



(Form for the Submission of Proposal)
Global e-Learning Program for International Students and Faculties
(IIT-I Global e-Learning Program)
International Relations Office
Indian Institute of Technology Indore

1	Title of the Global e-Learning Program (e.g.: "Machine Learning in Energy Science")	AI/ML-Driven Manufacturing Systems: Theory to Practice
2	Proposed dates and duration of the program	July 20 - 25, 2026
3	Name of the Course Coordinator(s) (Name, Designation, Department, email, contact number)	Prof. Pavan Kumar Kankar, Professor, Department of Mechanical Engineering Email: pkankar@iiti.ac.in ; Contact: +91-731-6603427 Dr. Ankur Miglani, Associate Professor, Department of Mechanical Engineering Email: amiglani@iiti.ac.in ; Contact: +91-731-6603220
4	Details of the Course Instructor(s) from IIT Indore (Name, Designation, Department, email, contact number)	Prof. Pavan Kumar Kankar, Professor, Department of Mechanical Engineering Email: pkankar@iiti.ac.in ; Contact: +91-731-6603427 Dr. Ankur Miglani, Associate Professor, Department of Mechanical Engineering Email: amiglani@iiti.ac.in ; Contact: +91-731-6603220
5	Names of the Proposed invited experts outside IIT Indore (Name, Designation, Department/Institute, email, contact number)	Dr. Tanmay Tiwari, Assistant Professor, Department of College of Engineering and Mechanical Engineering, Polymer Science, The University of Akron Email: ttiwari@uakron.edu ; Contact: 330-972-4571
6	Details and Modules of the program (Lectures and Tutorials)	<ul style="list-style-type: none"> • Lecture 1: AI/ML Fundamentals for Manufacturing • Systems Physics informed neural networks in • Tutorial 1: Group activity: Map out a manufacturing process and identify where machine learning could be applied • Lecture 3: Machine Learning for Fault Detection and Anomaly Analysis • Lecture 4: Condition monitoring of hydraulic systems • Tutorial 2: Simulation: Groups propose AI solutions for optimizing manufacturing process, fault detection, etc.



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7	Target groups (UG/PG/Ph.D. Students or Faculties)	UG/PG/Ph.D. Students and Faculties
8	Pre-Requisites and Minimum Education Qualification (if any)	None
6	How will this program benefit the participants? (in bullet points)	Participants gain hands-on exposure to applying AI/ML techniques in real manufacturing scenarios, including: <ul style="list-style-type: none">• Data acquisition from machines and sensors• Data preprocessing and feature extraction for manufacturing data• Case studies on Implementation of ML models• Predictive maintenance and condition monitoring