GLOBAL INITIATIVE ON ACADEMIC NETWORK (GIAN)
Ministry of Human Resources Development
Government of India

10 DAYS COURSE ON

Finite Element Method Applied to Heat Transfer and Fluid Dynamics and Mechanics of Composite Structures

25th July – 5th August 2016

Venue

JNTUH College of Engineering Hyderabad
Kukatpally, Hyderabad - 500085

About GIAN:

Govt. of India approved a new program titled Global Initiative of Academic Networks (GIAN) in Higher Education aimed at tapping the talent pool of scientists and entrepreneurs, internationally to encourage their engagement with the institutes of Higher Education, viz., all IITs, IIMs, Central Universities, IISc Bangalore, IISERs, NITs and IIITs subsequently cover good State Universities where the spinoff is vast. The GIAN *www.gian.iitkgp.ac.in* may be visited for detailed information.

Overview

The Finite Element Method (FEM) is a numerical and computer-based technique of solving a variety of practical engineering problems that arise in different fields, such as the automobile, aerospace, atmospheric sciences, chemical, pharmaceutical, petroleum, electronics and communications, as well as emerging areas like biotechnology, nanotechnology and information.

The course has two parts: Part A deals with an introduction to the finite element method as applied to heat transfer and other field problems. Part B is dedicated to the study of mechanics of laminated composite structures. The main topics of the modules are presented as follows:

Module A: Finite Element Method in Heat Transfer and Fluid Dynamics: July 25 – July 29
Main Topics:

- Basics of Fluid flow and basic concepts of FEM
- Numerical formulation and methods of approximations
- Treatment of Heat Conduction under steady and transient conditions and variable properties
- Viscous incompressible flows and treatment of Pressure
- Treatment of Turbulence Models
- Coupled heat transfer and fluid flow problems

Module B: Mechanics of Laminated Composite Structures :Aug 01 – Aug 05
Main Topics:

- Introduction to composite materials and structural theories and analytical solutions for bending, vibration and buckling
- Finite element modeling of beams, laminates and FGM structures
- Modeling of Piezo laminates and smart materials

The Course will have a strong emphasis on solving several numerical examples. There will also be strong emphasis on programming aspects of FEM.

Number of participants for the course will be limited to fifty.

Benefits of Attending the Course:
Persons who have attended the course and followed the material should benefit in strengthening their background in the areas of generation of finite element data, imposition of boundary conditions, post computation of stresses and strains, etc., exploitation of problem symmetries, and interpretation and evaluation of the results by the development of finite element model development of the equations of engineering and applied science

Who should attend:
This course is intended to provide graduate students, teachers, and researchers working in aerospace, automotive, chemical, civil, mechanical engineering, and applied mathematics, and engineering physics. **For the participation in the course, registration with GIAN is mandatory.**

Registration to the portal is one time affair and will be valid for lifetime of GIAN. Once registered in the portal, an applicant will be able to apply for any number of GIAN courses as and when necessary. One time Non-refundable fee of Rs. 500/- is to be charged for this service. For registration, the website is: *www.gian.iitkgp.ac.in/GREGN/index*

Course Fee:

The participation fees for taking the course is as follows:

Participants from abroad (For both the modules) : US $500

Industry/ Research Organizations:

Any one of two modules : Rs. 10000/-

Both modules : Rs. 15000/-

Academic Institutions:

Any one of two modules : Rs. 5000/-

Both modules : Rs. 10000/-

Students of Constituent Units of JNTUH

Any one of two modules : Rs. 1000/-

Both modules : Rs. 2000/-

SC/ST students

Any one of two modules : Rs. 500/-

Both modules : Rs. 1000/-

There will be a concession of 50% of the fee for the faculty working in the constituent and affiliated colleges of JNTUH. The above fee include all instructional materials, computer use for tutorials and assignments, laboratory equipment usage charges, 24 hr free internet facility, Tea, Snacks, Lunch. The participants will be provided with accommodation on payment basis.

Important Dates:

Last date for receiving applications: 11-07-2016

Course Dates 25th July – 05th Aug 2016

Evaluation and Grading

There will be evaluation at the end of each module on the understanding of the concepts by the participant made during the course. Based on the evaluations finally a letter grade will be awarded to the participant. A completion certificate shall also be issued.

The Faculty

Prof JN Reddy is a Distinguished Professor and inaugural holder of the Oscar S. Wyatt Endowed Chair in Mechanical Engineering at Texas A&M University, College Station, Texas, USA. Prof Reddy has authored over 450 journal papers and 16 text books on theoretical formulations and finite-element analysis of problems in solid and structural mechanics (plates and shells), composite materials, computational fluid dynamics, numerical heat transfer, and applied mathematics. He is internationally known for his research on mechanics of composite materials and for computational methods. The shear deformation plate and shell theories that he developed and bear his name in the literature are well known, and finite element models he developed have been implemented into commercial software like ABAQUS, NISA, and HYPERFORM. Such an eminent record of research has earned Prof Reddy numerous national and international awards, including the Charles Russ Richards Memorial Award and the Worcester Reed Warner Medal of the American Society of Mechanical Engineers. Prof Reddy presented the prestigious 'The 2009 Landis-Epic Lecture' at the University of Pittsburgh, and received Honoris Causa, Honorary degree, from the Technical University of Lisbon, Portugal. Dr JN Reddy can be contacted by email on jn_reddy@yahoo.com and jnreddy@tamu.edu

Prof J Suresh Kumar is currently working as professor of mechanical engineering and had nearly 20 years of teaching experience in the field of machine design, composite structures, finite element methods etc. He published 130 technical works in various national/ international journals/conferences. 10 students are awarded doctoral degrees under his guidance and presently 10 more students are pursuing their Ph.D. work under his supervision.

Dr. P Bhramara is presently working as Associate Professor in the Department of Mechanical Engineering, JNTUHCEH. She has 16 years of teaching experience. Her research publications are essentially in the field of modeling of two phase flows using CFD analysis in horizontal pipe, two phase heat transfer, nanofluids and CFD analysis of Squirrelcage fans for inlet parameters. She is the recipient of many research projects.

About the Institute:

JNTUH College of Engineering Hyderabad, Kukatpally, Hyderabad since its inception in the year 1965 earned great reputation and fame not only in India but also all over the world. In 2008, when JNTU is divided into four universities by the Ordinance of the Govt. of A.P., the college is retained as a constituent college of JNT University Hyderabad and was renamed as JNTUH College of Engineering Hyderabad.

Contact Information:

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