

Registration Guidelines:

No Registration fee for workshop and accommodation will be provided for all students. All students are eligible for this workshop and travel allowance (TA). reimbursement (sleeper or 3rd AC) for their journey to and from NIT Warangal through the shortest route as per SERB and GoI norms. Accommodation will be provided at NIT Warangal Hostel. The maximum number of participants is limited to 25 and candidates will be selected on a merit basis. Only selected candidates will be informed by email.

While filling out the application form, the candidate must upload their student ID card, NOC letter duly signed by the competent authority, and the Latest CV.

Registration link:

[Click here to fill the application form](#)

Topics to be Covered

- Global Perspective of Microwave processing.
- Microwaves Fundamentals
 - Introduction to microwaves
 - Microwave generation methods
 - Microwave material interaction
 - Modes of heating mechanisms
- Microwave Processing techniques
 - Microwave Sintering
 - Microwave Cladding
 - Microwave Joining
 - Microwave Drilling
 - Microwave Casting
 - Microwave polymer composites
- Modelling and Simulation using COMSOL Multiphysics
- Future scope of Microwave processing

Application Deadline:

10th March 2024

Announcement to Shortlisted Candidates:

12th March, 2024

Who can Attend:

B.Tech (Final Year) Mechanical Engineering, PG and Ph.D. students of areas of Mechanical Engineering and related interdisciplinary areas.

Recently completed PG scholars are also eligible to apply. Candidates who have completed a Ph.D. will not be considered. The number of seats is limited to 25.

Contact Details:

Chief Patron:

Prof. Bidyadhar Subudhi,
Director, NIT Warangal

Patron:

Prof. V Suresh Babu
Head, MED, NIT Warangal

Coordinator:

Dr. G. Venkatesh

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Co-coordinators:

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KARYASHALA **(High-End Research** **Training Programme)** for **Current Trends and Future** **Aspects on Microwave** **Processing of Metallic Materials**

on

18th March 2024
to
24th March 2024



Coordinator:

Dr. G. Venkatesh

Organized By

Department of Mechanical Engineering
National Institute of Technology, Warangal.
(Sponsored by Science and Engineering Research
Board, Government of India)

Venue:

Department of Mechanical Engineering
National Institute of Technology,
Warangal Telangana-506004

Accommodation:

Accommodation will be provided by the NIT Warangal inside the campus or outside as per availability. The lodging and boarding charges will be bear by the Host institution NIT Warangal from the SERB fund.

About NIT Warangal:

National Institute of Technology Warangal, formerly known as Regional Engineering College was established in 1959. Over the years it has developed into a premier institute of higher learning and is ranked among the top 20 technical education institutions in India. There are 14 departments offering eight undergraduate and 31 post-graduate programmes besides doctoral programmes. About 5000 students across the country and about 500 international students study on the campus. It is a fully residential campus sprawling over 250 acres with excellent infrastructure in the form of state of the art library, seminar halls, guest houses, and research laboratories. About Warangal: Warangal is the second largest city in the new state of Telangana. It is situated at a distance of 140 km from the state capital Hyderabad (Nearest Airport). It is well connected by Rail (Kazipet Junction is two km away and Warangal Station is 12 km away) and by Road (NH 202). Warangal is renowned for its rich historical and cultural heritage. It was the seat of the erstwhile Kakatiya dynasty. It is a seat of tourist attractions with a number of historical monuments like Thousand Pillars Temple, Warangal Fort, Bhadrakali Temple, Ramappa Temple, and Laknavaram Lake located in a radius of 30 kms.

About the Department:

The Department of Mechanical Engineering was established in the year 1959. The department presently offers one Under Graduate Programme, i.e., B.Tech in Mechanical Engineering with an intake of 170 students, seven M.Tech programs - Thermal Engineering, Manufacturing Engineering, Computer Integrated Manufacturing, Machine Design, Automobile Engineering, Materials and Systems Engineering Design, Additive Manufacturing – one P.G Diploma in Additive Manufacturing and and Ph.D. programmes. At present, the Department has 50 faculty members with research expertise in different specializations of Mechanical Engineering.

About the KARYASHALA:

The KARYASHALA scheme by SERB, Government of India is meant for skill development training on topics required for scientific research work. It is an effort to improve the research productivity of promising PG and Ph.D. students from universities and colleges through high-end workshops on specific themes. This program aims to provide opportunities to acquire specialized research skills.

About the Course:

Microwave processing is defined as the use of electromagnetic waves in the frequency spectrum of 300 MHz to 300 GHz, to generate heat in a material. Heating of materials using microwaves was first discovered by Percy Spencer in 1946, and since then it has widened its reach from domestic applications to industrial applications. This heating technique does not require conduction and convection and heat gets generated inside the material due to radiation. Complex heating characteristics in microwave processing help to control the grain structure of the materials which helps to achieve desired properties inside the material. Microwave processing can be used for polymer synthesis, food processing, tempering, curing of wood, processing of medical wastes, sewage treatment, devulcanization of rubber, applications in nuclear reactors, etc.

Processing of metallic materials using microwaves has been recently developed and is more environment-friendly, time-saving, and economical compared to its conventional counterparts. Microwave processing of metallic materials can be useful in applications such as in aerospace, automobile, and manufacturing industries.

About the Warangal:

Warangal is the second largest city in the new state of Telangana. It is situated at a distance of 140 km from the state capital Hyderabad (Nearest Airport). It is well connected by Rail (Kazipet Junction is two km away and Warangal Station is 12 km away) and by Road (NH 202). Warangal is renowned for its rich historical and cultural heritage. It was the seat of the erstwhile Kakatiya dynasty. It is a seat of tourist attractions with a number of historical monuments like Thousand Pillars Temple, Warangal Fort, Bhadrakali Temple, Ramappa Temple, and Laknavaram Lake located in a radius of 30 kms.

Resource Persons:

Subject experts from prestigious academic institutions (like IITs, NITs, etc.), R&D organizations, and industries will deliver the workshop content. The event organizer and student volunteers will mentor the hands-on sessions.





High-End Research Training Programme

For

Current Trends and Future Aspects on Microwave Processing of Metallic Materials (Physical Mode)

DECLARATION FORM

1. Name (In Block Letters):
 2. Date of birth: Gender:
 3. Category (M.Tech/M.E/M.S./Ph.D. student):
 4. Institution:
 5. Department:
 6. Mobile:
 7. e-mail:
 8. Specialization:
 9. Accommodation is required (Yes/No).....
 10. Official Address:
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Declaration: The information provided is true to the best of my knowledge. If selected, I agree to abide by the rules and regulations of the program and shall attend the course for the entire duration.

Name & Signature of the candidate

No Objection Certificate (NOC) from Project Supervisor/HoD/Head of Institution

I hereby certify that Mr./Ms. is a
..... (M.Tech/M.E/PhD) student of
..... I have no objection to him/her undergoing a high-end workshop (if selected)
On "Current Trends and Future Aspects on Microwave Processing of Metallic Materials" from 18th to 24th March 2024.

Place:

Date:

Name & Signature of Project
Supervisor/HoD/Head of Institution

(Department/Institute Seal)