



भारतीय प्रौद्योगिकी संस्थान गुवाहाटी Indian Institute of Technology Guwahati

Short Term Course



Structural Vibration Problems: Theoretical and Experimental Analysis Methodologies

December 21st-23rd, 2020

Conducted by : Department of Mechanical Engineering



Organized by :
Knowledge Incubation for TEQIP
Centre for Educational Technology
URL: <http://www.iitg.ac.in/cet>

ABOUT THE COURSE:

Vibration is an essential concern in the design of engineering structures and machine elements. Although the vibration of a structure is useful or pleasant in some situations, it is usually an unwanted phenomenon in a machine or a structure because of its harmful consequences including the damaging effect. Therefore, the design of structural components or machine elements needs rigorous analysis of their vibration characteristics under the application-based excitations or dynamic forces. However, extensive research on this context reveals various analytical and experimental methodologies to identify vibration characteristics of structural components or machine elements. This short-term course aims to provide an overview of the available analytical and experimental analysis methodologies so that one would be able to design a practical structural component or machine element under any kind of dynamic force or excitation. In view of the wide application of composite materials in the design of practical structural components or machine elements, the mathematical modelling approaches and vibration analysis of composite structures are also included in this course. Another important aspect in this context is the vibration control of a structural/machine element to mitigate the detrimental effects of vibration. This topic will also be elaborated in this course where the available advanced technologies will be introduced besides the corresponding control system arrangement and experimental procedure.

Note: One dedicated session is allocated for the pedagogy.

COURSE CONTENTS:

- Analytical/numerical modeling of structural elements for vibration analysis
- Theoretical modelling of composite structures for vibration analysis
- Active and/or passive vibration control techniques
- Experimental methods for structural vibration analysis
- Experimental studies on vibration analysis of basic structural elements
- Experimental studies on vibration analysis of rotor systems
- Experimental studies on control principles

ELIGIBILITY

The course is open to Faculty members/Students (strike off, whichever is not applicable) from TEQIP III mapped Institutions/Engineering Colleges/ATUs. About 30% seats will be open for students and Faculty Members of other Institutions and Industry Members.

BOARDING AND LODGING

As the event is through online virtual mode, there will be no boarding and lodging facility.

IMPORTANT DATES

The last date for the receipt of scanned copy of duly filled sponsored application form by email: 18/12/2020

Intimation of selection: 19/12/2020

SELECTION CRITERIA

Number of seats: 100.

Selection will be based on First cum first served basis.

REGISTRATION FEE

TEQIP members – No registration Fee

Non-TEQIP faculty members - ₹ 2500 + 18% GST /-

Non-TEQIP student members - ₹ 1000 + 18% GST /-

Industry Members - ₹5000 + 18% GST /-

Banking Details:

Branch Name - IIT Guwahati Branch

Bank Name- State Bank of India

Branch Code- 14262

Account Number - 33755947572

IFSC Code- SBIN0014262

ADDRESS FOR CORRESPONDENCE

Dr. Satyajit Panda

Department of Mechanical Engineering

Indian Institute of Technology Guwahati

North Guwahati, Guwahati-781039, Assam

Tel: 0361-2582664

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<https://www.iitg.ac.in/spanda/spanda.pdf>

IIT GUWAHATI

Application Form for Attending TEQIP-III Online Short-term Course on (please send the filled-up application by email to the course coordinator)

Title of Course: Structural Vibration Problems: Theoretical and Experimental Analysis Methodologies

Name of Course Coordinator: Dr. Satyajit Panda, Dept. of Mechanical Engg. I.I.T. Guwahati

Dates of the Online course: 21-23 December 2020

1. Name (block letters):

2. Sex: ☐ Male ☐ Female

3. Category: ☐ General ☐ Reserved

4. Highest Academic Qualification:

5. Specialization:

6. Designation & pay scale:

7. Name of the organization:

8. Experience (in years):

(a) Teaching:

(b) Industrial:

9. Address for communication:

Pin code:

Mobile No.:

E-mail:

Place:

Date:

Signature of the applicant

SPONSORSHIP / NOMINATION CERTIFICATE

Prof/Dr./Mr./Ms./Mrs./

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is an employee/student of our institute and his/her application is hereby sponsored/nominated. The applicant is permitted to attend the short-term course **“Structural Vibration Problems: Theoretical and Experimental Analysis Methodologies”** at IIT Guwahati during 21/12/2020 to 23/12/2020 if selected.

I also certify that our institute/college is under the “Institution List” of 3rd phase of TEQIP Project of MHRD.

Date

Signature of Authority

Designation

Official Seal

Selected participants will be informed by e-mail. The duly sponsored/nominated application form should be sent by e-mail to the course coordinator:

Dr. Satyajit Panda

Course Coordinator

Department of Mechanical Engineering

Indian Institute of Technology Guwahati

North Guwahati, Guwahati- 781039, Assam

Tel: 0361-2582664 (O)/ 9678009046 (M)

Email: spanda@iitg.ac.in

ABOUT TEQIP

TEQIP conceived in pursuance of the NPE-1986 (revised in 1992) by Govt of India as a long term program to be implemented in different phases. After successful execution of TEQIP II, TEQIP III starts from 2017-18 as Central Sector Scheme with a focus on the Low Income States, Northeast, Hill States and Islands. The third phase of TEQIP is also special in a way that it incorporates twinning arrangements between mentee & mentor institutions with an emphasis on Focused Training (PT) and Focused Interventions from IITs in terms of deliverables and accountability. KIT, established at IIT Guwahati under 2nd phase of TEQIP is a focal point for training Faculty, Staff and students from TEQIP-III institutions in Knowledge Engineering, Content Creation, Improving Teaching, Pedagogy & administrative skills in identified niche areas/disciplines.

ABOUT KIT

KIT (**K**nowledge **I**ncubation Cell for TEQIP) at IIT Guwahati functions as a multi-disciplinary as well as interdisciplinary Innovation Incubation Centre with a focus to impart Knowledge, infusing innovation and leading a path to achieve academic excellence. Its activities are in the area of improving quality of technical education, incubator of Innovative Ideas; implementer of contemporary pedagogy practices and development of Learning Content in Technical institutions while mentoring them.

ABOUT IIT GUWAHATI



IIT Guwahati campus is spread over a sprawling 785 hectares plot of green land on the north bank of the river Brahmaputra around 25 km from the heart of the city. With hills and vast open spaces, the campus provides an ideal setting for training. Details on how to reach IITG Campus are available on the institute website

Website: www.iitg.ac.in