





(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	AI and Cryptography for IoT Ecosystems
2	Proposed dates and duration of the program	May 02- 09, 2026
3	Name of the Course Coordinator(s) (Name, Designation, Department, email, contact number)	Dr. Ayan Mondal, Assistant Professor, CSE, <a href="mailto:ayanm@iiti.ac.in">ayanm@iiti.ac.in</a> , +91 78727 73669
4	Details of the Course Instructor(s) from IIT Indore (Name, Designation, Department, email, contact number)	<ul style="list-style-type: none"> <li>• Prof. Somnath Dey, Professor, CSE, <a href="mailto:somnathd@iiti.ac.in">somnathd@iiti.ac.in</a>, +91 88230 76096</li> <li>• Dr. Bodhisatwa Mazumdar, Associate Professor, CSE, <a href="mailto:bodhisatwa@iiti.ac.in">bodhisatwa@iiti.ac.in</a>, +91 82697 88185</li> </ul>
5	Names of the Proposed invited experts outside IIT Indore (Name, Designation, Department/Institute, email, contact number)	NIL
6	Details and Modules of the program (Lectures and Tutorials)	<p><b>IoT Security &amp; Cryptographic Foundations</b></p> <ul style="list-style-type: none"> <li>• IoT architecture, constraints, and threat models</li> <li>• Cryptographic basics for IoT (symmetric, asymmetric, key management)</li> <li>• Lightweight cryptography and secure firmware updates</li> </ul> <p><b>AI Techniques for Securing IoT</b></p> <ul style="list-style-type: none"> <li>• AI/ML fundamentals for IoT data</li> <li>• Edge vs cloud AI and privacy issues</li> <li>• AI-based anomaly, intrusion, and malware detection</li> </ul> <p><b>Integrated AI-Cryptography Solutions</b></p> <ul style="list-style-type: none"> <li>• AI-assisted authentication and key management</li> <li>• Privacy-preserving AI (federated learning, homomorphic encryption)</li> <li>• Case studies, challenges, and future directions</li> </ul>
7	Target groups (UG/PG/Ph.D. Students or Faculties)	International Students (UG/PG/PhD), faculties and working professionals
8	Pre-Requisites and Minimum Education Qualification (if any)	Knowledge in programming



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6	How will this program benefit the participants? (in bullet points)	The participants will learn the <ul style="list-style-type: none"><li>• Fundamental requirements of AI/ML towards cybersecurity applications.</li><li>• Fundamental requirements of cybersecurity aspects of Network communication protocols such as TLS, SSL, and IPSec, and cryptographic primitives that impart data confidentiality, integrity, data authenticity and non-repudiation.</li><li>• Fundamentals of IoT architecture and protocols. And its limitations</li></ul>
<b>Submitted by</b>  Somnath Dey Bodhisatwa Mazumdar  (Signature and Date) Course Coordinator(s)	<b>Approval and Remarks</b>  (Signature and Date) Dean, International Relations, IIT Indore	