

## Registration form

Interested participants are required to send the scan copy of the Registration Form, and Payment details to [masantamanoj.ce@gmail.com](mailto:masantamanoj.ce@gmail.com)

Name: \_\_\_\_\_

Gender:  Male  Female

E-mail ID: \_\_\_\_\_

Contact No.: \_\_\_\_\_

Category:  Industry and R&D Personnel  
 Faculty  
 Research Scholar  
 Technical staff

Organization: \_\_\_\_\_

### Payment Details:

Rs. \_\_\_\_\_ Date of Transaction: \_\_\_\_/\_\_\_\_/\_\_\_\_

Transaction ID: \_\_\_\_\_

Signature of the Applicant: \_\_\_\_\_

**OR**

Use the following [link/QR](https://forms.gle/53etstxvXv4QbDPw7) code for registration.

<https://forms.gle/53etstxvXv4QbDPw7>



### Address for Communications

**Dr. Manoj Masanta,**

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## ABOUT US

**National Institute of Technology (NIT)**, Rourkela, was founded as Regional Engineering College, Rourkela, in 1961, and declared as an institution of national importance by the act of parliament in 2007. The mission of the institute is to become an internationally acclaimed institution of higher learning that will serve as a source of knowledge and expertise for society and be a preferred destination for undergraduate and postgraduate studies. It is a prestigious Institute with a reputation for excellence at both undergraduate and postgraduate levels, fostering the spirit of national integration among the students, close interaction with industry and a strong emphasis on basic and applied research. NIT Rourkela has ranked 32nd, 15th, and 24th in NIRF Overall, Engineering and Research for the year 2022-23, respectively.



The **Mechanical Engineering Department** is one of the oldest departments being set up from the date of inception of the institute in the year 1961. The department offers five specializations under M. Tech degree and has more than hundred Ph.D. research scholars enrolled. The department is well equipped with infrastructure to meet the requirements of UG, PG courses and to carry out advanced level research work. The major area of research in the department are mechanical vibration, robotics, CAD/CAM, Composite materials, Tribology, advanced manufacturing processes, Surface Engineering, CFD, Industrial refrigeration and Cryogenics. The department at present has over one hundred research scholars in working on different areas. Many Research and Development projects sponsored by Government agencies and private industries like BRNS, DST, ARDB, BRFS, are being pursued by various faculties of the department.



**SHORT TERM COURSE  
ON**

**LASER BASED MANUFACTURING  
FOR FUTURE INDUSTRIAL DEVELOPMENT**

**During**

**21<sup>st</sup>- 25<sup>th</sup> July, 2023**

**[VIRTUAL MODE]**

*Coordinator*

**Dr. Manoj Masanta**

*Assistant Professor*

*Email: [masantam@nitrkl.ac.in](mailto:masantam@nitrkl.ac.in)*

*Co-coordinator*

**Dr. Balaji P. S.**

*Assistant Professor*

*Email: [psbalaji@nitrkl.ac.in](mailto:psbalaji@nitrkl.ac.in)*

**Organized by**



**Department of Mechanical Engineering**

**National Institute of Technology, Rourkela, Odisha-769008**

[www.nitrkl.ac.in](http://www.nitrkl.ac.in)

## Objective

Due to development of advanced materials, complex design in the product, miniaturization, and requirement of faster production, traditional methods of manufacturing are become inadequate. **Laser** as a heat source is utilized for processing of material, specifically those are difficult by conventional methods, and almost all types of manufacturing processes can be conducted using the laser technology.

The **objective** of the present course is to understand the basic concepts of the laser technology, i.e., working principle of laser generation, their characteristics, and different types of industrial laser. The course will elaborate the physical concepts, process characteristics, advantages and limitations along with examples of various laser based manufacturing processes, like, laser machining, laser welding, laser surface treatment, laser forming, laser shock peening and laser based additive manufacturing. Also a state-of-the-art description of newer and advanced applications of the lasers in industry will be discussed comprehensively. This course will be useful to the undergraduate and post graduate students, practicing engineers and researchers working in the field of manufacturing and metallurgy.

## Resource Persons

Academicians from IITs, NITs, and R&D Organizations having expertise in the relevant field will be invited as Resource Person for the workshop.

## Course content

The workshop will cover but is not limited to the following topics:

- ❖ **Basic concepts of laser (principle of laser generation)**
- ❖ **Different types of industrial laser and their characteristics**
- ❖ **Laser machining (cutting, drilling, 3-D machining, micromachining)**
- ❖ **Laser welding (welding of super alloys, ceramic, dissimilar materials)**
- ❖ **Laser surface treatment (surface hardening, alloying and cladding)**
- ❖ **Laser forming**
- ❖ **Laser shock peening**
- ❖ **Laser based additive manufacturing**
- ❖ **Laser based hybrid machining**

### Patron

**Prof. K Umamaheshwar Rao**  
Director (NIT Rourkela)

### Chairman

**Prof. Susanta Kumar Sahoo,**  
Head, Department of Mechanical Engineering

### Coordinator

**Dr. Manoj Masanta,**  
Department of Mechanical Engineering

### Co-coordinator

**Dr. Balaji P. S.,**  
Department of Mechanical Engineering

### Student Members

**Mr. Malaya Kumar Debta** (+91-8984046993)  
**Mr. Md. Aseef Khan** (+91-9748161658)  
**Ms. Payal Banarjee** (+91-7869736240)

## Important Guidelines

- ❖ Faculty members, Research scholars, PG students, Industry personnel, Technical Staff- members of different academic institutes are eligible to apply for the workshop.
- ❖ **Registration Fee (Including GST):**  
For Industry and R&D Personnel: **Rs.1000/-**  
Faculties/ Research Scholars/ Students/ Technical Staff : **Rs. 500/-**
- ❖ **Mode of Payment:**  
Online payment should be made in favor of:  
Account Name: **CONTINUING EDUCATION NIT ROURKELA**  
Payable Bank: **State Bank of India**  
Branch: **NIT Campus, Rourkela-769008**  
Account No.: **10138951784**  
IFSC Code: **SBIN0002109**  
MCIR No.: **769002007**  
SWIFT Code: **SBININBB137**
- ❖ **NB:**
  - Incomplete registration-form (without proof/details of online transaction) will not be considered.
  - Registration fee is non-refundable.
  - **E-Certificate** will be provided for the candidates attending all the sessions.
  - There is no registration fee for the participants from the host institute.
  - Online joining link(s) through Google-meet/ MS-Team will be shared **in due course.**
- ❖ **Last date of registration: 10<sup>th</sup> July 2023**