Development, Mechanical Characterization and Applications of Advanced Composites

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Overview

Composite is one of the important material in this era and it has been used for long time. However, recent past the need of the composite is increasing day by day for various applications. There are different types of composites such as polymer matrix composite, ceramic matric composite and metal matrix composites. There are various types of reinforcements such as conventional fibers, natural fibers, micro and nano particles, carbon nanotubes and etc. These composites have several applications in aerospace, automobile, electronic, marine, nuclear industrial, energy field and etc. The present day challenge is fabrication of composite and selection of materials for intended appli-cation. The conventional fiber reinforced composite are so expensive and not eco-friendly, hence there is demand for new advanced materials to replace existing conventional material for various applications. In addition, there is a need to develop advanced composites for specific applications such as Electro- optical applications and for clean energy applications.

LearningOutcomes

At the conclusionof thiscourse,the participantsare expectedto:

i) Exposing participants to the fundamentals of composite materials.
ii) Assisting the participants to fabricate composite and measure the required properties
iii) Providing exposure to practical problems and their solutions, through laboratory sessions
iv) Providing the confidence to the participants to develop the advanced composite for the required application.

Modules	A: Introduction, classification and fabrication of Composite:Sep. 17, 2018 B: Metal matrix composite and nano composite : Sep. 18, 2018 C: Applications, Fabrication, Mechanical Characterization of Composite :Sep. 19,2018 D: Metal- Polymer Nano Composite and its Applications& Analysis of Composite:Sep. 20,2018 E: Advanced Composite and its applications:Sep. 21-22,2018 Numberof participants forthe coursewillbe limitedto Fifty(50)
YouShould Attendlf…	Executives, engineersandresearchersfrom manufacturing, serviceand government organizationsincludingR&Dlaboratories. Studentsatalllevels(B.Tech/MSc/M.Tech/Ph.D)orFacultyfromreputedacademicandtechnicalinstitutions.
Fees	**ForStudents from India:** Participationwithout grading:Rs. 1000/- Participationwith grading : Rs. 1500/- **ForFaculty/Scientists/Industry from India** Faculty (Internal &External) &Scientistsfrom R&DLabs:Rs. 3000/- PersonsworkinginIndustry / Consultancy firms : Rs. 4000/- **ForParticipants from abroad** Students : USD 50 Faculty/Scientists/Personsfrom Industry & Consultancy firms : USD 100 Theabovefeeincludeallinstructionalmaterials,computerusefortutorialsandassignments,laboratoryequipment usagecharges, 24 hrfreeinternet facility. The participantswill beprovidedwithaccommodation on paymentbasis.

The Faculty

1. Prof Sri Bandyopadhyay, UNSW Australia, Sydney

Prof Sri Bandyopadhyay is confidentially CATEI ranked by UNSW Australia relevantstudents as the Best Teaching Performer in UNSW Australia's a) School of Materials Science &Engineering, b) Faculty of Science, and c) the entire UNSW Australia. Professor Sri Bandyopadhyay is also a high class researcher in the fields of composites and nanocomposites. In 2013 August, Australia's Campus Review management selected him as 1 of Top 5 Australian Innovators for his re-invention of coal power fly ash. Sri Bandyopadhyay is also the originator / chair of the world's one of the best brand of composites conferences known as **ACUN** Conferences (Australia, Canad, USA, NZ) which happened on 6 occasions between 1999 and 2012 in UNSW and MonashUniversitiesAustralia. These **ACUN** conferences have been ranked by attending delegates from over 20 countries as among the 5 to 10 world conferences.

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2. Dr. G. Raghavendra,Department of MechanicalEngineering, NIT,Warangal,India(HostFaculty)

3. Dr.Kanmani Subbu,DepartmentofMechanical Engineering, NIT,Warangal,India(HostFaculty)

Steps for Registration

(i) Prospective participants have to register first on GIAN Portal (http://www.gian.iitkgp.ac.in/GREGN/index) by paying Rs. 500 /- (One time non-refundable GIAN Portal registration fee).

(ii) Then select the course from the list of courses available in the portal. Register for the course selected. Pay the Course fee as per the following detailsAccount Name GIAN NITW Account No 62447453600 Branch SBI, NIT Branch, Hanmakonda, and Warangal. IFSC code SBIN 0020149 for those who need food and accommodation in campus during the course, the extra amount to be paid is Rs2500/- . This amount includes accommodation (On shared basis in the Institute Visitors Block/International Students Hostel for five days and breakfast, lunch and dinner for six days.

CourseCo-ordinators

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http://www.gian.iitkgp.ac.in