



HIMSHIKHAR 2026

SUMMER RESIDENTIAL PROGRAM AT IIT MANDI

**THE SUMMER THAT REWRITES YOUR CAREER.
2 MONTHS. IIT MANDI CAMPUS.**



Program Vision

This program is crafted to deliver a transformative, career-defining journey, blending rigorous technical education with the immersive academic environment of Indian Institute of Technology Mandi (IIT Mandi).

Participants go beyond classroom learning and experience the IIT ecosystem first-hand, engaging with its culture of innovation, research, collaboration and excellence.

Core Experience Pillars



IIT Faculty-Led Instruction: Courses taught by IIT Mandi professors, ensuring academic rigor and institutional credibility



Full Campus Immersion: Access to IIT classrooms, e-library, research labs, hostels, and campus infrastructure



Peer & Professor Networking: Meaningful interactions with IIT students, faculty, clubs, societies, and the broader IIT community



Mountain Campus Environment: Two months of zero-distraction, focused learning in the Himalayas with breathtaking surroundings



Life-Transformative Experience: Peer sessions, hostel life, campus culture, and the defining “IIT experience” that shapes careers and character



Industry Exposure: Weekly Industry Talks by industry experts, mentorship from 10+ industry leaders, and hands-on project work

Daily Schedule



Learning

Faculty-led classroom instruction focused on theory, core concepts, and foundational understanding



Assignments & Study

Guided practice and exercises to reinforce concepts and complete daily learning tasks



Lunch & Reflection

Self-paced study or quiet reflection time at the IIT Mandi campus



Hands-on Labs

Practical exercises guided by IIT Mandi Teaching Assistants (TAs)



Campus Interaction

Access to IIT Mandi recreational infrastructure and campus facilities



Projects & Peer Learning

Real-world project development with collaborative peer discussions and "Night Owl" coding sessions

Key Highlights

Fully Residential

Your campus for 2 months

Prestigious Certification

Program Completion Certificate
from CCE, IIT Mandi

Real Projects, Real Demos

2 capstone projects per track. Final boardroom
demo in front of faculty and industry panelists

Residential Campus Access

Classrooms | Labs | E-library | Hostels

Industry Mentors on Campus

10+ industry leaders
In-person project feedback

IIT Faculty-Led Instruction

Courses taught by IIT Mandi professors, ensuring
academic rigor and institutional credibility

190 Hours of Structured Learning

IIT Faculty Sessions: 100 hrs | Scholar Tutorials: 50 hrs | Industry Expert Sessions: 40 hrs



Learning Tracks

Software Development with AI

Full-stack development, AI-assisted coding, modern frameworks, deployment pipelines

MONTH 1

- **Week 1: Algorithmic Thinking & Python Basics**
Master Python syntax and flow control; build the foundations of DSA by mastering Searching (Linear/Binary) and Sorting (Bubble/Selection) logic using computational puzzles; learn Big O notation intuition to audit code performance
- **Week 2: Web Foundations & Logic Reinforcement**
Transition to HTML5 and CSS3 (Flexbox/Grid); use Modern JavaScript (ES6+) to implement recursion and DOM manipulation; build the habit of modularizing code to prepare for complex systems
- **Week 3: Frontend Architecture with React**
Deep dive into component-based design; master state management and hooks (useState, useEffect); learn to break down a complex UI into a tree-like hierarchy (LLD - Low Level Design)
- **Week 4: Advanced Interfaces & API Contracts**
Integrate external APIs into React; master asynchronous programming (Async/Await) and error handling; complete Project 1 (Rural Artisan Marketplace UI)

MONTH 2

- **Week 5: Backend Engineering & System Logic**
Build secure RESTful services using FastAPI; master the Request/Response lifecycle and middleware; learn the "Logic of Scalability" by understanding how servers handle multiple concurrent users
- **Week 6: Database Engineering & Schema Design**
Master PostgreSQL and relational mapping; learn Schema Design (LLD) including normalization, indexing for speed, and complex joins to ensure data integrity
- **Week 7: AI-Augmented Development & Testing**
Integrate LLM APIs into the backend; use autonomous coding agents for test-driven development (TDD); learn to use AI for identifying architectural flaws and refactoring code
- **Week 8: High-Level System Design (HLD) & Deployment**
Master the "Big Picture" of System Design: Load Balancing, Caching, and Microservices intuition; containerize applications and deploy to the cloud for the Final Boardroom Demo (Public Grievance Portal)

Note: The Curriculum mentioned above are indicative and may be revised based on academic requirements

AI & Machine Learning

Deep learning, NLP, computer vision, model training & optimization

MONTH 1

- **Week 1: Master Python for Data Science**
Complete high-speed numerical operations in NumPy and full data manipulation cycles in Pandas
- **Week 2: Advanced Exploratory Data Analysis (EDA)**
master Matplotlib/Seaborn and statistical storytelling to identify hidden trends in messy data
- **Week 3: Classical Supervised Learning;**
master the logic and implementation of Linear/Logistic Regression and Decision Trees using Scikit-Learn
- **Week 4: Ensemble Methods & Model Tuning**
Master Random Forests and Gradient Boosting logic; complete Project 1 (Smart Energy Forecast)

MONTH 2

- **Week 5: Deep Learning Intuition**
Understand Neural Networks, Backpropagation, and Gradient Descent via the "Himalayan Valley" analogy
- **Week 6: Computer Vision & NLP**
Computer Vision & NLP; implement Image Classification and Text Sentiment Analysis using pre-trained models and transfer learning
- **Week 7: Generative AI Foundations**
Generative AI Foundations; understand Transformer architecture, tokenization, and fine-tuning concepts for domain-specific tasks
- **Week 8: MLOps & Deployment**
Learn to serve models via APIs and monitor performance for the Final Boardroom Demo (Apple Orchard Health Monitor)

Note: The Curriculum mentioned above are indicative and may be revised based on academic requirements

Agentic AI Systems

Autonomous AI agents, multi-agent systems, LLM orchestration, tool-use frameworks

MONTH 1

- **Week 1: Advanced Prompt Engineering**
Master Chain-of-Thought, Few-Shot prompting, and structured data output (JSON) for model control
- **Week 2: RAG (Retrieval Augmented Generation)**
Build systems that allow AI to "read" and reason over private document sets and PDFs
- **Week 3: Single-Agent Autonomous Workflows**
Build agents that can use external tools (Search, Calculators, Databases) to solve multi-step problems
- **Week 4: Agentic Planning & Memory**
Integrate external APIs into React; master asynchronous programming (Async/Await) and error handling; complete Project 1 (Rural Artisan Marketplace UI)

MONTH 2

- **Week 5: Multi-Agent Orchestration**
Build secure RESTful services using FastAPI; master the Request/Response lifecycle and middleware; learn the "Logic of Scalability" by understanding how servers handle multiple concurrent users
- **Week 6: Autonomous Research & Coding Agents**
Master PostgreSQL and relational mapping; learn Schema Design (LLD) including normalization, indexing for speed, and complex joins to ensure data integrity
- **Week 7: Agentic Safety & Guardrails**
Integrate LLM APIs into the backend; use autonomous coding agents for test-driven development (TDD); learn to use AI for identifying architectural flaws and refactoring code
- **Week 8: Production Integration**
Master the "Big Picture" of System Design: Load Balancing, Caching, and Microservices intuition; containerize applications and deploy to the cloud for the Final Boardroom Demo (Public Grievance Portal)

Note: The Curriculum mentioned above are indicative and may be revised based on academic requirements

Data Science

Statistical modeling, big data analytics, data engineering, visualization

MONTH 1

- **Week 1: Advanced Python for Data Engineering**
Master Pythonic logic for complex data manipulation and high-speed preprocessing using NumPy
- **Week 2: Data Wrangling at Scale**
Mastering the Pandas library for merging, reshaping, and cleaning massive real-world datasets
- **Week 3: Statistical Inference**
Building data intuition through probability distributions, hypothesis testing, and quantifying uncertainty
- **Week 4: The Machine Learning Workflow**
Mastering the logic of Train-Test-Validation splits, feature scaling, and performance metrics; complete Project 1 (Paddy Crop Health Monitor)

MONTH 2

- **Week 5: Supervised Learning Foundations**
Implementation of Regression and Classification models as logic engines for prediction
- **Week 6: Advanced Ensembles & Clustering**
Mastering Random Forests and unsupervised learning logic (K-means) for pattern discovery
- **Week 7: Deep Learning & GenAI Intuition**
Understanding Neural Networks and the Transformer architecture for building intelligent features
- **Week 8: High- MLOps & Deployment**
Transitioning from code notebooks to working APIs; serving models for the Final Boardroom Demo (Sentiment Analysis Engine)

Note: The Curriculum mentioned above are indicative and may be revised based on academic requirements

Entrepreneurship & Venture Building

Learn how to discover opportunities, validate ideas, build MVPs, and develop a venture-ready startup

MONTH 1

- **Week 1: Entrepreneurial Mindset & Opportunity Thinking**
Problem-first framing, founder mindset, and opportunity spaces in the Indian context
- **Week 2: Problem Discovery & Customer Understanding**
User interviews, persona journeys, and evidence-backed problem statements
- **Week 3: Idea Validation & MVP Thinking**
Assumption mapping, hypothesis design, and MVP formats (concierge/no-code/prototype)
- **Week 4: Value Proposition & Business Model Basics**
Value proposition design, business model logic, and introductory unit economics intuition

MONTH 2

- **Week 5: Go-to-Market Foundations**
Segment prioritization, positioning, channel experiments, and starter funnel metrics
- **Week 6: Startup Operations & Execution Systems**
Sprint cadence, dashboards, experiment logs, and team execution discipline
- **Week 7: Finance, Compliance & Risk Basics**
Pricing, cash flow, budgeting/runway thinking, and founder-level compliance awareness
- **Week 8: Pitching, Venture Readiness & Demo Preparation**
Deck building, evidence-led storytelling, and final boardroom readiness

Note: The Curriculum mentioned above are indicative and may be revised based on academic requirements

Masterclasses by Industry Experts

Software Development with AI

(Week 2) Modern Web Architecture: From Monoliths to Microservices

(Week 4) Component-Driven Design: Building Scalable UIs in Production

(Week 6) High-Performance Backends: Mastering FastAPI and PostgreSQL at Scale

(Week 8) Engineering Leadership: Architecting Systems for Millions of Users

AI & Machine Learning

(Week 2) The Art of Storytelling: Communicating Data Insights to Stakeholders

(Week 4) Model Evaluation in the Real World: Moving beyond Accuracy to Business Impact

(Week 6) Transfer Learning: Using Pre-trained Models for Industrial Vision and NLP

(Week 8) MLOps Foundations: Shipping and Monitoring ML Models in Production

Agentic AI Systems

(Week 2) LLM Security: Preventing Hallucinations and Prompt Injections

(Week 4) Human-in-the-loop Design: Designing Safe and Collaborative AI Agents

(Week 6) The Agentic Frontier: Autonomous Coding and Multi-Agent Orchestration

(Week 8) Governance of Autonomy: Compliance and Ethics in Agent-Driven Systems

Data Science

(Week 2) Python for Industrial Automation

(Week 4) Advanced Statistical Thinking

(Week 6) Ethical AI & Bias Detection

(Week 8) Deploying Models at Scale

Entrepreneurship & Venture Building

(Week 2) Founder Journeys in India: Pivots, Failures, and Recovery Decisions

(Week 4) Incubators & Accelerators: How Early-Stage Teams and Ideas Are Evaluated

(Week 6) Early Sales & Pricing for First-Time Founders: Building Traction Before Scale

(Week 8) Pitching to Mentors, Incubators and Investors: What Changes & What Stays Constant

Message from the Head, CCE IIT Mandi



Prof. Tushar Jain
Head, Centre for Continuing Education

The Centre for Continuing Education at IIT Mandi is committed to extending the institute's academic excellence to learners seeking practical, career-defining skills.

HIMSHIKHAR 2026 – Summer Residential Program at IIT Mandi is a 2 month intensive, application focused program in Software Development with AI, Artificial Intelligence and Machine Learning, Agentic AI Systems, Data Science and Entrepreneurship & Venture Building. Every module emphasizes building, problem-solving, and working with real tools, guided by practitioners and faculty who understand industry demands.

Beyond technical training, the program is designed to foster holistic development through sessions on communication, teamwork, leadership, critical thinking, and professional ethics, along with opportunities to engage in sports, wellness activities, and collaborative campus experiences that are integral to the IIT ecosystem.

This program combines academic rigor, national skilling infrastructure, and outcome-driven training for learners at every stage from 12th pass students to recent graduates.

I invite motivated learners to make full use of this opportunity.

Meet our Instructor Team



Dr. Adarsh Patel
Assistant Professor, IIT Mandi

PhD, IIT Kanpur. Postdoctoral research at IISc Bangalore and Syracuse University, USA. Specialises in Next-Generation Wireless Networks and Molecular Communications.



Dr. Aditya Nigam
Associate Professor, IIT Mandi

PhD, IIT Kanpur. A passionate educator in Deep Learning for over a decade. Specialises in Biometrics and Medical Image Processing.



Dr. Anjan Kumar Swain
Professor, IIT Mandi

PhD, University of Sheffield, UK. Former Professor at IIM Kozhikode for 13 years. Specialises in Machine Learning and Neural Networks for Business.



Dr. Arnav Vinayak Bhavsar
Associate Professor, IIT Mandi

PhD, IIT Madras. Postdoctoral research at GE Global Research and UNC Chapel Hill. Specialises in AI, Deep Learning and Medical Image Analysis.



Dr. Indu Joshi
Assistant Professor, IIT Mandi

PhD, IIT Delhi. Postdoc at Inria, France and TU Munich. President of India Silver Medalist and a specialist in deep learning.



Dr. Manoj Thakur
Professor, IIT Mandi

PhD, IIT Roorkee. Over 14 years at IIT Mandi and three-time Teaching Excellence Awardee. Specialises in machine learning, optimization, and computational finance.



Dr. Parimala Kancharla
Assistant Professor, IIT Mandi

PhD, IIT Hyderabad. Former Research Scientist at Intel Labs, Bangalore. Specialises in Generative Modeling & Deep Learning Based Video Compression.



Dr. Prateek Vishnoi
Assistant Professor, IIT Mandi

PhD in Computer Science, IIT Kanpur. Published at MFCS and TAMC. Specialises in Theoretical Computer Science and Algorithmic Randomness.



Dr. Preeti Kardam
Assistant Professor, IIT Mandi

PhD, Indian Institute of Technology (ISM) Dhanbad. Specialises in operations research and is affiliated with the School of Mathematical & Statistical Sciences at IIT Mandi.



Dr. Sanjeev Nara
Assistant Professor, IIT Mandi

PhD in Cognitive Neuroscience, Spain. Postdoc at the University of Giessen, Germany. Specialises in AI for Neuroimaging and Human-Computer Interaction.



Dr. Satvasheel Powar
Associate Professor, IIT Mandi

PhD in Solar Energy, Monash University. Stanford Ignite alumnus with 10+ years at IIT Mandi. Specializes in Financial Literacy, Renewable Energy, and Entrepreneurship.



Dr. Rajeev Kumar
Associate Professor, IIT Mandi

PhD, IIT Roorkee. Former engineer at GE Aviation, Bangalore. Specialises in Smart Structures, Vibration Control and Finite Element Methods.



Dr. Vikash Tripathi
Assistant Professor, IIT Mandi

PhD, IIT Ropar. Postdoctoral research at Institute of Mathematical Sciences, Chennai. Specialises in Graph Theory and Mathematics.

Evaluations and Grading Policy

The program follows a rigorous, outcome-oriented grading system. Assessment is split between individual theoretical mastery and collective practical application.

Assessment Type	Schedule	Weightage
Exam 1	Week 3, Saturday	30%
Monthly Project 1 & Demo	Week 4, Sunday	20%
Exam 2	Week 6, Saturday	30%
Monthly Project 2 & Demo	Week 8, Sunday	20%

- **Total Score:** 100%
- **Squad Grading:** For Project 1 and Project 2, all members of a "Project Squad" will receive the same score based on the group's collective output and demo performance. This incentivizes peer-to-peer teaching and collaborative debugging.

Graduation & Certification Criteria

- Minimum 90% attendance across all Morning, Afternoon, and Evening sessions; to be eligible for Certification
- Participation on both exams, and successful completion and defense of both the Month 1 and Month 2 projects
- Adherence to the technical and ethical standards set by the CCE, IIT Mandi

Admission Process



Application Form Submission

Sign up on the website, complete the application form, and choose your entrance test slot. Program brochure and preparation material will be couriered to your address.



Clear the entrance test

Take the 60-minute online test covering Logical Reasoning, Mathematics, Communication, and Quantitative Aptitude.



Attend Counselling

Shortlisted candidates can book a counselling session online to select their track, confirm details, and receive the Provisional ID and Admission Letter.



Confirm Your Seat

Confirm your seat within 24 hours after counselling. The remaining fee can be paid in full or in two instalments.



Report to IIT Mandi

Complete the fee payment (second instalment). Report to IIT Mandi on 16 May 2026 with your Aadhaar card and admission letter. Classes begin on 18 May 2026.

Fees Structure

Fee Category	Amount
Application Form	₹999
Seat booking Fee	₹10,000
Project Fee	₹20,001
Residential Fee	₹30,000
Training Fee	₹89,000
Total Program Fee	₹1,50,000 inclusive all all taxes

Note:

- A security deposit of ₹5,000 must be paid by students, which will be refunded.
- All payments are non-refundable. This policy ensures the sustained quality and provision of our services.

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