

DEPARTMENT OF CSE, IIT GUWAHATI

Indian Institute of Technology Guwahati (IITG), the sixth member of the IIT fraternity, was established in 1994. IIT Guwahati has been able to build up world class infrastructure for carrying out advanced research and has been equipped with state-of-the-art scientific and engineering instruments. IITG campus is on a sprawling 285 hectares plot of land on the north bank of the river Brahmaputra around 20 kms from the heart of the city. With the majestic Brahmaputra on one side, and with hills and vast open spaces on others, the campus provides an ideal setting for learning.

<http://www.iitg.ac.in/>

The Department of Computer Science and Engineering, IITG started its academic programme in the year 1995 and provides an outstanding research environment complemented by excellence in teaching. The department offers B.Tech., M.Tech., Ph.D. and Dual (M.Tech.+Ph.D.) degree programs. The department has a comprehensive curriculum on topics related to all aspects of computer hardware and software with an emphasis on practical learning. The department has around 30 faculty members actively involved in various cutting edge research domains in CSE.

<http://www.iitg.ac.in/cse/>

ABOUT TEQIP-III

TEQIP an initiative of MHRD, Government of India is a long term program for quality enhancement and resource sharing of technical institutions in India. TEQIP-III was started in 2017-18 as Central Sector Scheme with a special focus on the low income states, north-eastern states, hill states and islands. KIT (Knowledge Incubation Cell for TEQIP), established at IIT Guwahati under 2nd phase of TEQIP, 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. <http://www.iitg.ac.in/cet/teqip3.html>

TEQIP-III SPONSORED SHORT TERM COURSE ON DESIGN AND VALIDATION OF FAULT-TOLERANT EMBEDDED SYSTEMS



27th - 31st July, 2019

Organised by

Department of Computer Science and Engineering,

In collaboration with

**KIT-Centre for Educational Technology
IIT Guwahati**



ABOUT THE COURSE

Fault-tolerance has become a first-class design constraint in many real-time and embedded systems designs, in arenas ranging from avionic / automotive systems and satellites to distributed systems including IoTs, medical instrumentation and even consumer electronics. Designs of all these systems necessitate mechanisms for obtaining pre-specified quantitative levels of reliability. However, in order to achieve such reliable designs, system development process must go through several phases including specification, design, implementation, verification and testing. The principal objective of this short-term course is to systematically provide a theoretical overview of the steps involved in these phases. The coverage is kept wide, but brief, to include all the phases.

COURSE PLAN

Day 1: Fault Tolerant Systems I: Introduction, Fault Classification, Types of Redundancy, Real-time Fault Tolerant Systems and Fault Models.

Day 2: Fault-Tolerant Systems II: Fault Tolerant Scheduling, Hardware and software fault tolerance, Information redundancy, Check pointing,

Day 3: Fault-tolerant Networks: Measures of Resilience, Network Topologies and their Resilience, Fault-tolerant Routing strategies; Mixed-Criticality Systems: Introduction, Single processor analysis, Multiprocessor analysis, Realistic models, formal treatments and systems issues.

Day 4: Fault Tolerant system models. Formal Verification Basics: Model Checking, Symbolic Model Checking, Bounded Model Checking, SMT Solvers.

Day 5: Formal Approaches to modelling and control of fault-tolerant systems. Pedagogy session.

ELIGIBILITY, REGISTRATION AND SELECTION

The course is open to faculty members of TEQIP mapped institutions. Please refer “Institution List” link of NPIU website <http://www.npiu.nic.in/index.htm> for list of TEQIP mapped institutions. However, PhD scholar’s/PG students from these institutions may be accommodated subject to vacancy of seats. There will be a **refundable registration fee of 2500 INR** for the participants from TEQIP mapped institutions. Seats that remain unfilled will be open to faculty/students of other institutions with a **non-refundable registration fee of 2500 INR**. There will be total 40 seats for the course which will be filled based on first come first serve basis.

BOARDING AND LODGING

For participants from TEQIP mapped institutions, based on requests from the applicants, accommodation can be arranged free of cost either in the student hostels inside IITG campus or in hotels at Guwahati city. Participants from non-TEQIP institutes should make their own arrangements for boarding and lodging. Registration fee will cover course materials and working lunch.

HOW TO APPLY

Interested candidates can find application form, registration details and guidelines in the course webpage link given below <http://www.iitg.ac.in/ckarfa/teqip3.html>

Duly filled application form, endorsement form approved by the respective head of the institute and the registration fee Demand Draft drawn in favour of “**Registrar, IIT Guwahati**”, payable at Guwahati should be sent to the course coordinator by speed post. Last date for receipt of application form and registration fee DD is **21.06.2019, Friday**.

The registration fee would be refunded only after the participation in the course. Registration fee will not be refunded if the candidate fails to attend the course. Candidates from TEQIP mapped institutions can claim TA&DA from their respective institutions.

Course Coordinator

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Accommodation and Registration Support Team

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