No. 52-15/2024/CUS-Trg. Part (1)
Government of India
Department of Telecommunications
(Capacity Building & Training Division)
220, Mahanagar Doorsanchar Bhawan, JLN Marg, New Delhi-110002

Dated: 11th December 2024

OFFICE MEMORANDUM

Subject: Online course on "Spectrum Strategies & Technologies" conducting by IIT Delhi from January, 2025 to May, 2025- reg.

This is to inform that Online course on **"Spectrum Strategies & Technologies"** scheduled from January, 2025 to May, 2025, being conducted by IIT Delhi. The course details/ key points to be covered during the above online course as under:

i. Overview of Multi-access Technologies & Spectrum Bands
ii. Introduction to Spectrum policy and regulatory landscape
iii. 5G (IMT 2020)
iv. Satellite & UAVs
v. WiFi/ IoT – Unlicensed bands
vi. ITU-R, IMT Standards & Interference management
vii. Spectrum Assignment Policies
viii. International/ National Best Practices on spectrum management and innovations
ix. Spectrum Management Software\Spectrum Planning – Roadmap to 6G

2. In view of the above, the DoT Officers are encourage to participate in the above online course being conducted by IIT Delhi from January 2025 to May 2025. Interested officer may apply for the course to CB&T Division for prior approval, as per the guidelines of Competency Upskilling Schesme, issued vide O.M. No. 52-15/2024/CUS-Trg. dated 26th July, 2024. A copy of course Brochure is also enclosed herewith as **Annexure-I.**

Encl: As above.

(Rajendra Singh)
Section Officer (Training), DoT HQ

To,

All Eligible DoT Officers- Through e-office Notice Board.

ANNEXURE-I

FITT

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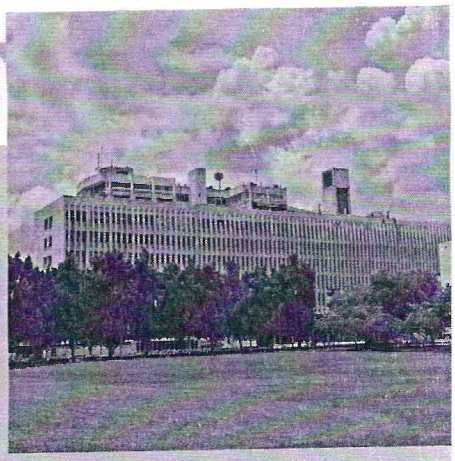


Short Term Course

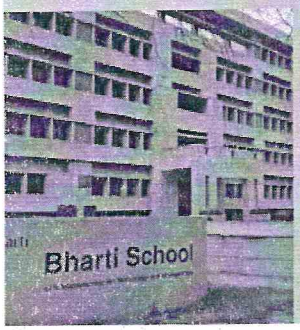
RF SPECTRUM STRATEGIES & TECHNOLOGIES

Associations with Bharti school of Telecommunications and Management ,FITT
IIT Delhi

Course Instructor -Professor Brejesh Lall & Team

Registration link

Registration form



Course Duration-42Hours, Jan2025 to May2025

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 capabilitеis 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 (UMLC)
			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