



Ministry of Electronics & Information Technology (MeitY)
Government of India



ELECTRONICS INDIA
Billion Needs Million Chips

Government of India Initiative for Employability Enhancement



- Faculty Training
- Training and Consultancy
- Services for Industry
- Technical Incubation and Entrepreneurship
- Continuing Education for Students & Professionals



IIT Guwahati



IIITDM Jabalpur



MNIT Jaipur



NIT Patna



IIT Roorkee



NIT Warangal



India is fast emerging as a world power in Information, Communications Technology and Electronics (ICTE) sectors. To complement its growth and further development, there is an ever-increasing need for trained professionals with specialization in this space. This includes training of professionals not only in existing and changing technologies but also in the fields of R&D and electronics manufacturing. This will specifically be aimed at the ICTE sector to create a substantial resource pool of talent and generate ample opportunities for entrepreneurs.

Ministry of Electronics & Information Technology (MeitY) has approved a scheme and set up Electronics and ICT Academies at 07 (seven) institutions viz. IIT Guwahati, IIT Kanpur, NIT Warangal, NIT Patna and IIITDM Jabalpur (all five under Category-A); and IIT Roorkee, MNIT Jaipur (both under Category B). The Ministry had earlier setup two ICT Academies at Tamil Nadu and Kerala respectively. Estimated cost and targets for the Electronics and ICT Academy in the two Categories for a period of four years are as under:

Category	Total Outlay	Internal Revenue Generation	Grants-in-Aid from Central Government	Training Target (Faculty members)
Category-A	Rs. 25 crore	Rs. 7.50 crore	Rs. 17.50 crore	16,000
Category-B	Rs. 10 crore	Rs. 3.00 crore	Rs. 7.00 crore	6,400

These Academies are aimed at faculty/mentor development and upgradation to improve the employability of the graduates, diploma holders in various streams, through collaboration of States/Union Territories. Each Academy is being provided funding support for four years and is expected to generate revenue by charging fee and taking up other activities to meet the recurring cost in a gradual manner and become self-sustainable by the end of fourth year onwards. All these Academies will cater to the requirements of identified neighbouring States and UTs also.

Brief information about all the Academies is available at :

<http://Meity.gov.in/content/scheme-financial-assistance-setting-electronics-andict-academies>

Activities of the Academies

- Faculty development for
 - Specialized training with hands-on on basic and advanced level topics for Engineering streams and
 - Domain based training on use of ICT tools and techniques for non-engineering streams
- Training and consultancy services for industry
- Curriculum development for Industry
- Continuing Education programme for students / working professionals
- Design, Develop and Deliver specialized modules for specific research areas
- Providing advice and support for technical incubation and entrepreneurial activities

About Summer Courses

Faculty Development Programmes in core areas of Electronics and Information & Communication Technology (ICT) streams have been planned by academies for delivery during Summer (i.e., May - July 2017). All these summer courses will be offered through National Knowledge Network (NKN) by inviting experts from IITs, NITs, IIITs and other premier institutes/industries. In addition, local course coordinators at respective academies will take care of practicals and practice sessions. The following six courses would be taken up for delivery during forthcoming summer vacation:



ELECTRONICS & ICT ACADEMY

MALAVIYA NATIONAL INSTITUTE OF TECHNOLOGY JAIPUR

S.No.	Course Name	Key Coordinating Academy	Proposed Dates From	To
1.	Fundamentals of Computer Networks and Security	NIT Patna	24-5-2017	02-6-2017

Target Beneficiaries: Interested Faculty of engineering/technical institutions are eligible to attend these summer courses.

Availability of seats at each offering Academy: Fifty (50) seats are available for each summer course to be offered at each academy. Participants will be selected based on first-cum-first-serve basis by each academy. Ten (10) more seats are also available for participants from industry. Selected participants will be communicated through e-mail / notified in E&ICT Academy websites.

Course duration: Each summer course is designed for 80 hours (Theory Lectures: 35 hours, Practicals: 35 hours, and Pedagogy, Soft skills & Demo teaching/Case study presentation by participants: 10 hours)

Accommodation: Boarding and Lodging will be provided at free of cost. No Travel Allowance will be paid to the participants.

Registration Fee for each Summer Course:

Faculty members: Rs. 3,000/- (Three Thousand rupees only)

Persons from Industry: Rs. 9,000/- (Nine Thousand rupees only)

Mode of Payment:

Academy Name	Participants belonging to States/ UTs	Payment through DD / Online transfer
MNIT Jaipur	Rajasthan, Gujarat, Daman, Diu and Dadra & Nagar Haveli	Demand draft in favor of " Electronics and ICT Academy, MNIT Jaipur " Payable at Jaipur or Online Mode: Account Name: Electronics & ICT Academy, MNIT, Jaipur Account No: 676801700483 , IFSC: ICIC0006768

Note: Participants belonging to a state other than the states mentioned above can apply to any of one the nearest academies as per their choice.

How to apply:

- * A duly filled-in application form in the prescribed format duly signed and sponsored by the Head of the Institute to which candidate belongs (along with demand draft / wire transfer details) should reach by post to the local coordinator of the participating academy.
- * Government of India norms will be followed for SC/ST category participants.
- * The application form along with the Registration fee can also be submitted in the online mode to Local Coordinator of the respective academy.

Note: Refer offering Academies websites for complete postal address and other details of summer courses.

Course Dates: 24th May - 2nd June, 2017

Last Date for submission of application form: May 20, 2017

Selection list Intimation by E-mail/Display in web site: May 20, 2017

Course : Fundamentals of Computer Networks and Security

Key Coordinating Academy & Global Coordinator	Participating Academy and Local Coordinator Details
NIT Patna - Prof. M. P. Singh mpps@nitp.ac.in	MNIT Jaipur - Dr. Emmanuel S. Pilli – espilli.cse@mnit.ac.in Dr. Ramesh B. Battula – rbbattula.cse@mnit.ac.in

Module details of Fundamentals of Computer Network and Security

S. No.	Module Name	Topics
1.	Introduction (Dr. Kakali Chatterjee, NIT Patna)	Introduction to Data Communication, Protocols and Standards: Protocols, Standards, Standards Organizations, Internet Standards, Packet Switching, Circuit Switching, A Network of Networks; Understanding of Delay, Loss and Throughput in the packet-switched networks; Protocols layers and their service model: OSI, TCP/IP, X.25; TCP/IP vs OSI
2.	Principles of Network Applications (Dr. M. P. Singh, NIT Patna)	Principles of Network Applications; The Web and HTTP; File Transfer: FTP; Electronic Mail in the Internet: SMTP; DNS -The Internet's Directory Service; Peer-to-Peer Applications
3.	Overview of Layers (Dr. Santosh Biswas, IIT Guwahati)	TCP/IP and OSI Model, Protocol Layers: Hierarchy, Services
4.	Link Layer (Dr. Santosh Biswas, IIT Guwahati)	Introduction and Services; Error-Detection and Correction Techniques; Multiple Access Links and Protocols, Link-Layer Addressing and ARP, Ethernet, Link-Layer Switches, PPP
5.	Addressing at layers (Dr. Santosh Biswas, IIT Guwahati)	Physical Addresses, Logical Addresses, Port Addresses, Specific Addresses
6.	Introduction of Transport Layer (Prof. M S Gaur, MNIT Jaipur)	Introduction and Transport-Layer Services, Relationship Between Transport and Network Layers, Overview of the Transport Layer in the Internet, Multiplexing and Demultiplexing
7.	Connectionless Transport (Prof. M S Gaur, MNIT Jaipur)	UDP, UDP Segment Structure, UDP Checksum, Principles of Reliable Data Transfer, Building a Reliable Data Transfer Protocol, Pipelined Reliable Data Transfer Protocols, Go-Back-N, Selective Repeat, Hybrid
8.	Connection-Oriented Transport (Prof. M S Gaur, MNIT Jaipur)	TCP, TCP Connection, TCP Segment Structure, Round-Trip Time Estimation and Timeout, Reliable Data Transfer, Flow Control, TCP Connection Management
9.	Principles of Congestion Control (Prof. M S Gaur, MNIT Jaipur)	Causes and the Costs of Congestion, Approaches to Congestion Control, Network-Assisted Congestion-Control Example: ATM ABR Congestion Control, TCP and UDP Fairness
10.	The Internet Protocol (Dr. Ruchir Gupta, IITDM Jabalpur)	Forwarding and Routing, Network Service Models, Virtual Circuit and Datagram Networks, Virtual-Circuit Networks, Datagram Networks, What's Inside a Router?, Generation of routers, Input Processing, Switching, Output Processing, Where Does Queuing Occur? Forwarding and addressing in the Internet, Datagram Format, IPv4 Addressing (classful and classless), IPv4 vs IPv6, Subnetting, Supernetting, masking
11.	Routing Algorithms (Dr. Ditipriya Sinha, NIT Patna)	The Link-State (LS) Routing Algorithm, The Distance-Vector (DV) Routing Algorithm, Hierarchical Routing, Routing in the Internet, Intra-AS Routing in the Internet: RIP, Intra-AS Routing in the Internet: OSPF, Inter-AS Routing: BGP, Broadcast and Multicast Routing, Broadcast Routing Algorithms, Multicast, Internet Control Message Protocol (ICMP), IGMP, ARP, RARP
12.	Security at Layers (Prof. K Ramesh, NIT Warangal - up to Network Layer Security)/ Dr. Kakali Chatterjee, NIT Patna (Transport & Application layer Security)	Security Services: Introduction of Message Confidentiality, Message Integrity, Message Authentication, Message Nonrepudiation, Security threats, Entity Authentication Network Layer Security: IP Security (IPSec): Two Modes, Two Security Protocols, Security Association, Internet Key Exchange(IKE), Virtual Private Network. Transport Layer Security: SSL Services and Security Parameters, Sessions and Connections, Four Protocols. Application Layer Security: Email Security, S/MIME, PGP: Security Parameters, Services, PGP Algorithms, PGP Certificates, Proxy Server Firewall.
13.	Pedagogy Principles (Local conduction by Academy)	Course objectives, Module objectives, Unit objectives, Bloom's taxonomy - knowledge levels, Pedagogy Tool demo
14.	Soft Skills (Local conduction by Academy)	Listening, Writing, Communication Skills. Comprehension, Technical Report Writing, Team Work Principles, Personality Development, Etiquette in Organizations.
15.	Case Study (Local conduction by Academy)	Case study presentation by team of participants