

Overview of the Course

3D printing (3DP) is defined by the American Society for Testing and Materials (ASTM) F42 committee as the fabrication of objects through the deposition of a material using a print head, nozzle, or other printer technology. 3DP technology has primarily been developed for the manufacturing industry to assist in speeding up the development of new products, its vendors and users were quick to realize the technology was also suitable for applications in the medical field. Doctors and surgeons have always been looking for better ways to describe, understand and diagnose the condition of individual patients.

Diagnostic tools have become increasingly more sophisticated and the latest Computed Tomography (CT), Magnetic Resonance Imaging (MRI) and other medical imaging technology can now present patient data in many ways and with great clarity and accuracy. There are, however, many cases where doctors or surgeons might like to have a physical model in front of them rather than have to look at images on a computer screen. Before 3DP, such models could only be generic and were not necessarily useful to describe an individual condition. With 3DP there came a way to create such physically solid models of an individual directly from the 3D data output by the medical imaging system. From manufacturing of medical devices and creating customized implants and prostheses to surgical planning and education, 3DP can be applied to enhance medical applications and healthcare delivery.

Course Contents:

- ❖ Medical Scanning Technologies
- ❖ Medical Software Systems
- ❖ Diagnostic Models
- ❖ Surgical Planning Models
- ❖ Medical Devices
 - Implantable

- Non-implantable, tools, guides, etc.
- Support Devices (arm braces, etc.)
- ❖ Health Monitoring Devices
- ❖ Tissue Engineering
 - Bone Engineering
 - Soft Tissue
- ❖ Related Technologies
 - Sports
 - Rehabilitation
 - Devices for the Elderly



Prof. Ian Gibson is in the faculty of Deakin University, Australia. He is responsible for a number of initiatives aimed at promoting and supporting 3D Printing (3DP) research and development. He co-founded the Rapid Prototyping Journal, which remains the primary research publication in the field. He co-established the Global Alliance of Rapid Prototyping Associations, which provides leverage for 3DP-evangelists around the world. He has published widely, including 50 top journal papers, 3 books and more than 20 book chapters. He is probably most proud of the Additive Manufacturing book published through Springer that has been adopted by course managers in many universities. At Deakin he is extremely excited by the new and groundbreaking Centre for Advanced Design and Engineering Training, which aims to revolutionize the way to educate engineering students and prepare them for the industrial landscape of tomorrow.

Who can participate?

This program is open to the Faculty, PG and Research students of Mechanical Engineering and

Medical/Dental from various Institutes. Practicing Engineers/Surgeons from industries can also participate.

How to Register?

Stage-1: Web Portal Registration:

Visit <http://www.gian.iitkgp.ac.in/GREGN/index> and create login User ID and Password. Fill up the blank registration form and do web registration by paying Rs. 500/- online through Net Banking/Debit/Credit card. This provides the user with life time registration to enroll in any number of GIAN courses offered.

Stage-2: Course Registration:

Login to the GIAN portal with the user ID and Password already created in Stage 1. Click on Course Registration option at the top of Registration form. Select the Course titled “Medical Prototyping using 3D Printing” from the list and click on Save option. Complete your registration by clicking on ‘Confirm Course’.

REGISTRATION FEE:

Faculty (Internal & External) and Scientists from R&D Labs	Rs. 3,000/-
Persons working in Industry/ Consultancy firms	Rs. 6,000/-
Students & Research Scholars <ul style="list-style-type: none">• Without award of Grade• With award of Grade	Rs. 1,500/- Rs. 2,000/-
Students from abroad	\$ 50
Faculty/Scientists/Industry Persons from abroad	\$ 100

The Registration fee includes instructional materials, tutorials, laboratory and computer use and free internet facility. The participants will be provided with boarding and lodging in Visitors Block on twin sharing basis on additional payment of Rs. 4,000/-.

Selection and Mode of Payment

Selected candidates will be intimated through e-mail. They have to remit the necessary course fee to the Bank as per the details given below.

Outstation participants requiring Lodging and Boarding facilities have to pay Rs. 4,000/- in addition to the course fee.

Account Name	GIAN NITW
Account No.	62447453600
Bank	State Bank of India
Branch	REC Warangal (NIT Campus)
Branch Code	20149
IFSC	SBIN0020149
MICR Code	506002030
SWIFT Code	SBININBBH14

Candidates registering early will be given preference in short listing process.

For any queries regarding registration of the course and accommodation, please contact the Course Coordinators:

Dr. Y. Ravi Kumar

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About GIAN Course

MHRD, Govt. of India has launched an innovative program titled “Global Initiative of Academic Networks (GIAN)” in higher Education, in order to garner the best international experience. As part of this, internationally renowned Academicians and Scientists are invited to augment the Country’s academic resources, accelerate the pace of quality reforms and elevate India’s scientific and technological capacity to global excellence.

About the Institute and Warangal

National Institute of Technology, Warangal (NITW) formerly known as RECW is the first among seventeen RECs set up in 1959. Over the years, the Institute has established itself as a premier Institution in imparting technical education of a very high standard, leading to B.Tech, M.Tech and Ph.D. programmes in Science and Engineering streams.

Warangal is known for its rich historical and cultural heritage. It is situated at a distance of 140 km from Hyderabad. Warangal is well connected by rail and road. National Institute of Technology, Warangal campus is 2 km away from Kazipet railway station and 12 km away from Warangal railway station.

ABOUT THE DEPARTMENT

The Department of Mechanical Engineering was established in the year 1959. The Department offers one UG program and seven PG programs. The Department has experienced faculty and well-established laboratories. The Department has liaison with reputed industries and R&D organizations like NFTDC, BHEL, DMRL, DRDL, ARCI, Praga Tools GTRE, etc. Presently the Department is handling several R&D and consultancy projects. The Department has been recognized as QIP centre for M.Tech and Ph.D.



A Five Day

GIAN Course on

Medical Prototyping using 3D Printing

July 15 – 19, 2019

Call for Registration and Participation

International Faculty

Prof. Ian Gibson

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Deakin University, Australia

Course Coordinators

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