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## Short Term Course (STC)

# Biophysics & Biochemistry for Engineers

July 24 - 26, 2017

*Course Coordinator*

**Dr. Debashis Panda**

Assistant Professor  
Division of Science & Humanities

Rajiv Gandhi Institute of Petroleum Technology  
*Institute of National Importance, GOI Act 54/2007*

Bahadurpur, Harbansganj  
Jais, Amethi (U.P.)-229304

**About Coordinator:** Dr. Debashis Panda received his M.Sc. and PhD degree in Chemistry from IIT Bombay. He pursued his postdoctoral research at Cornell University, USA, and thereafter at Waseda University, Tokyo. He worked extensively on Biophysics and Biochemistry. His research works had been published in more than twenty high impact international journals, which were cited by others for more than 500 times. He has several accolades as well, Best Research Scholar of IIT-Bombay (2007), Japan, Society for the Promotion of Science (JSPS) fellowship.

**COURSE DATE & VENUE:** The course will be conducted during July 24 – 26, 2017 at Lecture Hall.

**FACULTY:** The Faculty constitutes Dr. Debashis Panda (Coordinator), Division of Science & Humanities, RGIPT and other Faculty from RGIPT and or nearby Institutions.

**BROAD OBJECTIVES:** The short term course is intended to train the engineers of PSUs, private companies for understanding the modern bioscience and its relevance to energy sector. And it also intends to train faculty members of companies/engineering colleges for developing a bioscience course for the B. Tech students, who will pursue their studies in different branches of engineering. The course content assumes that participants have an exposure to CBSE 10+2th grade Physics, Chemistry and Mathematics.

**ELIGIBILITY:** Engineers in Industry, Faculty members of engineering colleges are eligible to attend the course. Engineers/Faculty member should have exposure to Physics, Chemistry, and Mathematics at 10+2 level.

**REGISTRATION:** All short-listed candidates are required to confirm their participation by sending a Demand Draft of **Rs. 4,000/-** in the favor of “Rajiv Gandhi Institute of Petroleum Technology” along with registration form. Total 40 candidates will be short-listed.

**LAST DATE for APPLICATION:** July 13, 2017.

- Notification of acceptance: July 15, 2017
- Duly-filled application forms is desired.

Completed registration form should be sent to the following address:

Dr. Debashis Panda  
BBE course Coordinator  
Rajiv Gandhi Institute of Petroleum Technology  
Institute of National Importance  
Bahadurpur, Harbansganj  
Jais, Amethi (U.P.)-229304  
Phone: +91 7081759754  
Email: dpanda@rgipt.ac.in

**ACCOMODATION:** Participants have to reach RGIPT campus on 24th July, 2017 at 8:30 AM. Boarding and lodging will be provided in the students Hostels only for participants. For mess facility & accommodation, they have to pay extra Rs. 4000/-.

**INTRODUCTION:** Mimicking of biological systems are now ubiquitous in modern day science. Biological systems are intuitively complex, however, highly automated & still regulated through molecular machines. Design & development of highly automated systems are the need of the hour for a developing countries. This lays out the foundation of the mutual dependence of modern biology and engineering/technology. Advances in engineering and technology in areas such as instrumentation has allowed scientist/engineers to ask and answer questions not even imagined of earlier. Today, understanding of bioscience is highly required for engineers working in energy industry or health services. Demand of both energy and health care devices in our country is going every day. Moreover, it is also desired to educate young minds an introductory bioscience course in the curriculum of engineering courses.

**WHO SHOULD CARE:** The course would benefit many across various disciplines of science and engineering. It is of interest to engineers, scientists, serving teachers and researchers. Engineers/researchers/policy makers in the areas of chemistry, chemical engineering and energy science/engineering, physics, agriculture, material science, medical and pharmaceutical sciences, health care, biology, etc. will find this course useful.

**COURSE CONTENTS:** This short-term course is divided into four parts.

- The first part of course will be introductory biology, which will focus on the components building a cell such as nucleus, mitochondria, Golgi, cytoplasm, etc.
- The second part of the course will be on understanding of Molecular Biology which will bring forth Biopolymers & Biomolecules such as Protein, DNA, Carbohydrates, Lipids, etc.
- The third part of the course will cover the spectroscopic and microscopic methods used in modern molecular biology. Experimental methods include UV-Vis Spectroscopy, Fluorescence Spectroscopy, Mass Spectroscopy, NMR Spectroscopy, Optical Microscopy (TIRF, Confocal), Atomic Force Microscopy, and Transmission Electron Microscopy.
- The last part of the course is to carryout couple of spectroscopic & microscopic experiments to get a hands-on experiments of state-of-the art equipment.

For further details, please visit:

<http://www.rgipt.ac.in/>

**LECTURE NOTES:** Hard copies of the lecture notes/presentations will be made available to participants at the end of lecture/presentation.

**COURSE EVALUATION:** Successful participants would be awarded "Course Completion Certificate".

## REGISTRATION FORM

Short Term Course on BIOPHYSICS & BIOCHEMISTRY FOR ENGINEERS July 24 - 26, 2017

Name\* (in block letters):

\_\_\_\_\_

Gender:

M/F\_\_\_\_\_

Designation\*:\_\_\_\_\_

Organization\*:

\_\_\_\_\_

Mailing Address\*:

\_\_\_\_\_

Telephone Number :

(Office)\_\_\_\_\_

(Residence)\_\_\_\_\_

FAX : \_\_\_\_\_

Mobile Number\* :\_\_\_\_\_

Email\*:\_\_\_\_\_

Educational

Qualifications\*:\_\_\_\_\_

Discipline/Specialization\*:\_\_\_\_\_

Accommodation Required\*: YES / NO

Signature of Applicant\*:

**Sponsorship and Signature of Head of the College / Institute (with date and seal)\***