

INTRODUCTION

The proposed programme aims at enhancing the knowledge base of the academicians and practicing engineers to handle the complex models in dynamic systems such as automobiles and robots. The programme provides an excellent opportunity to gain hands-on experience on software tools such as: ADAMS and LabVIEW through lectures and case-study discussions.

PROGRAMME CO-ORDINATORS

Dr.J.Srinivas and Dr.A.Mitra,
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PROGRAMME OBJECTIVES

In order to meet the challenges of fast development of the new technologies, many areas of contemporary engineering and applied sciences combine their methodologies and merge together to provide new analytical and computational tools. This is evident in the area of multibody system dynamics, a branch of computational mechanics dealing with modeling principles and numerical methods for dynamic analysis, simulation and control of various complex mechanical systems. By having its origin in analytical and continuum mechanics, as well as in computer science and applied mathematics, modeling methodologies and computational procedures of multibody system dynamics provide a basis for dynamic analysis and virtual prototyping of innovative applications in many fields of contemporary engineering. Multibody system dynamics delivers reliable simulation platforms for diverse industrial products such as vehicle and railway systems, aeronautical and space-vehicles, robotic manipulators, autonomous systems, smart structures, biomechanical applications and nanotechnologies. Multibody system dynamics is a very active research field. The objective of the course is

- to present state of the art in the theory and applications of multibody system dynamics,
- to provide a platform for hands-on-experience in related computer software such as ADAMS.

BRIEF PROGRAMME CONTENT

1. Basic tools and Concepts
2. Rigid body dynamics
3. Concept of analytical dynamics
4. Variational energy principles.
5. Constrained Dynamic systems
6. Flexible multibody dynamics
7. Analysis & Optimization tools.
8. Applications for mechanisms and machines.
9. Multibody dynamics with ADAMS-VIEW and EASY-5.

RESOURCE PERSONS

Relevant lectures will be delivered by experts from IITs, NIT-Rourkela and other premier institutions/industries. Laboratory sessions will be handled carefully.

TARGET AUDIENCE

The programme is designed for academicians and industrialists working in the area of computational design and dynamic analysis issues of various mechanical, structural and aeronautical engineering streams. As one of important strategies of CAD, the computer-aided evaluation using virtual prototyping plays an important role in several sectors. With basic knowledge of dynamics principles, the course leads the audience finally to utilize the tools for digital mock-up kinematics to analyze simple to complex mechanisms. Thus, a pre-requisite for this course is knowledge of basic vector mechanics and theory of kinematics and dynamics. Audience will be trained to utilize the modern software tools in such design and analysis tasks.

FACILITIES AT THE DEPARTMENT

Department of Mechanical Engineering, NIT-Rourkela is one of the oldest departments and offering M.Tech (in four streams) and B.Tech programmes. It has a separate computational laboratory equipped with licensed software tools such as ADAMS, SOLIDWORKS as well AutoDesk-Inventor and ANSYS. The department has a seminar hall and good number of laboratories.

HOW TO APPLY

Interested participants can submit their applications to the Co-ordinator(s) in the attached format along with crossed-demand draft of the following amount favouring 'CONTINUING EDUCATION', payable at Rourkela on or before 30th Nov 2013.

Scientists and professionals from industry :Rs.5000/-
Faculties from AICTE approved institutions :Rs.3000/-
Research scholars and P.G.students :Rs.1000/-

The fee includes working lunch, tea and snacks as well as course material.

ACCOMMODATION

Boarding and lodging for outstation participants will be arranged in the institute guest house at nominal prices. Participants are requested to intimate their confirmation well in advance and may schedule their travel.

HOW TO REACH ROURKELA

Rourkela is mainly a steel-plant city and is well connected through various parts of the country by rail and road services. NIT campus is located inside the steel plant sectors and is 9 km away from main city railway-station. Auto rickshaw/taxi can be hired from station to the campus. The communication languages include: odia and hindi. Weather is quite comfortable and chilly during this time.

IMPORTANT DATES

Last date of registration : 30th November, 2013
Selection Intimation : 05th December, 2013
(Through E-mail)
Course Dates : 09th -13th December 2013

CEP SHORT TERM COURSE ON

PRINCIPLES AND COMPUTATIONAL
TECHNIQUES IN MULTIBODY DYNAMICS
(9th-13th December 2013)



APPLICATION FORMAT

1. Name: _____
2. Designation/Dept. _____
3. Organization: _____
4. (i) Address for communication:

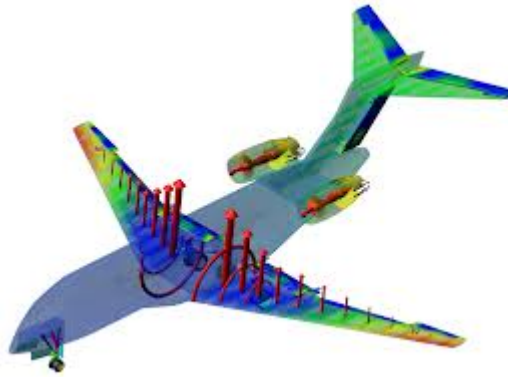
- (ii) Phone/Fax: _____
- (iii) E-mail: _____
5. Highest Academic Qualification: _____
6. Years of Experience: _____
7. Paid accommodation required at NIT-RKL? Yes/No
8. Enclosed crossed bank draft
(i) No: _____
(ii) Dated: _____
(iii) Bank details: _____
In favour of 'Continuing Education', payable at SBI,
NIT campus branch, Rourkela (Code: 2109)
9. Any other relevant information which you may like to
mention? _____

Place
Date

(Signature of participant)

Address for Communication

Dr. J. Srinivas and Dr. A. Mitra
Department of Mechanical Engineering,
NIT-Rourkela - 769 008, Odisha.
Ph: 0661-2462503, 2517



ORGANIZING COMMITTEE

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Prof. A. MITRA
Department of Mechanical Engineering,
NIT-Rourkela

SHORT TERM COURSE

ON

PRINCIPLES AND
COMPUTATIONAL TECHNIQUES
IN MULTIBODY DYNAMICS

(For faculty members, graduate students and research
scholars)

(9th-13th December 2013)



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