

Six Days TEQIP Workshop on 3D Printing in Medicine

July 16-21, 2018

1. Organizing Team:

Coordinator: Dr. Falguni Pati (Biomedical Engg)

Expert Faculty:

- (i) Prof. santanu Dhara (SMST, IIT Kharagpur)
- (ii) Dr. S. Suryakumar (Mechanical Engg., IITH),
- (iii) Dr. Subha Narayan Rath (Biomedical Engg., IITH),
- (iv) Dr. Jyostnendu Giri (Biomedical Engg., IITH),
- (v) Dr. Aravind Kumar Rengan (Biomedical Engg., IITH)
- (vi) Dr. Prasad S Onkar (Department of Design, IITH)
- (vii) Dr. Subhradeep Chatterjee (Materials Science & Metallurgical Engg., IITH)
- (viii) Experts from nearby Institutes and Hospitals

2. About The Workshop:

Medical applications for 3D printing are expanding very fast and every year, 3D printing put forward more and more promise in the medical field. This technology is abetting to save and improve lives in ways - and in places – that could not possible just a few years ago. Medical uses for 3D printing, both actual and potential, can be categorized into several broad classes, including: tissue and organ fabrication (bioprinting); creation of customized orthotics, prosthetics, and implants; development of anatomical and surgical models; and pharmaceutical research involving drug dosage forms, delivery, and discovery. The application of 3D printing in medicine brings in many benefits, including the customization and personalization of medical products, drugs, and equipment; cost-effectiveness; increased productivity; the democratization of design and manufacturing; and enhanced collaboration. However, it should be cautioned that outstanding scientific and regulatory challenges remain and the most transformative applications for this technology are yet to be fully realized. All the aspects of this field will be covered in this workshop with interactive lectures from experts, both from engineering and from medicals backgrounds and with few hands-on sessions.

Topics to be covered:

Introduction to 3D Printing; Introduction to CAD; Introduction to Various 3D Printing Technology; Emergence of 3D Printed Implants; Biomaterials for 3D Printing; Material Design and Processing; Application of 3D Printing for Different Medical Applications like Dentistry, Customized Implants and Prostheses, Anatomical Models for Surgical Preparation; Custom 3D-Printed Dosage Forms and Drug Delivery Devices; Ethical Issues related to 3D Printing for Medical Applications; Hands On Sessions On Various 3D Printing Techniques Like FDM, SLA, Extrusion-Based and Printing 3D Structures For Medical Applications.

