ABOUT THE COURSE

The modern trend in selection of materials for high strength-weight ratio is governed by the growing need for low-cost high performance structures. The amount of material has a direct bearing on cost. Therefore the first step towards the cheapest structure is to minimise the weight without disproportionately affecting the fabrication cost.

Composite Materials and Structures" offers a foundational understanding of composite materials, including their components, mechanics, and various types of laminated panels used in civil, aircraft, and marine structures. It provides valuable insights for both students and industry professionals on fabrication techniques, design methodologies, and testing procedures related to composite materials. The course also delves into the behaviour of composite laminated panels under different static and dynamic loads, as well as the effects of environmental degradation, using experimental and numerical analyses. Additionally, it includes a case study on fiber-reinforced polymer decks for new construction and retrofitting approaches for building structures, to give professionals a practical understanding of real-world applications.

WHO SHOULD ATTEND

Engineers and scientists involved in the design, operation and assessment of composite structures and their associated equipment. Personnel from oil companies, consultancy organisations, classification societies and certifying authorities will benefit from attending this course.

COST

The registration fee of the workshop is £695 plus VAT (includes course notes)

PAYMENT

Payments can be made by cheque, cash or bank transfer. Please enquire for details.

CONTACT

ASRANet Ltd.
W: www.ASRANet.co.uk/courses
E: info@asranet.co.uk
T: 07764575990

ONLINE
Design of Lightweight Composites & Structures

16-17 March 2026

(A Maritime Company for Courses, Conferences and Research)

PROGRAMME

(All timings in GMT)

Monday 16th March 2026

09:00 - 10:30	Lecture 1: Introduction to Lightweight structures, Mechanics of Composite materials, types of Composite materials-I ***Prof. Chaitali Ray***
10.30 - 11:00	*Break*
11:00 - 12:30	Lecture 2: Introduction to Lightweight structures, Mechanics of Composite materials, types of Composite materials-II ***Prof. Chaitali Ray***
12:30 – 13:30	*Lunch*
13:30 - 15:00	Lecture 3: Fabrication and Testing of Composite Materials-I ***Dr. Dhiraj Biswas,***
15:00 - 15:30	*Break*
15:30 - 17:00	Lecture 4: Fabrication and Testing of Composite Materials-II ***Dr. Dhiraj Biswas***

Tuesday 17th March 2026

09:00 - 10:30	Lecture 5: Behaviour of Composite Materials and Structures-I ***Dr. Dhiraj Biswas***
10:30 - 11:00	*Break*
11:00 – 12:30	Lecture 6: Behaviour of Composite Materials and Structures-II ***Dr. Dhiraj Biswas***
12:30 – 13:30	Lunch
13:30 – 15:00	Lecture 7: Case Studies: New construction and Retrofitting-I ***Prof. Chaitali Ray***
15:00 – 15:30	*Break*
15:30 – 17:00	Lecture 8: Case Studies: New construction and Retrofitting-II ***Prof. Chaitali Ray***

ABOUT THE LECTURERS:

Professor Chaitali Ray, Indian Institute of Engineering, Science and Technology, Shibpur India

Dr. Chaitali Ray is a Professor in the Department in Civil Engineering, Indian Institute of Engineering Science and Technology, Shibpur, India. She is currently the Head of the Department of Civil Engineering. She received Doctoral degree in the Department of Ocean Engineering and Naval Architecture, IIT Kharagpur in 1998. She is involved in teaching and research over 26 years in the fields of Structural Engineering, Dynamics, Computational mechanics, Composite structures and Finite Element Method. Her current research area includes experimental and numerical modelling of laminated composite plates and shells, hybrid composites, biocomposites, hygrothermal analysis, experimental vibration, failure analysis of composite structures and finite element modelling of FRP Bridge deck. She has undertaken 6 research projects on composite structures. She has published 44 papers in peer

reviewed Journals, 42 Conference Papers including 5 Invited Talks and edited Book chapters with Pearson International Edition. She has produced 5 Phds and 1 is ongoing. She is presently handling a research project funded by ANSYS Inc. in a team of two faculty members and one post-doctoral fellow.

Dr Dhiraj Biswas, University of Oxford, UK

Dr. Dhiraj Biswas is currently working as a Postdoctoral Research Assistant in the Department of Materials at the University of Oxford. He obtained his Doctoral degree from the Department of Civil Engineering at the Indian Institute of Engineering Science and Technology, Shibpur, India in 2020. With over 10 years of experience in teaching and research, his expertise spans across Structural Engineering, Dynamics, Computational Mechanics, Composite Structures, and Finite Element Methods. Dr. Biswas's research focuses on experimental and numerical modelling of laminated composite plates and shells, hybrid composites, experimental vibration, failure analysis of composite structures, and finite element modelling. He has published 8 papers in peer-reviewed journals, 8 conference papers, and 1 book chapter. His current research involves multi-scale simulation-based modelling of ceramic matrix-based fibre-reinforced composites using continuum damage mechanics to account for time-dependent effects under in-service conditions. Notably, he has contributed to the development of a novel micromechanical characterization technique capable of predicting the elastic modulus and failure initiation stress of multi-phase Fiber Reinforced Plastic (FRP) composites using convolutional neural network (CNN) techniques during his tenure as a postdoctoral fellow at the University of Salford.