



# Electronics & ICT Academy IIT Roorkee



An Initiative of  
**Ministry of Electronics  
& Information  
Technology (MeitY)**  
Government of India

## A Faculty Development Program on

## Antenna Design for Next Generation Wireless Communications

In association with

**Punjab Engineering College  
(PEC) Chandigarh**

**July 11<sup>th</sup> – July 17<sup>th</sup>, 2025**

**Register Before: July 09, 2025**



**Venue: Online Mode at: Punjab Engineering  
College (PEC) Chandigarh**

### Objectives of the Course

- Introduce fundamentals of modern antenna systems for wireless communication
- Explore SIW, DRA, MIMO, and Metamaterial antenna technologies
- Understand industry applications like IoT, 5G, phased arrays, and real-time beam steering
- Examine optimization and measurement techniques
- Learn integration of AI/ML in antenna design
- Enable hands-on practice with CST, HFSS software tools
- Bridge the gap between theoretical knowledge and practical antenna development



### Why this course ?

With the evolution of 5G and the upcoming 6G era, efficient antenna systems are crucial for real-time, high-speed wireless communication. This FDP equips faculty with a comprehensive understanding of cutting-edge antenna technologies, including SIW, MIMO, and metamaterials, while introducing AI-driven innovations. The program blends theoretical lectures with hands-on simulations, enabling participants to apply their knowledge using professional tools like CST and HFSS. Designed to meet academic and industry needs, the course helps educators translate advanced antenna design concepts into effective teaching and research practices.

### Prerequisites

No experience is required, but fundamental knowledge of any programming language would be helpful.

### Experts from Academia/Industry

#### Who Should Register?

Any Interested Faculty/PhD-Scholars  
UG/PG/ & Industry Persons can register

#### Registration Fee

Fees: ₹ 250/- Faculty/Research Scholar/ Students  
₹ 500/- Industry/Others

Note: Refund will be done in case of course cancellation only, within 20 working days

#### How to make Payment

Please make the payment first using the below link  
upload the payment receipt when filling out the  
Google registration form

<https://eict.iitr.ac.in/instruction-for-payment/>

**Course Code: EICTIITR-FDP-5H6-12**

#### Registration Link

<https://forms.gle/mB81SCxMi7g1NMVr5>



Scan QR for  
registration

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### 'Practice' by 'Learn.'

- Understand next-gen antenna structures like SIW, DRA, and MIMO
- Design antennas for specific applications including 5G, IoT, and industry
- Apply AI/ML for intelligent antenna design and enhancement
- Perform simulations using CST and HFSS software
- Develop phased array and beam steering solutions
- Analyze and optimize antenna performance parameters
- Gain insights into practical and research-oriented antenna development

### Focus Areas

- SIW, DRA, and MIMO antenna structures
- Antenna design for 5G, IoT, and industrial use
- Metamaterials and phased array systems
- Antenna optimization and performance analysis
- AI/ML applications in antenna design
- Antenna simulation using HFSS/CST tools
- Measurement techniques and real-time applications

### Course Features

- 40 Hours of Lectures, hands-on, and Pedagogy/Industry sessions.
- Lectures from Expert Speakers, Hands-on from industry/Academia experts.
- Access to learning material and video lectures
- Certificate by E&ICT Academy IIT Roorkee

### Who may benefit

- Academic Faculty and Students(UG/PG)
- Government Officials.
- Working Professionals in the Industry and Startups.
- Research Scientists and Technical Staff.

This certificate can be considered in alignment with other Quality Improvement Programs (QIP) as well as NBA and NAAC for recognition/credit.

### Convenor

- **Prof. Arun Kumar Singh, Head, ECE Dept., PEC Chandigarh**

### Principal Investigator

- **Prof. Sanjeev Manhas, Head, ECE Department, IIT Roorkee**

### Course Coordinators

- **Prof. Sanjeev Manhas, Head, ECE Dept., IIT Roorkee**
- **Dr. Gourab Das, PEC Chandigarh**
- **Dr. Deepak Kumar Sharma, PEC Chandigarh**

### Reach Us:

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