Department of Electronics & Telecommunication Engineering, Shah & Anchor Kutchhi Engineering College (SAKEC) as a proctored remote center of Electronics & ICT (E&ICT) Academy, MNIT Jaipur has coordinated four 10 day faculty development program for faculties of engineering and technological institutions through Government of India initiated National Knowledge Network (NKN) based Video Conferencing, with lectures delivered by invited experts from IITs, NITs, IIITs and other premier institutes / industries.

Proctored Center coordinator: Shridhar R. Sahu, SAKEC

FDP Course	Date	Participants					Total
		Faculty		Student		Industry/Self Employed	
		Internal	External	Internal	External		
Demystifying 5G RF ASICs	24/8/2020 to 4/9/2020	04	12	02	01	00	19
Python Programming	7/9/2020 to 18/9/2020	07	12	10	05	01	35
Digital Tools for Writing, Authoring and Reviewing Manuscripts	21/9/2020 to 2/10/2020	02	03	00	00	00	05
Cyber Security	5/10/2020 to 11/10/2020	02	07	06	04	01	20

Demystifying 5G RF ASICs:

MODULES TOPICS-
Introduction and Tools Overview: Introduction to 5G (progression of communication channels from 1G to 5G, usage, timeline, market); Basics of RF Communication; Setup of Scikit-RF and CppSim RF Simulator
5G MIMO Architecture and System Simulation: MIMO in 5G, MIMO for TX and RX, Basic 5G System Setup and visualization using a simulator
RF ASIC Concepts 1: Two-port Networks, Stability, Equivalent Device Models, Impedance Matching, Biasing. RF Simulations: Hands of tutorial for Doing Impedance Matching and bias-T development using Scikit-RF
RF ASIC Concepts 2: PDK Development, Layout Issues, Packaging Issues and package selection, Testing. *Power Amplifier Design*: Basics of PA, different classes, performance matrix, design of one topology for 5G. *Power Amplifier Simulations*: Design and Simulations of a couple of PA topologies using a Scikit-RF
LNA Design: LNA Basics, Design Topologies, Trade-Off Space for LNA. LNA Simulations: Design and Simulations of a couple of LNA topologies using a Scikit-RF.
RF Channel Architecture and Simulations: Different Channel Architectures and their feasibility from 5G perspective, Simulations of channel using CppSim RF System Simulator

EXPERTS/SPEAKERS- Shri Surinder Singh (Director, SCL Chandigarh);
(ii) Other Speakers: Shri H. S Jatana (Senior Head, SCL Chandigarh), Prof. Anand Bulusu (IIT Roorkee), Dr. Salil Kashyap, Dr. Ribhu, Dr. Sudarshan Mukherjee, Dr. Gaurav Trivedi, IITG
(iii) Industry- Dr. Aditya Dalakoti, Mr. Ashish Jindal (DRDO), Puneet Mittal

Python Programming:

MODULES TOPICS-

- Introduction & basics of Python Programming: History of Python, Installing Python, Executing Python Programs, Internal Working of Python, Python Implementations. Python Character Set, Token, Python Core Data Type, print() function, Assigning Value to Variable, input() function, eval() function, Formatting Number and Strings, Operators and Expressions, Differential Evolution, Social Spider Optimization)
- Decision Statements; Loop Control Statements; Functions, Strings Boolean Type, Boolean Operators, Using Number and Strings with Boolean Operators, Decision Making Statements and Conditional Expressions While loop, range( ) Function, For Loop, Nested Loops, Break Statement, Continue Statement; Syntax and Basics of a Function, Use of a function, Parameters and Arguments, Local and Global Scope, Scope of a Variable, return statement and Recursive Functions, Inbuilt functions for String, index[] operator, traversal of String, String operators
- Lists and Dictionaries; Tuples and Sets; File Handling; Pandas Creating Lists, Basic list operators, Slicing, Inbuilt functions for Lists, List operator, List Methods, Splitting, Need of Dictionary, Creating a Dictionary , Adding and Replacing Values, Retrieving Values ; Deleting Items and Traversing Dictionaries. Tuples and Sets: Creating Tuples; Tuple () Function
- Operator Overloading, Inheritance, super () and Method Overriding. File Handling: Need of File Handling, Reading/Writing Text and Numbers to/from a File; Directories on a disk. Pandas: Using Pandas, the python data analysis library and data frames
- Data Handling and Use Cases RE Pattern Matching, Parsing Data, Introduction to Regression, Types of Regression , Use Cases , Exploratory data analysis, Correlation Matrix, Visualization using Matplotlib and Implementing linear regression.
- Machine Learning: Machine Learning - Algorithm, Algorithms - Random forest , Super vector Machine , Random Forest , Build your own model in python and Comparison between random forest and decision tree

EXPERTS/SPEAKERS-

Prof. Aparajita Ojha, IIITDMJ, Dr. Arka P. Mazumdar, MNITJ, Dr. Emmanuel S. Pilli, MNITJ

Digital Tools for Writing, Authoring and Reviewing Manuscripts:

MODULES TOPICS- Talks by eminent experts/speakers on various aspects of following-
• Technical Writing and Research Methodology
• Ethics & Anti-plagiarism
• Introduction to Typesetting in Latex- Tables, figures, bibliography, presentations
• Mathematical style- Mathematics in Science and Technology
• Writing research paper, Thesis, Project proposal, technical report
• Reviewing manuscripts; Responding to reviewer's comment
• Bibliography management, Mendeley, JabRef
• Publishing in print and for the Internet
• Online tools- CV, Sharelatex, OverLeaf, Author Kits

EXPERTS/SPEAKERS-
(i) Dr. C. P. Ravikumar, Texas Instruments
(ii) Prof. D. B. Phatak, IITB(Consent awaited)
(iii) Prof. Binod Mishra, IIT Roorkee,
(iv) Prof. Kannan Moudgalya, IIT Bombay (consent awaited)
(v) Mr. C. V. Radhakrishnan, TUG & River-Valley
(vi) Prof. Yogananda C. S., Chairman TUG-group
(vii) Dr. Prathap Haridoss, IIT Madras (consent awaited)
(viii) Dr. Kishore Kumar Rudrurkar, EFLU Hyderabad
(ix) Mr. Manoj Kumar K, Scientist-E(CS) INFLIBNET
(x) Prof. Mini Nanda, University of Rajasthan
(xi) Speakers/faculty from host institutes- MNIT Jaipur & NIT Patna

Cyber Security:

MODULES TOPICS-

- Wireless Vulnerabilities - 802.11 Wireless Vulnerabilities, Hacking Wi-Fi networks By Passing Windows logon system,
- Software Security - Buffer overflow, Integer overflow, Format string vulnerabilities
- Software Security - Buffer overflow, Integer overflow, Format string vulnerabilities
- Web Security - SQL injection, XSS, CSRF, etc.
- Web App Penetration Testing, Data security in cloud, Big data and cyber security; Network Security - DNS, ICMP, ARP attacks, IP Sec, BGP Sec, etc., Browser based attacks
- Security Tools - DVWA, Snort, Metasploit , Wireshark, NMAP, Nessus, Openssl, etc
- Security in IoT, Tools for cyber security
- Basic Cryptography and its importance in Cyber security, Cryptography Hash functions
- Blockchain based IOT Security
- IDS- Intrusion Detection System
- Cyber Security Assurance and Law, Cyber Forensics

EXPERTS/SPEAKERS- - (i) Prof. R. K. Shymsunder, IIT Bombay, (ii) Prof. Krishna Shivlingam, IITM , (iii) Dr. Mayank Agarwal, IITPatna, (iv) Dr. Somanath Tripathi, IIT Patna, (v) Dr. Rajiv Mishra, IIT Patna, (vi) Sri Ch A S Murthy, CDAC Hyderabad (vii) Rtd Prof. Aditya Bagchi, ISI Kolkata (confirmation awaited) (viii) Prof. Bruhadeshwar Bezawada, MEC, Hyderabad (ix) Hari Babu P. Associate Director, C-DAC Bangalore
Confirmation awaited-, Prof. S. K. Nandi, IITG
Expert from Host Institute: (i) Dr. M P Singh, NIT P, (ii) Prof. M. S. Gaur, IITJammu, (iii) Dr. Amit Kumar Singh, NIT P; (iv) Dr. Emmanuel S Pilli, MNITJ (v) Dr. Ramesh Babu Battula, MNITJ