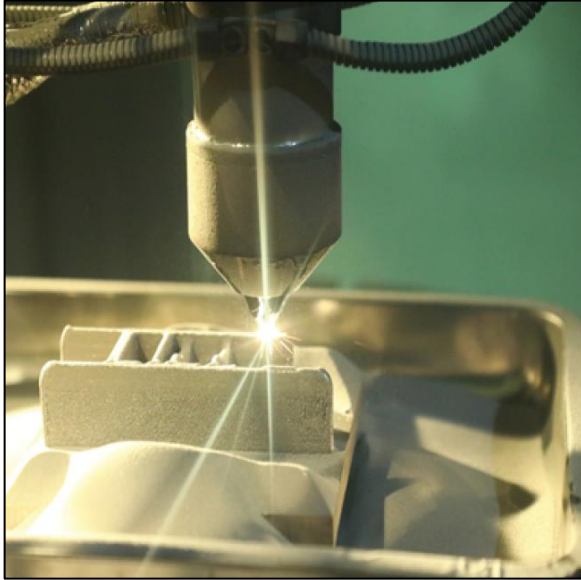


# INVITATION TO PARTICIPATE IN THE HYBRID 2<sup>ND</sup> INTERDISCIPLINARY GRADUATE SCHOOL IN LASER-BASED MANUFACTURING TECHNOLOGIES (IGSLbMT '23)

**Date:** 16 to 20 October 2023

**Venue:** Council for Scientific & Industrial Research/National Laser Centre (CSIR/NLC), Pretoria Campus, South Africa

**Target Audience:** Final year undergraduates, Masters & PhD students in the following Engineering fields: Industrial, Manufacturing, Metallurgical, Materials, Mechanical, Mechatronics, Aeronautical, Biomaterials/Biomedical Engineering.



## Description

Interdisciplinary Graduate School in Laser-based Manufacturing Technologies (IGSLbMT) is an intensive 5-day summer course aimed at providing postgraduate students with strong tutoring from the commencement of postgraduate programmes with a view to defining an optimised path throughout their research activities. IGSLbMT comprises of 10 lectures and three practical sessions aimed at helping participants to broaden their knowledge in:

- Lasers and optics and their use for materials processing
- Industrial hazards associated with laser processing and the international standards which need to be adhered to
- Laser-based Manufacturing Entrepreneurship in Africa
- Fundamental principles of laser-materials interactions laser cladding, laser welding and laser additive/subtractive manufacturing
- How process, materials and design parameters influence the quality characteristics of the laser processed components
- Characterisation and quality control issues in laser processed samples
- Modelling and simulations in laser materials processing
- LbM practical sessions: laser cladding, laser welding and laser metal deposition

## The lectures and the practical sessions are given by LbM experts from:

- Laser Enabled Manufacturing (LEM) Research Group, Council for Scientific & Industrial Research (CSIR), South Africa.
- Nelson Mandela University, South Africa.
- University of the Witwatersrand, South Africa.
- Botswana International University of Science & Technology (BIUST), Botswana.
- Jomo Kenyatta University of Agriculture & Technology (JKUAT), Kenya.

## Registration

To register for this event, each participant is expected to pay a registration fee of (i) **US\$300 for face-to-face** participation and (ii) **US\$100 for online** participation. All registration types include lecture/practical materials.

The registration fees are to be paid into:

Bank: **ABSA**

Acc. Name: **CSIR**

Acc No.: **540002258**

Branch Code: **632005**

Reference: **IGSLbMT23**

The registration deadline is **31 August 2023**.

Please use the link below to the registration page:

[REGISTRATION PAGE](#)

## Schedule of Activities

### 16 Oct 2023

1. Laser Safety
2. Lasers: Fundamentals

### 17 Oct 2023

3. Powder Metallurgy & Handling in LMP
4. Selective Laser Melting (SLM)
5. Laser Metal Deposition/Laser Cladding

### 18 Oct 2023

6. Laser Welding
7. Laser Shock Peening
8. Modelling and Simulation in Laser Materials Processing I

### 19 Oct 2023

9. Modelling and Simulation in Laser Materials Processing II
10. Characterisation and Quality Control Issues in Laser Processed Samples

Laser Materials Processing (LMP):

Practical 1 - Selective Laser Melting (SLM)

### 20 Oct 2023

Laser Materials Processing (LMP):

Practical 2 - Selective Laser Melting (SLM) Equipment refurbishment with laser metal deposition (LMD) technique.

Practical 3 - Characterisation of Laser Fabricated Samples.

## For further information contact:

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**Organised by Education for Laser-based Manufacturing (ELbM) Partner Institutions**

