

**SCIENCE AND ENGINEERING RESEARCH
BOARD**

वृतिका (Training and Skill Internship)

On

**Design and Development of Hybrid
Antenna for 6G and Beyond
Applications
(01st – 31st Dec, 2022)**

REGISTRATION FORM

Name:

Designation:

Organization:

Qualification:

Correspondence Address:

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Tel. (O) (M)

E-Mail:

Date:

Place:

Signature of Candidate

Signature of Principal/HOD

Note: The participants to the course will be faculty, research scholars, PG Scholars from AICTE approved technical institutions; Industry Bureaucrats/Technicians and staff of host institutions.

CHIEF PATRON

Prof. S. N. Singh

Director, ABV-IIITM Gwalior

CONVENER

Dr. Pinku Ranjan, Assistant Professor, ABV-
IIITM Gwalior

COORDINATOR

Dr. Pinku Ranjan

ADDRESS FOR CORRESPONDENCE

Dr. Pinku Ranjan

Assistant Professor,

Department of IT, ABV-IIITM Gwalior

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Contact No.: 07991101270

IMPORTANT DATES

Last date of receipt of application: 25th Nov
2022. Notification about selection: By email

One Month

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ORGANIZED BY



विश्वजीवनामृतं ज्ञानम्

**ABV-Indian Institute of Information
Technology and Management Gwalior,
Morena Link Road, Gwalior, Madhya
Pradesh- 474015
www.iiitm.ac.in**

ABOUT THE INSTITUTE:

Atal Bihari Vajpayee - Indian Institute of Information Technology & Management Gwalior (ABV-IIITM Gwalior) is India's premier Institute incepted by Ministry of Human Resource and Development (MHRD), Government of India in the year 1997 as a centre of excellence in the field of Information Technology and Management. It is foremost Institute providing superior quality higher education in the above areas and is located in the city of Gwalior in the northern part of the state of Madhya Pradesh, India. The Institute activities are aimed at developing a culture of inquiry and research through highly competitive academic environment, and close interaction between Institute and corporate world. Vibrant links with the industry are active. Institute is ISO 9001:2008 and NAAC 'A' certified. It has also been declared as Institute of National Importance by the Government of India. Institute has secured 81th Rank by NIRF survey 2019 among all Engineering Institutes across the country. Institute secured 164th ranked in the World and 1st rank in India in 2017 UI Green Metric World University Rankings evaluated by Universitas Indonesia in 2017.

ABOUT DEPARTMENT:

Information Technology and Electronics department was established in the year 1997. Since the inception, it is consistently creating its place of excellence not only within the institute but among its counter parts in the country and abroad. Bright students from all the parts of the country for quality education in IT & EC at under graduate, post graduate, and doctoral levels are attracted. The department has highly qualified and competent faculty members, and adequate facilities to support teaching and learning activity.

OBJECTIVE:

Today's industry demands strong theoretical and practical experience in the field of 6G Communication. In 6G Hybrid Antenna Design; leaders in the field describe state-of-the-art research in applying the latest methodologies in the context of tomorrow's most important 6G and beyond applications, ranging from next-generation cellular

telephony and personal Communication services, Representatives of industries and academia have started to look into the technological developments toward the next generation (5G/6G), as the rollout of 4G mobile communication networks take place. mm wave communication, Software Defined Radio, HetNets, algorithms and architectures have an increasing important role to play in meeting the central challenges faced in the design of advanced wireless communication systems.

The 6G technologies aim to support broadband data rate more than 10 Gbps, latency less than 1 ms for high mobile users and high energy efficiency. In this program, we will discuss the technologies that are being proposed for 6G hybrid antenna design. This program is intended to provide opportunity for young researchers to enrich their knowledge in the area of hybrid antenna design for 6G and beyond communication such as:

1. Focus on Recent Trends in Antenna for 6G Communication.
2. To provide a comprehensive overview of the fundamental concepts 6G MIMO Antennas.
3. Designing of Microstrip patch antenna for 6G and beyond communication.
4. To provide the latest challenges in designing of Dielectric Resonator Antennas (DRA) for 6G and beyond Communication with ML and Deep Learning optimization.
5. Combining both Microstrip patch antenna and DRA to make hybrid structure as an open problem for research in related areas.

INTERNSHIP CONTENTS:

Module 1. Evolution and requirement of 6G antennas and Latest Trends: Electromagnetic spectrum, frequency band requirement for 6G and beyond communication.

Module 2. The complete analysis of the MIMO for 6G and beyond communication requirement.

Module 3. Designing and fabrication process of Microstrip patch antenna for 6G and beyond application.

Module 4. Designing and analysis of dielectric resonator antennas (DRA) for 6G and beyond application.

Module 5. The application of hybrid antenna will be in future 6G and beyond communication.

Students or the participants have to work on the live project given by the Faculty Co-ordinator or Event Organizer. This internship will be evaluated on the basis of the project assigned to them.

INTERNSHIP OUTCOMES:

- Participants will be able to understand the fundamentals Antenna designing and analysis.
- He will be able to compare and design its parameters with exit technology.

HOW TO REACH:

ABV-IIITM Gwalior is located on Morena Link Road at a distance of about 3.5km and 8.5km from Gwalior railway station and Rajmata Vijay Raje Scindia city airport, respectively. The institute is easily accessible by road, and there are cabs and auto-rickshaws to commute from railway station or airport.

SCHEDULE PLAN:

Date	Internship or Training Milestones
1st Dec 2022 to 10th Dec 2022	<ul style="list-style-type: none">• Fundamental antenna designing for specific frequency.• Assignment of Individual Projects to the Participants
11th Dec 2022 to 20th Dec 2022	<ul style="list-style-type: none">• In depth training on the Modelling of the Antennas.• Hands on Training on the various simulation tools such as ANSYS HFSS.
21st Dec 2022 to 31st Dec 2022	<ul style="list-style-type: none">• Antenna parameter analysis.• Evaluation of the Projects allocated to the participants.

Experts Details:

Dr. Pinku Ranjan, Assistant Professor, ABV-IIITM Gwalior, India
Dr. Somesh Kumar, Assistant Professor, ABV-IIITM Gwalior, India