

A 3-day Short Course on

# Aircraft Structural Testing

## IIAEM

IIAEM is a collaborative venture between Jain University, SIATI, and leading Aerospace organizations, an initiative never attempted by other Universities. IIAEM has received overwhelming support from academic institutions, R&D laboratories and reputed organizations - like ISRO, HAL, AAI, NAL, Air India, Jet Airways, BIAL, CIAL and many others. Besides involving itself in cutting edge research, the Institute is striving to generate a pool of technical manpower skilled in Aircraft Design, Avionics, Aircraft Maintenance Engineering, Airport Infrastructure & Aviation Management at the UG, PG and Research levels. Within the next few years, the IIAEM is poised to develop into a world-class institution for aerospace research and education.

## SIATI

The Society of Indian Aerospace Technologies & Industries (SIATI) has made pioneering efforts in bringing industry, R&D centres both in India and abroad together to enhance self-reliance in aerospace technology and manufacturing. In addition to major aerospace players it has now about 300 small, medium and large scale private industries engaged in development and manufacture of aircraft structures, systems / equipment.

### Course Coordinators

**Shri. Ashok Kumar Sood**, Ex Chief Designer, ARDC- HAL & currently, Consultant with NAL, ADA & HCL Tech at Bangalore (Mob -9632033889, Email : aksood1949@gmail.com)

and

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24<sup>th</sup> Short Course jointly organized by

International Institute for Aerospace Engineering  
and Management (IIAEM)



and

Society of Indian Aerospace Technologies  
and Industries (SIATI)

from

10<sup>th</sup> (Thu) to 12<sup>th</sup> (Sat) December, 2015 from 9 AM to 5 PM

Venue: Aeronautical Society of India, Suranjandas Road &  
Old Madras Road Junction, (Opp. to HAL Engine Division &  
near to Byappanahalli Metro Station) Bangalore - 560 075

## About the Course

Structural Testing has always remained an integral part of the design, development & certification process for any aircraft program. Advances made in the structural materials and technologies as well as the need for optimized airframe structures viz-a-viz the roles & utilization requirements have only increased the complexities of testing. While computerization & development of special purpose softwares as well as simulation techniques have greatly helped the cause, the everlasting needs related to realistic and representative testing continue to present challenges for successful planning and execution of these tests.

This short course is aimed at presenting the participants with an overall coverage of all the aspects related to aircraft structural testing. Nature of the various tests involved as well as the associated loading & analytical / theoretical background will be covered. Planning of tests, design and development of the test facilities and rigs, test procedure & methodology basics will also be part of course. In addition, topics such as sensors, instrumentation, data acquisition & test controls which are backbone to any experimental program, will also be addressed besides familiarization with the in-service load measurement techniques. Specific illustrations, case studies & examples etc will reinforce the treatment of the topics.

## Faculty

Lectures will be delivered by the experts in the field and experienced professionals from Aerospace / Aircraft industries, Research and Development Laboratories, Regulatory Agencies etc.

## Who would benefit

Working Aeronautical / aerospace professionals from Aerospace Industry, IT Aerospace Solution Providers, Airworthiness Professionals, Design & R&D Organizations, Defence Services Personnel associated with Aerospace Structures, Academic Scholars, Research Students, Practicing Engineers, Students (graduate / post graduate) etc.

## Registration Fee per Participant

Corporate ----- : ₹ 8,500/-  
 Academic, R&D Labs & Govt. Orgns : ₹ 7,500/-  
 Students ----- : ₹ 5,000/-

**Fee discount can be  
 availed for a group of  
 5 participants**

(Registration fee includes participation fee, lecture material, working lunch etc. The registration details (Name, Designation, Organization, full contact details) along with DD / Cheque drawn in favor of 'IIAEM', Bangalore should reach our office before 5<sup>th</sup> December, 2015).

## Program Content

DAY - 1	<ul style="list-style-type: none"> <li>• Introduction to the Course : Threats to Structural Integrity and the Role &amp; Scope of Testing and Analysis</li> <li>• Experimental Characterization of Composites Used in Aerospace Applications</li> <li>• Data generation &amp; Development Tests for Aircraft Structural Joints &amp; Features</li> <li>• Structural Testing for Crashworthiness and Impact</li> <li>• Loads on Airframe &amp; It's Major Structural Components during operational environment in service &amp; Their Impact on Static Test Requirements</li> <li>• Understanding Aircraft Fatigue Loads and Associated Test Requirements</li> </ul>
DAY - 2	<ul style="list-style-type: none"> <li>• Strain Gauging &amp; Measurement of Structural Loads on Aircraft &amp; Components</li> <li>• Full Scale Static &amp; Fatigue Testing of Aircraft Structures &amp; Components</li> <li>• Understanding aircraft structural dynamics &amp; development of associated test requirements</li> <li>• Aircraft Vibration Testing : Role, Scope, Methodology &amp; Facilities</li> <li>• Structural Testing of Civil Aircraft</li> <li>• Role of NDT &amp; Teardown in Aircraft Structural Testing</li> </ul>
DAY - 3	<ul style="list-style-type: none"> <li>• Instrumentation, data acquisition &amp; test controls in aircraft structural testing</li> <li>• Development of full scale structural test rig for a ship based navy fighter aircraft</li> <li>• Static testing of unmanned airframe structures - a case study</li> <li>• Anatomy of an Aircraft Structural Test Laboratory</li> <li>• Role of Regulatory Authority in Structural Qualification &amp; Certification</li> <li>• Participants Feedback &amp; Valedictory Function</li> </ul>

