

TEQIP-III Sponsored FDP COURSE
on
LARGE SCALE SCIENTIFIC COMPUTING
JUNE 03 (Monday) – JUNE 07 (Friday), 2019

Organized By: Department of MATHEMATICS, IIT Roorkee, Roorkee – 247667
(Uttarakhand)

General Information:

Department of Mathematics, IIT Roorkee is organizing a ONE WEEK TEQIP assisted FDP course on **Large Scale Scientific Computing** from **June 03 - 07, 2019** for the faculty members from TEQIP-III approved Universities/Institutions/Colleges. Only 25 seats are available in this course. There is no fee for teachers from TEQIP-III approved Universities/Institutes/Colleges. **They will be provided with single/double room accommodation. Other expenses (e.g. food, course kit etc.) will also be taken care. They don't have to pay for these. Only travel expenses will be borne by their parent organizations.** The application on the enclosed form **duly signed by the sponsoring authority** should be sent by email (malikfma@iitr.ac.in; malikdma@gmail.com) latest by **April 30, 2019**. Selected candidates will be informed by e-mail by May 05, 2019. The boarding and lodging arrangement for all the participants will be made in Guesthouses/Visiting Hostels of IIT Roorkee from June 02- June 07, 2019 (6 days, 5 nights).

Large Scale Scientific Computing: Motivation

This course will provide an exposure of the ongoing trends in the area of large scale scientific computing. Large scale scientific computing is a very demanding area of the current era in various disciplines of science and engineering. Most of the real life systems can be modeled either in the form of linear system of equations or partial differential equations. In both the cases, the final computing needs to be done for solving a large and sparse system. This is applicable in various area such as **finance, image processing, machine learning and data analytics**. Hence, the course will benefit the faculty members who would like to enrich a variety of advanced algorithms and applications based courses.

Brief objective of the course:

This course is designed with an objective to provide the necessary background for designing efficient computational algorithms in scientific computing as well as in the analysis of large volumes of data. The operations considered are the costliest steps at the heart of many complex numerical simulations. The course will also give an introduction to the most recent algorithms in large scale numerical linear algebra, an analysis of their numerical stability, associated with a study of their complexity in terms of computation and communication. The course will start from the basics of linear algebra and then move towards their applications in the designing the efficient computational algorithms for large systems. Special emphasize will be given on the data driven and machine learning based approaches. An insight to the various benchmark problems will be discussed to give a rich understanding to the participants. **Laboratory session will be conducted with domain expert to have a hands-on experience to develop some basic codes related to LSSC and GPU-based computing.**

- **Experts from IIT Roorkee, other IITs and Industries.**

Contact Person / Mailing Address:

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**TEQIP Course on
LARGE SCALE SCIENTIFIC COMPUTING**

June 03 (Monday) - 07 (Friday), 2019

Department of MATHEMATICS, IIT Roorkee, Roorkee – 247667 (Uttarakhand)

APPLICATION FORM

(Scanned copy of completed form may please be e-mailed to:

malikfma@iitr.ac.in; malikdma@gmail.com

or sent by post to the mailing address latest by April 30, 2019)

1. Name: Ms./Mr./Dr.
2. Designation:
3. Age (Years):
4. Official mailing address: (Including name of the department, institute, state and pin code)

5. (a) E-mail: (b) Mobile No.:
6. Academic Qualification (degree onwards):
7. Teaching/ working Experience in Years:
8. Subjects teaching/taught related to this Course:

Date: Signature of applicant

SPONSORSHIP CERTIFICATE

The applicant will be permitted to participate in the above program, if selected. Further, I have personally talked to the applicant and he/she seemed to be sure to attend the course, in case the admission is offered to him/her.

This is to certify that this university/institute/college is participating in TEQIP-III programme.

Date: Signature (Principal/Director/Head)
Seal of the Univ./Institute/Dept./Organization