Short Term Course
on

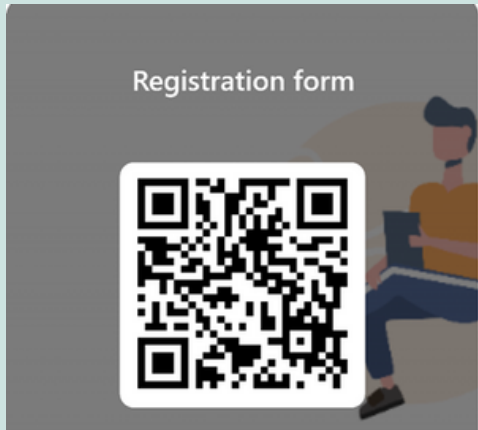
RF SPECTRUM STRATEGIES & TECHNOLOGIES

Associations with Bharti School of Telecommunication Technology & Management and FITT
IIT Delhi

Course Instructor -Professor Brejesh Lall & Team

Registration link

Course Duration-42 Hours, Jan 2025 to May 2025



Course Contents and Description

This Course RF Spectrum Strategies & Technologies" refers to the methods, tools, and approaches used to manage, optimize, and utilize the radio frequency (RF) spectrum. The RF spectrum is a finite and valuable resource that is vital for telecommunications, broadcasting, defense, IoT, and numerous wireless applications.

Use Following Link to Register If QR code not working

https://forms.office.com/r/vZW20b9N8Q

In Case of Any Query please email us

workshop.bhartischooliitd@gmail.com

S.No.	Topic/ Objective	Contents	Duration (in Hours)
1	Overview of Multi-access Technologies & Spectrum Bands	• Multi- access Technologies (FDMA, TDMA, CDMA, OFDMA etc.) • Introduction to Spectrum bands - Licensed/unlicensed, Terrestrial/Space • Introduction to Various wireless Technologies- IMT, Satellite, WIFI/Satellite; • Integrated Access & Backhaul Technologies (IAB) • Introduction to 3GPP standards (Releases)	10
2	Introduction to Spectrum policy and regulatory landscape	National: • Introduction to NFAP-2022 & various services • Spectrum Management i.r.o Telecom Act 2023 Global: • Introduction to ITU-R	4

3	5G (IMT 2020)	• Key capabiliteis of 5G & 3GPP harmonised standards (overview)
		• 5G bands & Different 5G Services
		• Spectrum management & Challenges/co-existance in 5G era
		• Case Studies:
		  ○ Handling private 5G as micro networks
		  ○ Indian 5G Standard 5Gi (LMLC)
			6

4	Satellite & UAVs	• Introduction to Satellite Tech & Services (GEO & LEO) • Satellite bands & emerging services for Strategic use, public internet, HTS etc. • Case studies: Inmarsat, Oneweb, Starlink etc. • Standards: ETSI etc. • HAPS services • UAV	6
5	WiFi/IoT- Unlicensed bands	• Introduction to low power WANs/IoTs & M2M /Short Range devices • Unlicensed bands & different services • Standards: One M2M/IEEE/5G-eMTC etc.	2
6	ITU-R, IMT Standards & Interference management	• Overview of ITU-R structure Radio Regulations, RRB, WRC etc. • IMT Standards (advanced, 2020, 2030) • Role of ITU-R in Spectrum Harmonization/refarming/Dispute settlement • Cross Border interference management (Global/Local regulations)- Geographical sharing	2
7	Spectrum assignment Policies	• Spectrum allocation, assignment to various services • Ensuring Non-interference/interference management • Spectrum for R&D (100 5G labs) /Testing/Manufacturing • Spectrum refarming & Harmonization • Spectrum sharing/co-existence •	2
8	International/National Best Practices on spectrum management and innovations	Case studies (Spectrum Management): • Spectrum Management policies of US, Japan, Korea, China etc. • CBRS • New and emerging services CNPN/Enterprise networks • Industrial IoT, smart cities • Broadcasting (5G interference) • Altimeter (5G interference)	6
9	Spectrum Management Software	Demos of the Software tools and its applications	2
10	Spectrum planning –Roadmap to 6G	• 6G Bands (identified) & services- Joint Sensing/communication and unique characteristics • Vision 2047/Spectrum Roadmap	2
			42