Registration

Name of the Applicant (first, last): ……

……

Gender: …….. ……..…

Designation: ……...

Affix passport size photograph

Highest Qualification: ……

Name and Address of the Organization/Institute:……

……..

Category : (GEN/OBC/SC/ST/Others)…….

City/town:……..……..

Email:…….....

Phone Number:……..

Mobile Number:…….....

Do you need accommodation?

(Yes/No):……..

Transaction ID (Applicable for Online Transaction):……

Signature of the Applicant:……...

Signature and Seal of the Forwarding Authority

Name .....

Designation .....

Note: 1) The Faculty/Staff are requested to submit the NOC from respective department before attending the session.

2) The Faculty/Staff are requested to submit their Caste Certificate in case of OBC/SC/ST.

Registration Fee

Registration Fee (Including Course Material, Snacks and Lunch)

Rs. 2,500/- for Faculty, Lab Technicians and Project Staff **Rs. 5,000/-** for Industry Personnel, Research Scholars and Students.

Mode of Payment: Online Only (RTGS/NEFT)

For Online Transfer

Bank Name: State Bank of India
Account Name: IIT Guwahati R&D E&ICT Academy
Account No.: 36071160089
IFSC Code: SBIN0014262
Bank Name: State Bank of India
Bank Address: IIT Guwahati, GHY- 39.

Course Coordinators from Academy

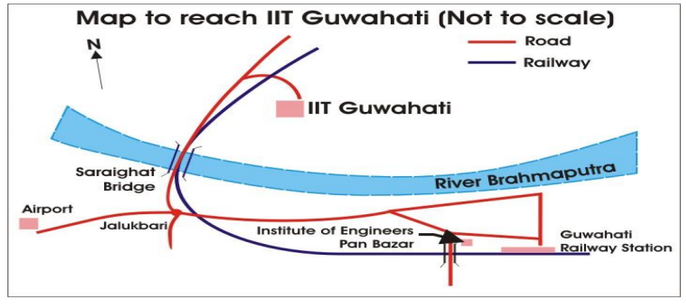
- **Prof. Ratnajit Bhattacharjee**
  Principal Investigator,
  E&ICT Academy, IIT Guwahati.
- **Prof. Rohit Sinha**
  Co-Principal Investigator,
  E&ICT Academy, IIT Guwahati.
- **Dr. Gaurav Trivedi**
  Co-Principal Investigator,
  E&ICT Academy, IIT Guwahati.

Expert from Industry

- **Mr. Srikanth Yalavarthi**
  Technical Consultant, Wipro Limited, Bengaluru.
- **Mr. Sangamesh Banappa**
  Technical Specialist, Wipro Limited, Bengaluru.
- **Mr. Sayak Bhowmick**
  Software Engineer, Wipro Limited, Bengaluru.

How to Reach IIT Guwahati

IIT Guwahati is located just on the outskirts of the city of Guwahati and is well connected to other parts of the country by road, rail or air. There are direct air services from/to Mumbai, New Delhi and Kolkata with connectivity to all major cities. For information of trains to Guwahati please visit the Indian Railways website www.indianrail.gov.in. For commuting from the station to the North Guwahati IIT campus bus service is available from G.N.B. road, Panbazar as per the schedule which can be downloaded from the following link:http://www.iitg.ac.in/aa/pages/campusmap/files/bus-timings-2010.pdf



An Initiative of Department of Electronics & Information Technology (DeitY), Ministry of Communications and IT, Government of India

Electronics & ICT Academy
IIT Guwahati, Assam

A Faculty Development Programme on

High Performance Computing

Organized with support from Wipro Technologies

Applications are invited from Faculty Members/ Research Scholars/PG & UG Students/Lab Technicians/Project Staffs from Universities/Colleges/Schools & Industry Personnel working in the concerned discipline can attend the Faculty Development Programme on

"High Performance Computing"

Course Date: 02 - 13 April, 2017
Last Date of Registration: 27.03.2017
(Online Registration Link will be open from 15.02.2017)
Venue: IIT Guwahati

Objective of the Course

Course Objective is to provide basic knowledge in High Performance Computing with lab sessions on Parallel Programming. The programme will focus on practical aspects and include examples which are relevant to the current industry requirements.

Lab sessions will include the following:

- Compiler Optimization and OpenMP Parallelization.
- MPI Programming.
- Vectorization.
- Intel TBB and Cilk Plus.
- Usage of Performance Libraries and Profiling.

Course Programme

Faculty Development Programme is split into three parts:

- Lectures.
- Labs/Hands-on sessions daily on Parallel Programming.
- Assignments and Project.

Who Can Attend

Programme is open to Faculty Members, Research Scholars, PG & UG Students, Lab Technicians and Project Staffs from Universities , Colleges & Schools. Industry Personnel working in the concerned/allied discipline may also apply.

How to Apply

Online – The participants may log on to the E&ICT Academy, IIT Guwahati website: http://eictacad@iitg.ernet.in and fill up the google doc application form.

Through Email – Scanned copy of the filled in application form duly endorsed by the, forwarding authority is to be mailed at E&ICT Academy's email id (eictacad@gmail.com, eictacad@iitg.ernet.in). Application format given in this brochure may also be downloaded from the website.

Contact Hours for the Course
80 Hrs (Theory, Hands-on & Tutorial)

Course Outcome

The participants will be given a thorough understanding of the following topics:

- Introduction to HPC and Parallel Programming.
- Compilers & Optimization.
  Compilation Process, Libraries and Optimization Flags.
- OpenMP.
  Introduction, OpenMP Constructs, OpenMP Runtime Functions, OpenMP Environment Variables and OpenMP 4.0.
- Message Passing Interface.
  Introduction, Blocking/Non-Blocking, Communication Modes, Point-to-Point Communication, Collective Communication, Communicators, Process Topologies, MPI I/O and MPI Performance Profiling.
- Vectorization: MMX, SSE and AVX.
- Intel TBB.
- Intel Cilk Plus.
- Performance Libraries: IPP, BLAS, LAPACK, MKL and ACML.
- Debugging & Profiling.

Assignment and Project

1. Assignments will be of the following type:
   - MCQ based questionnaire.
   - Programming Assignments (Problem statement will be provided.)
   - Parallelization and Optimization of codes (Problem statement and code will be provided.)
2. At the end of the course "Project" will be assigned to the participants which would be an application development and parallelization in OpenMP/MPI along with demonstration of the tools usage.

Preferred Pre- Requisites for the Course

The preferred Pre-Requisites for the course are:

- Experience with Linux/UNIX environments.
- Programming knowledge in Fortran/C/C ++.
- Candidates with Science/ Engineering background.
- Basic knowledge of Computer Architecture.

For details of the programme and course contents etc., please log on to Electronics and ICT Academy website: http://eict.iitg.ernet.in/

Hands-on Session

The Hands- on session will include the following:

- Practical's on optimization/auto-parallelization/auto-vectorization features.
- Floating point Lab.
- Various options of Intel Compiler Vectorization Techniques, Inter-Procedural Optimization and Pragma SIMD.
- Parallel Mandelbrot, Mandelbrot Scheduling, Parallel Fibonacci and Computing Pi with Numerical Integration.
- Simple API to link with IPP, Signal Processing using IPP and Image resize using Intel IPP.
- Practical's on Intel MKL and finding Memory and Threading errors.
- Finding performance hotspots, analyzing parallelism, identifying Parallelism issues, instrumenting user source code, analysing memory bandwidth usage, finding false sharing issues and finding No Store forwarding issues.
- Practical's on MPI Programming and Tuning.
- Practical's on ITAC.

About E&ICT Academy

Electronics and ICT Academy is an initiative of Department of Electronics & Information Technology (DeitY) Ministry of Communications and IT, Govt. of India for Faculty/ Research Scholar Development Programme.

Academy has planned short term training programmes on fundamental and advanced topics in IT, Electronics & Communication, Product Design, Manufacturing with hands on training and project work using latest software tools and systems.

In addition, the Academy will conduct specialized/customized training programmes and research promotion workshops for corporate sector & educational institutions.

Contact Details

For more details or any queries please contact
Project Manager,
E&ICT Academy, IIT Guwahati
Email: eictacad@iitg.ernet.in, eictacad@gmail.com
Phone No: +91-3612586442
(Working Hours 9:30 am to 5:30 pm)