valedictory Function	
15:30 - 16:00 Tea Break							
Evening Session 4 16:00 - 17:00							
Free Evening							

school of engineering

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Fundamentals of Artificial Intelligence

- Basics of AI.
- Practical uses: Discover how AI transforms Industry 4.0.
- Interactive learning: Dive into real-world scenarios showcasing AI's impact across various sectors

UI/UX Engineering

- Understanding design systems
- Interactions
- Motion design principles
- Usability in transition

Practical Session

- Perform usability testing on an existing app, analyze the results, and propose design improvements.
- Integrating AI for personalized user experiences
- Design a prototype for personalized recommendation system

Cloud Computing

- Basic Introduction
- Cloud-native applications
- Microservices architecture
- Containerization
- Implementing a serverless pipeline for data processing
- Zero-trust model for hybrid cloud systems

Data Science

- Fundaments of Data Science
- Impact of feature engineering on model performance
- Handling imbalanced datasets, data transformations and encoding techniques
- Time Series Forecasting

Machine Learning

- Overview of ML
- Types of algorithms in ML
- Model selection based on problem and dataset
- Gaussian Mixture Models (GMM)
- Spectral Clustering
- Ensemble Learning Methods
- Implementing a simple Q-Learning algorithm for a grid-world problem
- Training a machine learning model on distributed medical datasets without centralizing data

Artificial Intelligence

- AI for Multi-Modal Learning
- Generative AI
- Federated Learning and Edge AI
- Developing a multi-modal model for sentiment analysis using video and text data

Workshop on Full Stack Development

- Overview of Full Stack Development
- Frontend, Backend and Database
- Node.js and Express: Server-side JavaScript
- Server-Side Rendering with Next.js
- API Design and Best Practices
- CI/CD and Deployment

Workshop on Cyber Security

- Overview of Cyber Security
- Layers of Cyber Security
- Different types of attacks
- Penetration testing on a vulnerable environment
- Zero Trust Security Model

Come to MIT to explore India