Short Term Course
on
Composite Materials:
Theory and Applications (CMTA' 19)

January 03 – 10, 2019

REGISTRATION FORM

Name: _____

Academic Qualification: _____

Designation: _____

Organization: _____

Mailing Address: _____

Telephone: _____

Fax: _____

Mobile: _____

E-mail: _____

Registration fee details:

Amount: _____

D.D. No.: _____

Date: _____

Bank: _____

Branch: _____

Accommodation Requirement: YES / NO

Date: Signature of the Applicant

I agree to abide by the rules of the course. If selected, I shall participate in the course for the entire duration.

voids and resin rich regions. Analysis of the behaviour of laminae under conditions of plane stress. Application of the transformation of stresses and strains within a lamina.

Macromechanics of composite materials: Knowledge of the concept of macromechanics and its relationship to micromechanics. Comprehension of the concept of composite laminate and differentiation between lamina and composite laminates. Comprehension of the development of the classical lamination theory and its application to fibre-reinforced composites for determination of constitutive proper ties. Analysis skills of composite laminates using classical lamination theory for calculation of stresses and strains.

Failure analysis of composites: Knowledge of strength of laminated composite materials, failure mechanisms and failure criteria. Application of failure criteria to composite materials and Structures design.

Course duration including tutorial : 35 hours

Important Dates

Last date for registration : December 29, 2018
Course Date : January 03 to 10, 2019

Registration Fee

For participants from industry : INR 10,000/-
For participants from academic institutions : INR 6,000/-
For Research Scholars : INR 4,000/-
(Registration fee includes, course material, lunch and snacks)

Application

Please fill out the Registration Form and send it before the date indicated along with DD in favour of "Mechanical Engineering Association" payable at Chennai.

For Registration:
https://goo.gl/atoxrR

Contact:

Dr. M. Kamaraj / Mr. A. Vinoth
Associate Professor / Assistant Professor
Department of Mechanical Engineering
SRM Institute of Science and Technology
Kattankulathur 603203
Kanchipuram District, Tamilnadu, India
Tel. : + (91) 044 - 27452270 - 7863 Ext.
Mobile : +(91) 9962189209, 9842788830
E mail : kamaraj.m@ktr.srmuniv.ac.in
vinoth.a@ktr.srmuniv.ac.in

SRM
INSTITUTE OF SCIENCE & TECHNOLOGY
(Deemed to be **University** *u/s 3 of UGC Act, 1956)*

Short Term Course on

COMPOSITE MATERIALS: THEORY AND APPLICATIONS (CMTA' 19)

January 03 – 10, 2019

Course Faculty

Prof. DEBES BHATTACHARYYA
Distinguished Professor
Department of Mechanical Engineering and
Director of the Centre for Advanced Composite Materials, University of Auckland,
New Zealand

Convener

Dr. S. PRABHU
Professor and Head
Department of Mechanical Engineering

Coordinators

Dr. M. Kamaraj, Associate Professor
Mr. A. Vinoth, Assistant Professor
Department of Mechanical Engineering
SRM Institute of Science and Technology
Kattankulathur, Kancheepuram (Dt.)
Tamil Nadu – 603203
www.srmuniv.ac.in

Biographical Sketch of Professor DEBES BHATTACHARYYA

Professor Debes Bhattacharyya is a Distinguished Professor in the Department of Mechanical Engineering and has been the founding Director of the Centre for Advanced Composite Materials at the University of Auckland. In 2016, he was felicitated as the Dr. A. P. J. Abdul Kalam Professor by SRM University in Chennai, India. He also holds an Adjunct Professor position at Washington State University, Pullman, USA. Professor Bhattacharyya was the Head of Mechanical Engineering Department from 1999 to early 2005. His research interest includes the mechanics and manufacturing of composite materials. He has held visiting positions at various universities in Australia, Canada, Germany, Hong Kong and the US, and has been awarded a number of international awards. He has delivered > 60 keynote/plenary/invited lectures at international conferences. He is currently the Editor (2) and Associate Editor (1) of three international journals and has served/is serving on the Editorial Advisory Boards of eight journals. Prof. Bhattacharyya has more than 450 scientific/technical publications including several edited/authored books and a number of book chapters. He has successfully implemented several international patents. He is a Fellow of the Royal Society, NZ and a Distinguished Fellow of the Institution of Professional Engineers NZ (IPENZ). He is a life member of ASME. For his international academic achievements he has been awarded an honorary 'Doctor of Engineering' (honoris causa) by the University of Southern Queensland, Australia. In 2012, he was awarded by IPENZ the Supreme Technical (John Cranko) Award for his professional contributions. He is a member of the Executive Council and past President of the Asian-Australasian Association of Composite Materials. He has done extensive consulting in New Zealand and overseas, and has chaired or served on many panels in New Zealand and Australia. He has been involved in the supervision of more than 110 postgraduate students including about 62 PhD candidates. He has overseen 18 postdoctoral fellows/research associates. He has served as the Reviewer/Assessor for more than 35 international journals and organisations in Australia, Bulgaria, Canada, Hong Kong, Poland, Singapore & NZ. He has been the founding Director of Centre for Advance Composite Materials (CACM) until recently and has raised as The Principal Investigator about $45M from both private and public sources in NZ and overseas – has established collaborative partnerships with several organisations in Australia, Canada, China, Germany and the US. He served on three government panels (one as Chair and two as Member) in Australia to evaluate the performances of major research centres.

TEACHING

Professor Bhattacharyya has always been a dedicated teacher introducing, coordinating and teaching multiple courses at the undergraduate and postgraduate levels. For his undergraduate teaching he has been on the Dean's Top Teacher list seven times. He has been involved in the supervision of about 100 postgraduate students including 60 doctoral candidates, many of whom have been very successful in the academic/industrial positions around the world.

RESEARCH INSPIRATION & MANAGEMENT

Professor Bhattacharyya has successfully inspired a group of researchers and has played the leader's role in establishing composites research at the University of Auckland. Starting from a modest background he formally established the Centre for Advanced Composite Materials (CACM) in 2004 with impressive research facilities, which has currently about 50 researchers. Within a reasonably short period of time CACM has received significant national/international recognition with projects coming from NZ, Australia, Canada, France, Germany, India, Japan, Malaysia, Norway, Sweden, UK and USA. More than 300 undergraduate and postgraduate students have done their research at CACM with a significant number of international students completing their degrees. The Centre is in high demand for international internship and well-known researchers have spent their time at this facility. Professor Bhattacharyya has also been inspirational to his younger colleagues and has successfully helped them in establishing themselves in their professional activities. Since 2000 alone he has supervised Eleven Postdoctoral Fellows and nine Research Associates of various nationalities.

ABOUT THE INSTITUTION

SRM Institute of Science and Technology (Formerly known as SRM University) is one of the top ranking University and most premier engineering destinations in India. It is established in 1985 by the Founder Chancellor Dr. T. R. Paarivendhar. SRM IST is functioning in four campuses located at Kattankulathur, Vadapalani and Ramapuram in Tamilnadu and a fourth campus at Modi Nagar, Ghaziabad with over 50,000 students and 3,200 faculty members , offering wide range of undergraduate, postgraduate and doctoral programs in Engineering, Management, Medicine & Health Sciences, Law and Science & Humanities. The Institution has moved up through international alliances and collaborative initiatives to achieve global excellence. Over 150 students sponsored to 35 foreign Universities like MIT, Carnegie Mellon, UC Davis, Warwick and Western Australia. Now the Institute enjoys an unsurpassed reputation in academic and corporate circles being the preferred manpower source for vision to be recognized as a world - class learning institution. SRM IST has been placed as category A by Ministry of Human Resource Development (MHRD); Government of India. SRM IST is accredited by **NAAC with A++ Grade** in the year 2018 and has been classified as category I university under section 12B by UGC. QS-IGAUGE has awarded SRM IST with a Diamond university rating and also it has been awarded a Four Star rating by Quacquarelli Symonds ('QS')

ABOUT THE DEPARTMENT

The Department of Mechanical Engineering is one of the pioneering departments of SRM IST. The present faculty strength is 137. About 500 research papers have been published in international journals and about 700 papers in international / national conferences. The department is functionally divided into three areas of specialization: (i) Design, (ii) Manufacturing and (iii) Thermal Engineering. The National Board of Accreditation had accredited the Mechanical Engineering program in 1997, itself. The Mechanical Engineering department at Kattankulathur campus is accredited by Engineering Accreditation Commission of ABET, USA (www.abet.org). The department also offers Doctoral programs in these three areas of specializations.

The following were the salient workshops and conferences conducted by Mechanical Department: Short Course on Mechanics of Composite Materials and Structures: 2015, Workshop on Development, Manufacturing and Analysis of Advanced Composites, 2015 and short course on FEM, 2015, National Conference on Advances in Mechanical Engineering (NCAME 2016), Brain Wave Robotics, 2017, International Conference on Advances in Mechanical Engineering (ICAME 2006 & 2018).

Various Research facilities available in the department are 51/2 axis CNC Machine, IRB 1410 robot, IRB 360 FlexPicker Vision ABB robot, wear and friction monitor Apparatus, thyristor controlled 64 – segment program electric furnaces, 7 Mill volt He – Ne with spatial filter, vision systems, computerized surface roughness tester, FARO portable CMM, Carl Zeiss CMM, six axes spine simulator, computerized IC engine test Rig, gas analyzer, Kistler Impact hammer, RPT, solar steam cooking plant and FMS systems, DSC, CFD, Stir Casting, Friction Welding, Composite Equipments.

COURSE CONTENT

Introduction to Composite Materials: Knowledge of overview of composite materials. An understanding of the basics of fibre reinforced composite materials.

Generalised Hooke's Law: Knowledge of constitutive stress strain relationships for orthotropic and transversely isotropic materials. Application and use of Hooke's law to composite materials.

Manufacturing of composite materials: Knowledge of different manufacturing techniques for processing and fabrication of composite materials in general, and with specific emphasis on fibre-reinforced composite products.

Micromechanics of composites: Knowledge of constituent materials of composites (fibres and polymers) and rules of mixtures. Comprehension of the factors affecting strength and stiffness including