

THE PROPOSAL FOR SETTING UP

Electronics & IT Academy

Sponsored by DeitY

Ministry of Comm. & IT



Submitted by:

(Department of ECE)

Malaviya National Institute of Technology Jaipur

J. L. N. Marg, Jaipur – 302 017

<http://www.mnit.ac.in>

THE PROPOSAL FOR SETTING UP ELECTRONICS AND ICT ACADEMY

PART I: BACKGROUND INFORMATION

1. Name of the Institute Malaviya National Institute of Technology,
Jaipur
2. Category of State **Category A**
3. Details of Past experience in implementing any Faculty training programmes
**Total conferences/Workshops/Seminars/FDP organized till date: more than
 50+ by Dept. of ECE &
 20+ by Dept. of CSE,**
List of programmes in past two years-

S. No.	Programme	Status/Dates	Principal investigators/coordinators	Sponsoring agency
1.	Machine learning (2012, 40 participants)	2012	Dr. Namita Mittal	MNIT Jaipur
2.	Semantic web(2013, 30 participants)	2013	Dr. Namita Mittal	MNIT Jaipur
3.	Big Data Research (2013 – 85 participants)	2013	Dr. Namita Mittal	MNIT Jaipur
4.	International Conference on Communication & Electronic System design	28 - 30 January 2013	Dr. Mohd. Salim, Dr. Vijay Janyani, Dr. K.K.Sharma	TEQIP & self-financed
5.	National Conference on National Conference on "Communication Systems and VLSI Design (CSVD-2013)"	July 24th -25th, 2013.	Dr.K.K. Sharma, Dr. Ghanshyam Singh, Dr. M. Salim	TEQIP
6.	IEEE VLSI DESIGN AND TEST SYMPOSIUM	27-30 July 2013	Dr. D. Boolchandani, Vice Co-chair; ECE Dr. Lava Bhargava, Finance chair, ECE Dr. M S Gaur, Chair, CSE	IEEE/Industries/MNIT/ IITB
7.	Pattern Recognition Techniques	20 - 24 May 2013	Dr. Ritu Sharma, ECE Dr. Neeta nain, Dr. Mushtaq Ahmed, CSE	TEQIP
8.	Recent trends on Communication and Signal Processing	1 - 5 July 2013	Dr.K.K. Sharma, Dr. Ghanshyam Singh, Dr. M. Salim	TEQIP
9.	Faculty Development Programme on Advancements in Adaptive Signal Processing (TEQIP-2)	17 - 21 Dec. 2014	Dr. S. J. Nanda, Dr. V. Sahula	MNIT Jaipur
10.	Embedded Systems Design using Microcontrollers: Design & hands-on using MSP430	20 - 21 Jan. 2013	Dr. D. Boolchandani, Dr. V. Sahula	MNIT Jaipur
11.	Workshop on "Computer Networking, Speech and Signal Processing"	2 - 6 Sept. 2013	Dr. M. Ravi Kumar, Prof. M. S. Gaur, Prof. V. Sinha, Dr. V. Sahula	TEQIP
12.	Texas Instruments' Analog Design Workshop, Sept. 2013	26 - 28 Sept. 2013	Dr. D. Boolchandani & Mr. Tarun Varma;	MNIT Jaipur
13.	Texas Analog Design Contest, 2013	8-10 Oct 2013	Dr. M. Samar Ansari, Mr. Amit M. Joshi	MNIT Jaipur & self-financed
14.	Embedded Systems' Week- CODES+ISSS+CASES	12-17 Oct 2014	Dr. V. Sahula as team member (fellowship chair)	At Delhi; IEEE/ACM and industries
15.	STP on Embedded system	10-14 march 2014	Dr. Neeta Nain, Dr. Mushtaq Ahmed And Dr. Ritu Sharma	TEQIP
16.	STP on recent advances in signal processing and communication	19 - 23 May 2014		TEQIP
17.	Emerging Technologies: Electronic Devices and Materials (ETEDM-2014)	01 - 04 Oct. 2014	Dr. C. Periasamy, Dr. L. Bhargava, Dr. V. Sahula	TEQIP
18.	1-credit intensive course on "Satellite Communication: Principles & Research challenges"	6-jan-2015 to 15-Jan-2015	Dr. Ravi K. Maddila, Dr. V. Sahula, Prof. V. Sinha	MNIT Jaipur
19.	1-credit intensive course on "Wireless communications: Principles & Research challenges"	16-Feb-2015 to 28-Feb-2015	Dr. Satsai J. Nanda, Dr. V. Sahula, Prof. V. Sinha	MNIT Jaipur
20.	One day research symposium for Parents/Alumni & research scholars	30th March 2014	Prof. V. Sinha, Mr. Amit M. Joshi, Dr. S. J. Nanda, Dr. V. Sahula	MNIT Jaipur
21.	Half day workshop on Innovation through students' project work (Mahindra RisePrize)	10-Aug-14	Dr. V. Sahula	MNIT Jaipur
22.	Computer awareness (2014, 2006, 40 participants each – conducted two times)	2014	Dr. Namita Mittal, Dr. Neeta Nain	MNIT Jaipur
23.	National Workshop on Biometrics and Privacy Protection	2014	Dr. Neeta Nain	MNIT Jaipur
24.	National Workshop on Embedded Systems	2014	Dr. Neeta Nain	MNIT Jaipur

For many of the afore-stated programmes, industry support has been obtained in many ways- sponsoring participants, conference kits, other logistics etc.

4. Detail of Investigators-

(Please see Annexure-I also)

A) Name and designation

- Chief Investigator & Co-Investigators

S. No.	Name	Status	Dept.	Professional Affiliations	Areas of interest
1.	Prof. Vineet Sahula, (Ph.D.), Head, ECE vsahula.ece@mnit.ac.in	Chief investigator	ECE	SM IEEE, M ACM, LF IETE, LM ISTE, LF IE, M IAENG	System level design & modeling of analog and digital systems, Reduced Order Modeling, Machine Learning Algorithms & hardware implementation, Cognitive Algorithms, Embedded Systems, MEMS and Nanoelectronic circuits & systems modeling
2.	Dr. L. Bhargava, PhD lavab@mnit.ac.in	Co-Investigator (FPGA/Embedded-sys/CAD)	ECE	IEEE,ACM,IETE,ISCEE ROORKEE	Low power VLSI systems, VLSI physical design, FPGAs.
3.	Dr. S. J. Nanda, PhD sjnanda.ece@mnit.ac.in	Co-Investigator (Mobile/DSP)	ECE	M IEEE	Signal Processing, Soft Computing, Neural Networks, Bio And Nature Inspired Algorithms, Modelling And Simulation, Pattern Recognition, Data Mining.
4.	Dr. C. Periasamy, PhD cpsamy.ece@mnit.ac.in	Co-Investigator (Device, materials, fabrication/ manufacturing)	ECE	M IETE	MEMS and Nanoelectronic Devices.
5.	Dr. Emanuel S. Pilli, PhD espilli.cse@mnit.ac.in	Co-Investigator (Computer networking/ security/ parallel programming)	CSE	M IEEE, M ACM, M CICI, M CSI	Image Processing, Pattern Recognition, Computer Graphics.

- Other Investigators: (i) Department of ECE, MNIT Jaipur

S. no.	Name of faculty	Professional Affiliations	Areas of interest
Professor			
1.	Prof. Vishwanath Sinha, PhD	F IEEE	Engineering Education, Mobile Communication, Satellite and Wireless Communication, Error Control Codes.
2.	Prof. Vineet Sahula, (Ph.D.), Head, ECE	SM IEEE, M ACM, LF IETE, LM ISTE, LF IE	System level design & modeling of analog and digital systems, Reduced Order Modeling, Machine Learning Algorithms & hardware implementation, Cognitive Algorithms, Embedded Systems, MEMS and Nanoelectronic circuits & systems modeling
3.	Prof. R. P. Yadav (Ph.D.)	FIETE,ISTE,ESI	Error Control Codes and MIMO-OFDM, RF and Antenna Systems, Mobile and Wireless Communication Systems, Optical Switching and Materials, Device Characterization, MEMS and Sensor Networks
4.	Prof. Kamallesh Kumar Sharma (Ph.D.)	FIETE,FIE	Signal and image processing, Fractional transforms, Electromagnetics.
5.	Prof. D. Boolchandani (Ph.D.)	IEEE,IETE,ISTE	Macro modeling for Analog subsystems and interconnect, Digital and Analog CMOS circuits , MEMS based Inertial sensors.
Associate Professor			
6.	Mr. Sanjeev Agarwal (M.Tech.)	IEEE, CSI	Microprocessor Based Systems, Distributed Database and Computer Networks
7.	Dr. Mohammed Salim (Ph.D.)	ISTE	Error Control Codes, Wireless Mobile Communication, Image Processing, Optical properties of metal nanoparticles, Optical Communication, Optoelectronics and Photonics, RF and Microwaves, Signal And Image Processing, EMI/EMC, Solar cell, Wireles Sensor Networks, Electromagnetic Radiation Hazards, RF Power Harvesting
8.	Mr. Rakesh Bairathi (M.Tech.)	IEEE,ACM	Microprocessor, Digital Systems And Computer architecture & networking
9.	Mr. Tarun Varma, PhD pursuing	IEEE	Signal Processing, Computer Networks
10.	Dr. Vijay Janyani (Ph.D.)	IEEE,IETE,OSI, SPIE,ISTE,OSA,ISTE	Optical Communication, Optoelectronics and Photonics, Numerical Modelling, Nonlinear Optics, Optical Networks, RF and Microwaves, Solar Energy
11.	Dr. L. Bhargava, PhD	IEEE,ACM,IETE,ISCEE	Low power VLSI systems, VLSI physical design, FPGAs.
12.	Dr. Ghanshyam Singh (Ph.D.)	IEEE,IETE,OSI, SPIE,ISTE,OSA	Optical Communication Engineering: All Optical Switches, Optical Logic Gates & Circuits, Photonic Crystal Fibers, Nanophotonics, Nano-optical stru, • RF and Microwave Engineering: RF & Microwave devices, Microstrip and Smart Antennas.
Assistant Professor			
13.	Dr. Ritu Sharma (Ph.D.)	IEEE,OSI,ISTE,SPIE	Communication Engineering and Optics, Fabrication and Characterization of Nanoelectronic and Nanophotonic Devices based on Low-cost Materials, Nanomaterials for Nano-optoelectronic and Nano-piezoelectric Devices, Optoelectronics and Photonics, Solar cell, Biophysics, MEMS and Nanoelectronic Devices, Optoelectronics, Pattern Recognition
14.	Mr. Ashish Ghunawat, PhD pursuing	IEEE,OSA	Communication Engineering and Optics, Nonlinear Optics, Nanomaterials for Nano-optoelectronic and Nano-piezoelectric Device

S. no.	Name of faculty	Professional Affiliations	Areas of interest
15.	Dr. C. Periasamy, PhD	M IETE	MEMS and Nanoelectronic Devices.
16.	Dr. Mohd. Samar Ansari (Ph.D.)	IEEE,IETE,IET	Analog VLSI, Analog Signal Processing, Neural Networks, Computational method for linear/non-linear problems.
17.	Dr. Ravi Kumar Maddila (Ph.D.)	IEEE,OSA,OSI	Optical Communication Engineering: All Optical Switches, Optical Logic Gates & Circuits, Photonic Crystal Fibers, Nanophotonics, Nano-optical stru, Optical Communication, Optoelectronics, Optoelectronics and Photonics, Solar energy.
18.	Dr. S. J. Nanda, PhD	M IEEE	Signal Processing, Soft Computing, Neural Networks, Bio And Nature Inspired Algorithms, Modelling And Simulation, Pattern Recognition, Data Mining.
19.	Mr. Amit M. Joshi, PhD submitted	IEEE,IETE,IEICE,VSI	FPGAs, Image Processing, Information Security, Integral Transform, Microprocessor, Real Time Systems, System level design & modeling of analog and digital systems, Security, Privacy and Forensics, Digital and Analog CMOS circuits , VLSI Signal Processing architectures

Department of CSE, MNIT Jaipur

Sr. no.	Name of faculty	Professional Affiliations	Areas of interest
Professor			
1.	Prof. M. C. Govil PhD, Head, CSE	M IEEE, LM ISTE, LM IETE	Real Time Systems, Parallel & Distributed Systems, Fault Tolerant Systems, Cloud Computing.
2.	Prof. M. S. Gaur, PhD	M ACM, M IEEE, MISTE	Network Security, Embedded Systems, Information Security, Computer Networks, Multi-Core And Cloud Computing.
Associate Professor			
3.	Girdhari Singh, PhD	M IEEE	Software Engg., Intelligent Systems.
4.	Vijay Laxmi, PhD	M IEEE	Information Security, Malware Analysis, Embedded Systems
Assistant Professor			
5.	Arka Prokash Mazumdar, PhD pursuing	M IEEE, M CSI	Computer Networks, Wireless Sensor Networks, Wireless Ad hoc Networks, Opportunistic Networks.
6.	Dinesh Gopalani, PhD	M IEEE	Theoretical Computer Science, Compilers And Programing Languages, Aspect Oriented Systems, Formal Theory Of Programming Languages.
7.	Dinesh Kumar Tyagi, PhD pursuing	M IEEE, M ACM, M CSI	Computer Networks, Bio And Nature Inspired Algorithms, WDM Networks.
8.	Emmanuel Subhakar Pilli, PhD	M IEEE, M ACM, M CICI, M CSI	Security, Privacy and Forensics, Computer Networks, Cloud Computing, Big Data.
9.	Meenakshi Tripathi, PhD	M IEEE, M CSI	Wireless Networks, Network Security and Routing, Quality of Service
10.	Mushtaq Ahmed, PhD	M IEEE	Network on Chip , Computer Networks, Embedded Systems, Wireless Communications, Multi-Core And Cloud Computing.
11.	Namita Mittal, PhD	M IEEE, M ACM, M CSI , M SCRS	Information Retrieval, Data Mining, DBMS, Natural Language Processing
12.	Neeta Nain, PhD	M IEEE, M BMVA, M IAENG	Image Processing, Pattern Recognition, Computer Graphics.
13.	Ramesh Babu Battula, PhD pursuing	M IAENG, M ACM	Network Security, Computer Networks, Information Security, Android Security, Wireless Mesh Networks, Wireless Sensor Networks, Underwater Acoustic Sensor Networks.
14.	Satish Kumar Vipparthi, PhD pursuing	M IEEE	Content Based Image Retrieval , Object Tracking
15.	Yogesh Meena, PhD pursuing	M IEEE, M CSI	Natural Language Processing, Information Retrieval, Data Mining, Neural Networks

B) Brief Bio-data of Chief Investigator and other Investigators (including publications/patents, if any) (separate sheets attached)

C) Competence of Investigator in Project Area (Including Industry interaction) Described in Table at para 4 (A).

D) Other Commitments of the Chief Investigator and Co-Investigators (including lectures, research projects responsibilities etc.) Indicate the percentage of time the Chief Investigator and Co-Investigator would devote to the project.

S. No.	Name	Status	Lectures/research/administrative	EC-n-IT Academy (DeitY)
1.	Prof. Vineet Sahula	Chief investigator	12 hours/week + 6 H/W + 10 H/W	10 hours/week; or more as & when needed
2.	Dr. L. Bhargava	Co-Investigator (FPGA/Embedded-sys/CAD)	14 hours/week + 6 H/W + 10 H/W	10 hours/week; or more as & when needed
3.	Dr. S. J. Nanda	Co-Investigator (Mobile/DSP)	16 hours/week + 6 H/W + 10 H/W	10 hours/week; or more as & when needed
4.	Dr. C. Periasamy	Co-Investigator (Device, materials, fabrication/ manufacturing)	16 hours/week + 6 H/W + 10 H/W	10 hours/week; or more as & when needed
5.	Dr. Emanuel S. Pilli	Co-Investigator (Computer networking/security/parallel programming)	16 hours/week + 6 H/W + 10 H/W	10 hours/week; or more as & when needed

E) Details on each of the ongoing/completed projects with the Chief Investigator/Co-

Investigator of the Institute [Project Title, Funding Agency (or Internal funding), Brief Project Summary, Technical Status vis-a-vis objectives, Financial Status (Total Project outlay, expenditure to date), Duration and year of initiation, Expected date of completion]

Some select projects with Chief-investigator/Co-investigators -

Principle investigator	Agency	Agency details	Project title	Year of start	Duration	Outlay in Rs.
V. Sahula	DeitY, MoCIT	MoCIT	Visvesvariya PhD scheme with enhanced fellowships	2014	5 years	45 lacs/year
V. Sahula & D. Boolchandani	MoCIT, Govt. of India	DeitY	Special Manpower Development Project- VLSI phase-2	2006	8 years (2013)	78 Lacs
V. Sahula	MHRD	MHRD	Synthesis & reduced order modeling of interconnects for ASICs & FPGAs	2004	3.5 + 1 years	8 Lacs
C. Periasamy	Internal	MNITJ	Semiconductor characterization	2014	2 years	10 Lacs
Vijay Janyani & C. Periasamy (Co-PI)	DST	DST		2015	4 years	45 lacs to be sanctioned
Emmanuel S. Pilli	Uttarakhand Council for Sc & Tech	UC-S & T	Investigating the Source of the Spoofed Emails	2013	2 years	2.96

Some select projects with other investigators

Principle investigator	Agency	Agency details	Project title	Year of commencement	Duration	Outlay in Rs.
M. Salim	MHRD	MHRD	Development of Efficient Turbo Codes for 3G/4G Mobile Communication systems	2005	3.5 years	8 lacs
Vijay Janyani	DRDO	DRDO	Design and Simulation of tunable Photonic crystal structures for novel all optical applications	2009	3 Years	15.64 Lacs
Ghanshyam Singh	DRDO	DRDO	Design and Simulation of tunable Photonic crystal structures for novel all optical applications	2009	3 Years	15.64 Lacs
Vijay Janyani	UKIERI	UKIERI	Application specific micro-structure optical fibres	2009	4 Years	4.19 Lacs
Ghanshyam Singh	DST – JSPS S&T Programme	DST – JSPS S&T Programme	Design and Developments of micro-structured optical components for photonic integrated circuit applications	2014	2 Years	9.66 Lacs

Principle investigator	Agency	Agency details	Project title	Year of commencement	Duration	Outlay in Rs.
M. S. Gaur	MoCIT	MoCIT	Information Security Education & Awareness	2005	9 years	58 Lacs
M. S. Gaur	DST	DST	On-Chip Network Simulation Platform for Reliable, Accurate, and Fast System Co-Design of Embedded and Multicore Systems	2012	3 years	28 Lacs
M. S. Gaur	British Council	British Council	HiPER NIGAM (UKIER - II)	2012	2 years	22 Lacs
M. S. Gaur	DST	DST	British Council	2011	2 years	8 Lacs
Namita Mittal			Development of ontology for Agriculture domain in Indian languages for EGov Domain- Collaboration with IIT D, IIT Kanpur, IIT Patna	2015 (to be started)		
Neeta Nain	DST	DST	Urdu Corpus Development and Handwritten Text Recognition	2013	3 years	8.56 Lacs
Neeta Nain	MHRD	MHRD	Cross Platform Gamma Correction with Lossless Image Transmission Over a Network, 31/2 years (Completed)	2006	3.5 years	6 Lacs

5. Details of Infrastructure and other facilities available at the institute for undertaking this project.

i) List of Classrooms with seating capacity ii) List of Labs alongwith major equipment

iii) Existing manpower and other personnel with names available for the project on full-time basis.

S. No.	Infrastructure at MNIT Jaipur	Status	Room/lab/manpower	Partially/full-time available
1.	Rooms of capacity 120 @VLTC : Sophisticated e-classroom	15+ nos. Available; Mar. 2015 onwards, 42 available	Room	02 Full time; others partially
2.	Rooms of capacity 240 @VLTC : Sophisticated e-classroom	6+ nos. Available after Mar. 2015 onwards	Room	01 Full time
3.	Rooms of capacity 144	02 nos. Available	Room	Partially
4.	Rooms of capacity 100	20+ nos. available	Room	Partially
5.	E-classroom with video conferencing : NKN + e-learning	01 nos. available 04 nos. available in near future	Room	Partially
Department of ECE				
6.	Electromagnetics (Comm) Lab. (incorporating Microwave/RF/Antenna etc.)	Agilent Multipurpose Labstation (Advanced); Agilent Handheld Spectrum Analyzer N9342C; VSWR Meter; Microwave Test Bench- X,C,S bands; VNA	Existing	Partially
7.	Analog electronic circuits & signals lab.	Multichannel multifunction DSOs; 6GHz signal generator, 136 channel Logic analyzer; frequency counter; arbitrary waveform generator; Analog ICs;	Existing	Partially
8.	Computer Networking Lab	30 high end desktops with public domain and licensed softwares	Existing	Partially
9.	Electronics Workshop & Project Lab	10 Multichannel DSOs; breadboarding;	Existing	Partially
10.	Optical Communications Lab. (incorporating baseband, optical communication)	OTDR; Optical Fiber Fusion Splicer; Optical Communication Labkit; Optiwave-CAD	Existing	Partially
11.	Digital circuits and μ P Lab.	Texas MSP430 kits; Texas Analog boards; DSP boards; 20 high end desktops for emulators/assemblers	Existing	Partially
12.	VLSI design & TCAD Lab.	CAD tools- Synopsys/Cadence/ Mentor, Xilinx, Magma, CoWare, ADS, Vertex-2, 5, 6 boards	Existing	Partially
13.	Embedded & Reconfigurable SystemLab.	20 HP-Z WS, KEIL 100 lics, NXP/ARM/STM boards; VxWorks RTOS env.	Existing	Partially
14.	DSP and Image Processing Lab.	DSP boards; Video/image capture/processing/display equip	Being established	--
15.	EMI/EMC/wireless-test Lab	Radiation measurement equip	Being established	--
16.	Electronic System level & test lab	SoC boards, HW accelerators, basic equip precision calibration;	Being established	--
17.	IC/MEMS fabrication lab	Semiconductor characterization equip	Being established	--

18.	VHF comm. & Photonics Lab	Fibre Grating, Photonic Crystal Fibre, CAD tools	Being established	--
Department of CSE (Select only)				
19.	Software Lab-1	Intel Core i5 CPU, Python, Java JDK, MySQL, GDB and Virtualization using Virtual Box and QEMU	Existing	Partially
20.	Software Lab-2	30 HP Intel Core i7-4770 CPU, Apache and MySQL Using XAMPP Server; MPI Cluster on Ubuntu, Globus & HTCondor Grid Toolkits, Eucalyptus and Open Stack private Cloud Environments, and CUDA Programming by connecting to the NVIDIA Cluster (1 No - Tesla K40, 2 No - Quadro 6000, and 2 No - GTX680)	Existing	Partially
21.	Networks Lab	The Lab has 30 Wipro Intel Core i5 CPU, 4GB DDR3 RAM, 320GB HDD, DVD-R with Ubuntu 14.04 64-bit. The Lab facilitates C/C++ Programming using GCC; Python, Java JDK, MySQL, NS 3, OPEN GL and GPROC; 25 Benchmark Net SysT Router are also available. Image Processing, Network Programming, Simulation and Databases Labs are conducted.	Existing	Partially
22.	ISEA Labs	The Lab has 20 Dell Intel Core™2 Duo CPU, 4 GB RAM, 250 GB HDD with Ubuntu 14.04 64-bit and 05 Wipro / Lenovo Intel Core™2 Duo CPU, 4GB RAM, 320GB HDD with Ubuntu 14.04 32-bit. The Lab facilitates Network Security using Wireshark, Snort, and Cisco Packet Tracer 6.1.0; Graphics using OpenGL / Glut Libraries; Programming using Python and Java	Existing	Partially
23.	Project Lab	The Lab has 20 HP Intel Core i7-4770 CPU, 4 GB RAM, 500 GB HDD with Ubuntu 14.04 64-bit and 09 Wipro / Lenovo Intel Core i5, 2GB RAM, 320GB HDD with Ubuntu 14.04 32-bit. The lab is open for B. Tech VII and VIII Sem Design Elective and Project Labs. Programming Labs are also conducted	Existing	Partially
24.	Embedded Systems Lab	25 Nos of 8085 and 25 Nos of 8086 Microprocessor Trainer kits, kits Keyboard and Display Channel Interface, 8 Channel DAC Interface Board, 8 Channel ADC Interface Board, 8251 & 8253 Interface Board, 8259 Interface Board, 8255 Interface Board and DC Motor Measurement & Control. 18 Nos Digilent Atlys FPGA Kit, 25 Nos 4 Channel DSO Agilent Kit, 25 Nos Digital Trainer Board with Bread Board	Existing	Partially
Central facilities at institute level				
25.	Materials research centre	AFM, XRD, SEM, Thin film deposition, sputtering/CVD, LCR, device modeling CAD, COMSOL, vacuum coating, semiconductor device analyzer etc.	Existing	Partially
26.	Mechatronics Lab	PLC, CNC/Milling, PCB making, µP control	Existing	Partially
27.	Central computer centre, Data centre	500+ high end workstations, MATLAB, Cloud based data centre, central switch for 10G backbone; 1Gbps (NKN) + 250 Mbps Internet connectivity; Complete data-centre on cloud- sixteen HP ProLiant BL460c G7 blades; Storage- SAN/NAS for 58TB;	Existing	Partially
28.	Video conferencing facility, e-classroom (NKN)	High definition video capture/video-cast/recording; 1Gbps NKN connectivity to NITs/IITs/CFTIs	Existing	Partially
29.	Central Library	E-journal packages- IEEE/ACM, Springer/Elsevier, ScienceDirect, e-books, Delnet, Nature journals Airconditioned 15847 sq m; Videos, CDROM databases, OPAC, total 1.33 lacs items in collection	Existing	Partially

6. Expensive Equipment/facilities for providing hands on available elsewhere (other institutions/Industry etc) which could be made use of under the project.

S. No.	Facility	Status	Labs/manpower	
1.	CEERI Pilani	CSIR Lab	Lab & experts	
2.	ETDC Jaipur	Central Govt.	Test Labs	
3.	Genus Overseas Limited	Pvt. Industry	Test & development labs	
4.	REIL, Jaipur	Govt. of Raj. Undertaking	Product manufacturing	
5.	Compucore Software Ltd.	Private industry	Software- design, test and security; telecommunication-software	
6.	Other industries- EDA/Telecomm/Software	Industries	Experts	
7.	Other research and academic institutes- CSIR/DRDO/TIFR and IITs/IISc	R&D/Academia	Experts	

7. Proposed Administrative Structure for operationalisation of actual faculty training of the Academy within the institute
 Investigators → Chief investigator → Dean Research → Director, MNIT Jaipur
8. Additional information, if any.

PART II: TECHNICAL INFORMATION

1. Area of special focus - Electronics or IT alongwith justification
[Ref. Para 7 of the Scheme document]

Major area of focus- ELECTRONICS including electronics, communication, VLSI, wireless mobile, embedded systems etc.

Minor area- includes IT topics like networking, security, parallel programming etc.

The **areas of strength** are related to faculty expertise and their research profile in department of Electronics & Comm. Engg. primarily, and also in Dept. of Computer Sc. & Engg.

2. Details of sub-area to be focused for capacity building in the areas of Electronics & IT alongwith justification

The areas as identified in Annexure-III, and additionally in the areas of expertise of faculty experts-

ECE- Embedded systems, FPGAs, SoC & codesign, Advance communication technologies, mobile communication, VLSI digital & analog, Operating systems & Linux programming, IC Fabrication, Electronic manufacturing, DSP & image processing, Photonics & optical communication, Coding theory & optical codes.

CSE- Computational techniques, Big Data, Data Mining, Pattern Recognition and Classification,

3. Detailed description of activities proposed under the Project
[Ref. Para 7 & 7.1 of the Scheme document]

- would aim to provide (as per para 7 & 7.1)
 - specialized training to the faculties of the Engineering colleges in the emerging areas of electronics & ICT;
 - training large number of faculties from Arts, Commerce & Science colleges, Polytechnics, etc in the areas of utilization of IT tools and techniques
 - Research orientation especially to the engineering faculty of Electronics and IT
 - focus on one or more newly emerging areas in Electronics- e.g. Automotive electronics, Medical Electronics, Telecom, Solar, Railways, Games
 - Creation of awareness about emerging/ upcoming and cutting edge technologies
 - Training to the students directly on chargeable basis for making them industry ready or to become self-employable.

4. Details of collaborating Industry willing to join/contribute or proposed to be approached
Qualcom, Tejas networks, ST Microelectronics, FreeScale, Keysight, Calypto systems, Texas instruments; Big Data Xerox Research Centre India (Dr. Geetha Manjunath); 4G Identity Solutions (4Gid); Inttelix Security Solutions Pvt. Ltd., IBM, DRDO, CDAC, NVIDIA; VMware (Research Programme), EMC2; & other local industries including- REIL, Compucom softwares, genus overseas; HP;

5. Research committee and Academic Committee proposed for the project
[Ref. Para 7.1 of the Scheme document]

To be formed with members from reputed industries, research institutions & academia;

6. Information regarding specific intermediate milestones (year-wise)

Target for Category A:

The target of Faculty Members to be trained in a State/UT in 4 years is 4,000 p.a. with a

cumulative target of training 16,000 candidates in 4 years duration.

Details on how this target would be achieved.

- We propose to work in approximately 12 -16 areas;
- an investigator would be responsible for at least one or two fields/areas for organizing faculty development programmes;
- Each programme would train appx. 60 -100 candidates
- A programme would be required to be repeated 3-4 times a year
- Thus, with 12 areas repeated 3-4 times/year with average intake of 80, would result into training of appx. 4000 candidates

7. Details of courses proposed under the Scheme

- (i) The titles on which we have already conducted various FDPs successfully in past
- (ii) On topics within areas as indicated at **para 2** above

8. Specific problems, hold-ups and difficulties foreseen in the implementation of the project and how does Chief Investigator propose to overcome them?

(i) Infrastructure- Institute has many projects on construction of building going on; there is large possibility of getting the separate premises; till then Department of ECE alongwith Central Computer Centre would be able to run the programmes.

(ii) Proper information dissemination of schedule of the FDP programmes- A mechanism for publicizing about the FDP programmes would have to be taken up from Department/institute level, State government level;

(iii) Reaching out to experts and inviting them for the programmes- Our institute has mechanism for supporting the logistics for invited experts; travel etc. may be appropriated from project fund;

9. Details of possible alternative arrangements if the Chief Investigator leaves institution or is unable for any other reason to continue on this project.

Director would depute a faculty member in place of any Chief Investigator, if he/she is not able to continue for short or long duration.

10. Name of other organisations in India jointly participating in this effort, extent of their involvement, specific division of responsibility, accountability etc.

The institutes/industries as indicated at Para 4 (Part-II), above;

PART III - FINANCIAL DETAILS**Approved Overall budget outlay under the Scheme
Category 'A' States/UTs****(Rs. in Lakh)**

S. No.	Head	Year-1	Year-2	Year-3	Year-4	Total
A	Capital					
1.	Refurbishment of existing premises & other infrastructure	150	-	-	-	150
2.	Equipment (H/W & S/w)	250	-	-	-	250
	<i>Sub Total (A)</i>	<i>400</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>400</i>
B	Recurring expenses					
	Skilling cost	500	500	500	500	2,000
	Project Management Unit & MIS	25	25	25	25	100
C	Total Outlay (A + B)	925	525	525	525	2,500
D	Revenue Generation	0	125	250	375	750
E	Grants-in-Aid required (C - D)	925	400	275	150	1,750

i.e. Total Outlay of Rs. 25.00 crore with GIA of Rs.17.50 crore each

Note : Each Electronics and ICT Academy would be provided with a funding support for refurbishment of existing premises and purchase of equipment for setting up the state-of-art labs; support for Skilling/training cost per faculty being trained; Project Management Unit & MIS. Average training cost per candidate is estimated as Rs.12,500/- per candidate depending on the total target assigned. The average training duration is envisaged to be 2-weeks full-time [equivalent to a 3-credit course of about 45-48 hrs duration with additional provision of lab/hands-on component and a one/two day Workshop/Seminar on latest technological trends and possible research topics that can be taken up in these areas]. This cost could vary depending on the type of course and duration based on the level of faculty being targeted. However, the ratio of total skilling/training cost vs. the targets shall remain the same for the purpose of arriving at the total outlay and funding support requirement.

1. Details of funding sought in each budget head in line with the approved outlay. Appropriate details to be provided in respect of each budget head
2. **Self-Sustainability** : Details alongwith the roadmap for making the Academy self-sustainable
[The financial support would be 100% in the first year, 75% in the second year, 50% in the third year and 25% in the fourth year. Each Academy is expected to generate revenue by charging fee and taking up other activities from the second year onwards to meet the remaining cost in a gradual manner and become self sustainable by the end of fourth year onwards. No funding support from the Central Government is envisaged after the completion of four year project duration in respect of each Academy. Ref. Para 9 of Scheme]

PART IV : Endorsement by the Head of the Institution

1. I have read the terms & conditions (including special terms & conditions for co-financing) governing the grant-in-aid and I agree to abide by them.
2. I certify that I have no objection to the submission of this research proposal for consideration by the Ministry of Communications and Information Technology.
3. In case the project is approved, I undertake to make available facilities to carry it out, to arrange for the submission of periodic progress reports, utilization certificates and other information that may be required by the Ministry of Communications and Information Technology and In general to ensure that the conditions attached to the award of such grant are fulfilled by my institution/organisation.
4. I certify that in case present chief investigator is not available for any reason to continue work on this project, the following persons will be available to carry it throughout to completion:

Sl.No.	Name	Designation
1.	DR. L. BHARGAVA	ASSOCIATE PROF. ECE
2.		

5. I certify that the facilities mentioned in the body of this report are available at my institution.
6. I certify that I shall ensure that separate accounts will be kept of the funds received and spent and made available on demand, as specified and required by the Ministry of Communications and Information Technology.
7. I certify that I am the competent authority, by virtue of the administrative and financial powers vested in me by to undertake the above stated commitments on behalf of my institution.



Signature of the Head of the Institution
(Prof. I. K. Bhat)
Director
MNIT Jaipur

Date: 15th January 2015

Department of Electronics & Communication Engineering, Investigators profile

S. no.	Name of faculty	Professional Affiliations	Areas of interest	Competence of Investigator in Project Area & experience in implementing Faculty Training Programmes	Details of industry, with which collaboration can be made
Professor					
1.	Prof. Vishwanath Sinha, PhD	F IEEE	Engineering Education, Mobile Communication, Satellite and Wireless Communication, Error Control Codes.	Ex-founding Director, LNM IIT, Jaipur; Ex-Professor, IIT Kanpur	
2.	Prof. Vineet Sahula, (Ph.D.), Head, ECE	SM IEEE, M ACM, LF IETE, LM ISTE, LF IE	System level design & modeling of analog and digital systems, Reduced Order Modeling, Machine Learning Algorithms & hardware implementation, Cognitive Algorithms, Embedded Systems, MEMS and Nanoelectronic circuits & systems modeling	Guided PhD, PG theses Conducted 20+ FDP/STTP programmes	Qualcom, Calypto systems,
3.	Prof. R. P. Yadav (Ph.D.)	FIETE,ISTE,ESI	Error Control Codes and MIMO-OFDM, RF and Antenna Systems, Mobile and Wireless Communication Systems, Optical Switching and Materials, Device Characterization, MEMS and Sensor Networks	Guided PhD, PG theses	
4.	Prof. Kamalesh Kumar Sharma (Ph.D.)	FIETE,FIE	Signal and image processing, Fractional transforms, Electromagnetics.	Guided PhD, PG theses Conducted 5+ FDP/STTP programmes	
5.	Prof. D. Boolchandani (Ph.D.)	IEEE,IETE,ISTE	Macro modeling for Analog subsystems and interconnect, Digital and Analog CMOS circuits , MEMS based Inertial sensors.	Guided PhD, PG theses Conducted 10+ FDP/STTP programmes	ST Microelectronics,
Associate Professor					
6.	Mr. Sanjeev Agarwal (M.Tech.)	IEEE, CSI	Microprocessor Based Systems, Distributed Database and Computer Networks	Guided PG theses Conducted 5+ FDP/STTP programmes	
7.	Dr. Mohammed Salim (Ph.D.)	ISTE	Error Control Codes, Wireless Mobile Communication, Image Processing, Optical properties of metal nanoparticles, Optical Communication, Optoelectronics and Photonics, RF and Microwaves, Signal And Image Processing, EMI/EMC, Solar cell, Wireles Sensor Networks, Electromagnetic Radiation Hazards, RF Power Harvesting	Guided PhD, PG theses Conducted 10+ FDP/STTP programmes	
8.	Mr. Rakesh Bairathi (M.Tech.)	IEEE,ACM	Microprocessor, Digital Systems And Computer architecture & networking	Guided PG theses	
9.	Mr. Tarun Varma, PhD pursuing	IEEE	Signal Processing, Computer Networks	Guided PG theses Conducted 5+ FDP/STTP programmes	
10.	Dr. Vijay Janyani (Ph.D.)	IEEE,IETE,OSI, SPIE,ISTE,OSA,ISTE	Optical Communication, Optoelectronics and Photonics, Numerical Modelling, Nonlinear Optics, Optical	Guided PhD, PG theses Conducted 10+ FDP/STTP	

S. no.	Name of faculty	Professional Affiliations	Areas of interest	Competence of Investigator in Project Area & experience in implementing Faculty Training Programmes	Details of industry, with which collaboration can be made
			Networks, RF and Microwaves, Solar Energy	programmes	
11.	Dr. L. Bhargava, PhD	IEEE,ACM,IETE,ISCEE	Low power VLSI systems, VLSI physical design, FPGAs.	Guided PhD, PG theses Conducted 10+ FDP/STTP programmes	Keysight,
12.	Dr. Ghanshyam Singh (Ph.D.)	IEEE,IETE,OSI, SPIE,ISTE,OSA	Optical Communication Engineering: All Optical Switches, Optical Logic Gates & Circuits, Photonic Crystal Fibers, Nanophotonics, Nano-optical stru, • RF and Microwave Engineering: RF & Microwave devices, Microstrip and Smart Antennas.	Guided PhD, PG theses Conducted 5+ FDP/STTP programmes	
Assistant Professor					
13.	Dr. Ritu Sharma (Ph.D.)	IEEE,OSI,ISTE,SPIE	Communication Engineering and Optics, Fabrication and Characterization of Nanoelectronic and Nanophotonic Devices based on Low-cost Materials, Nanomaterials for Nano-optoelectronic and Nano-piezoelectric Devices, Optoelectronics and Photonics, Solar cell, Biophysics, MEMS and Nanoelectronic Devices, Optoelectronics, Pattern Recognition	Guided PhD, PG theses Conducted 5+ FDP/STTP programmes	
14.	Mr. Ashish Ghunawat, PhD pursuing	IEEE,OSA	Communication Engineering and Optics, Nonlinear Optics, Nanomaterials for Nano-optoelectronic and Nano-piezoelectric Device	Guided PG theses	
15.	Dr. C. Periasamy, PhD	M IETE	MEMS and Nanoelectronic Devices.	Guided PhD, PG theses Conducted 5 FDP/STTP programmes	FreeScale,
16.	Dr. Mohd. Samar Ansari (Ph.D.)	IEEE,IETE,IET	Analog VLSI, Analog Signal Processing, Neural Networks, Computational method for linear/non-linear problems.	Guided PhD, PG theses Conducted 5 FDP/STTP programmes	
17.	Dr. Ravi Kumar Maddila (Ph.D.)	IEEE,OSA,OSI	Optical Communication Engineering: All Optical Switches, Optical Logic Gates & Circuits, Photonic Crystal Fibers, Nanophotonics, Nano-optical stru, Optical Communication, Optoelectronics, Optoelectronics and Photonics, Solar energy.	Guided PhD, PG theses Conducted 5 FDP/STTP programmes	
18.	Dr. S. J. Nanda, PhD	M IEEE	Signal Processing, Soft Computing, Neural Networks, Bio And Nature Inspired Algorithms, Modelling And Simulation, Pattern Recognition, Data Mining.	Guided PhD, PG theses Conducted 5 FDP/STTP programmes	Tejas networks,
19.	Mr. Amit M. Joshi, PhD submitted	IEEE,IETE,IEICE, VSI	FPGAs, Image Processing, Information Security, Integral Transform, Microprocessor, Real Time Systems, System level design & modeling of analog and digital systems,	Guided PG theses Conducted 5 FDP/STTP programmes	Texas instruments;

S. no.	Name of faculty	Professional Affiliations	Areas of interest	Competence of Investigator in Project Area & experience in implementing Faculty Training Programmes	Details of industry, with which collaboration can be made
			Security, Privacy and Forensics, Digital and Analog CMOS circuits , VLSI Signal Processing architectures		

Department of Computer Science & Engineering, Investigators profile

Sr. no.	Name of faculty	Professional Affiliations	Areas of interest	Competence of Investigator in Project Area & experience in implementing Faculty Training Programmes	Details of industry, with which collaboration can be made
Professor					
1.	Prof. M. C. Govil PhD, Head, CSE	M IEEE, LM ISTE, LM IETE	Real Time Systems, Parallel & Distributed Systems, Fault Tolerant Systems, Cloud Computing.	Guided PhD, PG theses Conducted 10+ FDP/STTP programmes	HP, IBM, DRDO, CDAC, NVIDIA
2.	Prof. M. S. Gaur, PhD	M ACM, M IEEE, MISTE	Network Security, Embedded Systems, Information Security, Computer Networks, Multi-Core And Cloud Computing.	Guided PhD, PG theses Conducted 20+ FDP/STTP programmes	
Associate Professor					
3.	Girdhari Singh, PhD	M IEEE	Software Engg., Intelligent Systems.	Guided PhD, PG theses Conducted 5 FDP/STTP programmes	CompuCom, Jaipur
4.	Vijay Laxmi, PhD	M IEEE	Information Security, Malware Analysis, Embedded Systems	Guided PhD, PG theses Conducted 10 FDP/STTP programmes	
Assistant Professor					
5.	Arka Prokash Mazumdar, PhD pursuing	M IEEE, M CSI	Computer Networks, Wireless Sensor Networks, Wireless Ad hoc Networks, Opportunistic Networks.	Guided PG theses Conducted 5 FDP/STTP programmes	
6.	Dinesh Gopalani, PhD	M IEEE	Theoretical Computer Science, Compilers And Programing Languages, Aspect Oriented Systems, Formal Theory Of Programming Languages.	Guided PhD, PG theses Conducted 5 FDP/STTP programmes	Infosys Jaipur
7.	Dinesh Kumar Tyagi, PhD pursuing	M IEEE, M ACM, M CSI	Computer Networks, Bio And Nature Inspired Algorithms, WDM Networks.	Guided PG theses Conducted 5 FDP/STTP programmes	
8.	Emmanuel Subhakar Pilli, PhD	M IEEE, M ACM, M CICI, M CSI	Security, Privacy and Forensics, Computer Networks, Cloud Computing, Big Data.	Guided PG theses Conducted 5 FDP/STTP programmes	Big Data – Xerox Research Centre India (Dr. GeethaManjunath) Cloud Computing – Vmware

Sr. no.	Name of faculty	Professional Affiliations	Areas of interest	Competence of Investigator in Project Area & experience in implementing Faculty Training Programmes	Details of industry, with which collaboration can be made
					(Research Programme), EMC2 Parallel Computing – Prof. Nataraj (IIT Bombay, Mumbai) Internet of Things – Cisco Research, Bangalore
9.	Meenakshi Tripathi, PhD	M IEEE, M CSI	Wireless Networks, Network Security and Routing, Quality of Service	Guided PG theses Conducted 5 FDP/STTP programmes	Microsoft, DRDO, CEERI, National Instruments
10.	Mushtaq Ahmed, PhD	M IEEE	Network on Chip , Computer Networks, Embedded Systems, Wireless Communications, Multi-Core And Cloud Computing.	Guided PhD, PG theses Conducted 10+ FDP/STTP programmes	HP, Infosys, DRDO, CDAC, Cisco
11.	Namita Mittal, PhD	M IEEE, M ACM, M CSI , M SCRS	Information Retrieval, Data Mining, DBMS, Natural Language Processing	Guided PhD, PG theses Conducted 10+ FDP/STTP programmes	Big Data – Xerox Research Centre India (Dr. Geetha Manjunath), Computer Awareness/ Security – IANT Jaipur
12.	Neeta Nain, PhD	M IEEE, M BMVA, M IAENG	Image Processing, Pattern Recognition, Computer Graphics.	Guided PhD, PG theses Conducted 10+ FDP/STTP programmes	4G Identity Solutions (4Gid), Inttelix Security Solutions Pvt. Ltd., Matrix
13.	Ramesh Babu Battula, PhD pursuing	M IAENG, M ACM	Network Security, Computer Networks, Information Security, Android Security, Wireless Mesh Networks, Wireless Sensor Networks, Underwater Acoustic Sensor Networks.	Guided PG theses Conducted 5 FDP/STTP programmes	
14.	Satish Kumar Vipparthi, PhD pursuing	M IEEE	Content Based Image Retrieval , Object Tracking	Guided PG theses Conducted 5 FDP/STTP programmes	
15.	Yogesh Meena, PhD pursuing	M IEEE, M CSI	Natural Language Processing, Information Retrieval, Data Mining, Neural Networks	Guided PG theses Conducted 5 FDP/STTP programmes	