

This file has been cleaned of potential threats.

If you confirm that the file is coming from a trusted source, you can send the following SHA-256 hash value to your admin for the original file.

f61edb75d49fe43ea0dadeefd57ee9c6e478d3ae017b43b32b6914d196dee8cb

To view the reconstructed contents, please SCROLL DOWN to next page.



A SHORT TERM COURSE

TITLE: MEDICAL BIOTECHNOLOGY: FROM BENCH TO BED, A TRANSLATIONAL PERSPECTIVE

Overview:

This course is a split level course for undergraduate and graduate students who have background in basic chemistry and biology. This course is designed to introduce the common concepts and fundamental principles of biomedical engineering, material science, and chemistry to the students. Basic material properties and the interactions between materials and living tissues will be discussed. Materials and biological testing relevant to medical materials will be introduced. The concept of translational research will be emphasized by introducing development, testing and clinical applications of biomaterials.

Objectives:

Upon completion of this course, students will have better understanding of:

- 1) Translational research and the development of a global perspective on interdisciplinary issues (biology, materials science, chemistry and engineering) involved in biomaterials
- 2) Development and properties of commonly used materials in medicine
- 3) Host reaction to biomaterials and their evaluation
- 4) Biological testing of biomaterials (*in vitro* and *in vivo*)
- 5) Applications of biomaterials
- 6) Commercialization and legal aspects of biomaterials
- 7) Importance of team work and effective communication of ideas

Timeline: July 5-8th, 2016

Course Coordinator: Prof. Sudarsan Neogi
Department of Chemical Engineering
IIT Kharagpur

Teaching Faculty:

Name: Prof. Hitesh Handa
University of Georgia, USA
Email: handa@uga.edu



Course details:

Lecture 1: Properties of materials: Course introduction, introduction to biomaterials, market evaluation of biomaterials

Lecture 2: Classes of materials used in blood contacting device applications: Various materials used for medical applications including: Polymers, metals, ceramics, glass, natural materials and hydrogels, biodegradable materials, non-fouling surfaces, surface patterning, nanoparticles etc.

Lecture 3: Host reactions to biomaterials: Surface interactions with proteins, blood, bacteria, and tissues. Introduction to biological response to biomaterials and inflammation, toxicity, biocompatibility, blood-surface interactions, device related infections, blood coagulation cascade

Lecture 4: Characterization of blood-contacting biomaterials: Common physical/surface characterization techniques including AFM, SEM, plate assays, flow testing, etc.

Lecture 5: Surface modifications of materials for medical applications: Surface and bulk immobilization, heparin coated materials, nitric oxide releasing materials.

Lecture 6: Common in vitro and in vivo testing methods: Various *in vitro* methods used test blood contacting biomaterials. Common animal models will be discussed.

Lecture 7: Common blood-contacting device applications: Cardiovascular medical devices such as vascular catheters, stents, vascular grafts, extracorporeal artificial organs, etc.

Who can attend?

This course is designed for B.Tech / M.Tech / PhD students of Chemical, Biomedical Engineering and Medical students (with special interest), who are likely to be benefited by learning the fundamental aspects of Medical Biotechnology. Research Associates from reputed academic institutions and technical institutions are also welcome.

Course Registration Fees

Academic Institutions:

Teachers: Rs. 5,000/-

Students: Rs. 2000/-

The above fees include all instructional materials, computer use for tutorials, 24 hr free internet facility.

The course fee is **non-refundable** and does not include fooding and lodging.



Travel and Accommodation:

No TA will be reimbursed.

Accommodation on sharing basis will be arranged in various hostels in the campus as per availability. Participants will have to bear their own expenses.

Certificate:

The participants will be provided certificates on successful completion of the programme.

How to Apply:

- (a) Interested persons may apply in the form given herewith along with the course fee in the form of demand draft drawn in favour of 'CEP-STC, IIT Kharagpur', payable at Kharagpur.
- (b) The application should be sent to the mailing address of the course coordinator latest by June 30, 2016.
- (c) The total number of seats in this course is limited. In view of the limited seats, selection will be made on first come first serve basis.

Important Dates:

Last Date of Receiving Applications : June 30, 2016

Last Date of Intimation to Applicants : July 1, 2016

Course Duration : July 5-8, 2016


Address for Correspondence:

Prof. Sudarsan Neogi, Course Coordinator
Department of Chemical Engineering
Indian Institute of Technology, Kharagpur
Kharagpur-721302, West Bengal, India

Tel: +91-3222-283936 (Office)

Mob: 09474618791

Email: sneogi@che.iitkgp.ernet.in



Short Term Course Application Form

on

Medical Biotechnology: From Bench to Bed, A translational Perspective (5 – 8th July, 2016)

| | |
|--|--|
| 1. Name : | |
| 2. Gender: M/F : | |
| 3. Designation : | |
| 4. Institute/Organization : | |
| 5. Highest Academic qualification : | |
| 6. Address : | |
| 7. Phone : | |
| 8. Mobile No. : | |
| 9. Email : | |
| 10. Accommodation required : Yes/No : | |
| 11. DD No. : | |
| 12. Date of Issue : | |
| 13. Issuing Bank and Branch : | |
| 14. Date of Arrival : | |
| 15. Arrival Time : | |
| 16. Date of Departure : | |
| 17. Departure Time : | |

I agree to the Terms & Conditions which is given here and I declare that the above information is correct to the best of my knowledge and belief.

Date :

Signature of Applicant