

Next Generation Radio Communication Technologies (NGRCT)



The value-added course on “Advanced Antenna Design and Simulation for 5G/6G Communication using CST and HFSS” aims to introduce students to next-generation wireless communication technologies and electromagnetic simulation techniques. The course provides hands-on training in CST and HFSS for designing and analyzing dipole, monopole, microstrip patch, and MIMO antennas. Participants will also gain practical exposure to antenna arrays, transmission lines, metamaterials, and CRLH structures, along with key antenna parameters such as S-parameters, VSWR, gain, efficiency, and radiation patterns. The course further introduces emerging 5G/6G technologies, MIMO, beamforming, RIS, mmWave communication, and AI/ML applications in wireless systems.



6G

5G



SEATS LIMITED TO
40 PARTICIPANTS



FACULTY COORDINATORS



Dr. Shilpi Ruchi Kerketta
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Dr. Vijaya Durga Chintala
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COURSE EXPERTS



Dr. Shilpi Ruchi Kerketta, SENSE



Dr. Kalyanbrata Ghosh, SENSE



Dr. Vijaya Durga Chintala, SENSE



HIGHLIGHTS OF THE COURSE



30 Hours Course Duration



Introduction to 5G/6G Wireless Communication



Hands-on Training in CST and ANSYS HFSS



Design of Dipole, Monopole, Microstrip Patch and MIMO Antennas



Antenna Array and Beamforming Simulation



S-parameters, VSWR, Gain and Radiation Pattern Analysis



Transmission Lines, Metamaterials and CRLH Structures



Exposure to MIMO, RIS, mmWave and THz Technologies



Mini Simulation Project



E-Certificate



Minimum **75%** Attendance &
60% Marks Required



VIT[®]

Vellore Institute of Technology
(Deemed to be University under section 3 of UGC Act, 1956)

School of Electronics Engineering
Department of Communication Engineering
and Department of Micro and Nano electronics

VALUE ADDED COURSE

on

Introduction to Next Generation Radio Communication Technologies (NGRCT)



ANTENNA
DESIGN



WIRELESS
COMMUNICATION



ADVANCED
SIMULATION



AI/ML
APPLICATIONS



6G



CONTACT NUMBERS



9932553219 – Dr. Shilpi Ruchi Kerketta



9734620432 – Dr. Kalyanbrata Ghosh



9948129575 – Dr. Vijaya Durga Chintala



TARGET AUDIENCE:



UG / PG / PhD



Course Plan:
Hybrid



DATES:

Dates	Time	Mode
12-09-2026	2:00 PM – 6:00 PM	 On Campus
13-09-2026	2:00 PM – 6:00 PM	 Online
10-10-2026	2:00 PM – 6:00 PM	 On Campus
11-10-2026	2:00 PM – 6:00 PM	 Online
17-10-2026	2:00 PM – 6:00 PM	 On Campus
18-10-2026	2:00 PM – 6:00 PM	 Online
25-10-2026	2:00 PM – 6:00 PM	 On Campus
01-11-2026	2:00 PM – 6:00 PM	 On Campus



Registration Fee:

Internal Students: Rs 200/-
External Students: Rs 300/-
(Inclusive of GST)



**SUSTAINABLE
DEVELOPMENT
GOALS**

**4 QUALITY
EDUCATION**



ADVISORY COMMITTEE



Dr Jasmine Pemeena Priyadarsini,
Professor & Dean,
School of Electronics Engineering
(SENSE)



Dr Kannadasan D,
Professor & HOD
Department of Communication Engineering,
School of Electronics Engineering
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Dr. Sri Adithalta Sridevi,
Professor & HOD Department of
Micro & Nanoelectronics,
School of Electronics Engineering
(SENSE)



VENUE

TT 145, VIT Vellore





VALUE ADDED COURSE ON

INTRODUCTION TO NEXT GENERATION RADIO COMMUNICATION TECHNOLOGIES (NGRCT)

Schedule

DATE	TIME	SESSION	RESOURCE PERSON	TOPIC
12 September 2026 (Saturday)	2:00 PM – 6:00 PM	Session 1	Dr. Vijaya Durga Chintala	Fundamentals of 5G, B5G and 6G Communication Technologies
13 September 2026 (Sunday)	2:00 PM – 6:00 PM	Session 2	Expert Lecture	5G/6G Antenna Technologies, mmWave Communication and Antenna Requirements
10 October 2026 (Saturday)	2:00 PM – 6:00 PM	Session 3	Dr. Shilpi Ruchi Kerketta	CST Hands-on: Dipole, Monopole and Microstrip Patch Antenna Design and Simulation
11 October 2026 (Sunday)	2:00 PM – 6:00 PM	Session 4	Dr. Vijaya Durga Chintala	MIMO, Massive MIMO, Beamforming and Antenna Arrays for 5G/6G
17 October 2026 (Saturday)	2:00 PM – 6:00 PM	Session 5	Dr. Shilpi Ruchi Kerketta	CST Hands-on: 2x2 MIMO Antenna Design, Isolation and Performance Analysis
18 October 2026 (Sunday)	2:00 PM – 6:00 PM	Session 6	Expert Lecture	RIS, Metasurfaces and Emerging Antenna Technologies for 6G
25 October 2026 (Sunday)	2:00 PM – 6:00 PM	Session 7	Expert Lecture	AI/ML Applications in 5G/6G Wireless Communication and Antenna Systems
31 October 2026 (Saturday)	2:00 PM – 6:00 PM	Session 8	Dr. Kalyanbata Ghosh	HFSS Hands-on: Transmission Lines and Metamaterial Design
1 November 2026 (Sunday)	2:00 PM – 4:00 PM	Session 9	Dr. Kalyanbata Ghosh	HFSS Hands-on: CRLH Structures

