

## INTRODUCTION

Theory of evolution equations is one among the important mathematical disciplines. In order to understand the dynamics of nature, one needs to consider time evolution which often leads to evolution equations. This course is intended to provide an introduction to some themes in evolution equations and is designed to enhance as well as strengthen the basic knowledge of theoretical and computational concepts.

## COURSE OBJECTIVES

This course aims to introduce theoretical and numerical techniques for evolution equations. Scientific computing for solutions will also be discussed. It will provide a good understanding of theory for solving and analyzing the most important differential equations encountered in applied mathematics. It will also help to improve the ability of implementing and analyzing numerical methods for these equations.

## COURSE OVERVIEW

Analytical and numerical methods for evolution equations, Initial and boundary value problems, Existence and regularity theory, Semigroup theory, Finite difference, Finite volume and Finite element discretization, Matlab programming

## COURSE DURATION & VENUE

The course is of six days duration from 12th to 17th August, 2019. Classes will be held at Department of Mathematics, IIT Madras, Chennai.

## RESOURCE PERSONS:

Faculty from IIT Madras and guest speakers from other reputed institutions.

## ELIGIBILITY & REGISTRATION

Engineering college teachers from AICTE approved colleges are eligible to apply. Eligible teachers are requested to register for the course by submitting the filled in application along with the sponsorship certificate to the coordinator on or before **20<sup>th</sup> June, 2019**. Faculty from **all** disciplines are welcome to participate. In particular, young faculty members with the goal of pursuing PhD are encouraged to apply.

## REGISTRATION FEE

There is **no course fee** for the participants from AICTE approved engineering colleges. However, all the short listed candidates after the confirmation from the coordinator, need to pay a refundable deposit of Rs. 500/-. This amount shall be paid through a demand draft drawn in favor of IIT Madras, payable at Chennai (or) an online transfer mode to CCE, IIT Madras account. This deposit will be refunded to the course participants at the end of the course. The payment process will be informed by email (only to the selected candidates).

## TRAVEL SUPPORT

All the course participants are eligible for 3 Tier AC train fare, for both onward and return journey, by the shortest route on submitting the copies of train tickets with all details.

## BOARDING AND LODGING

Boarding and lodging facilities will be provided to the interested participants of the course at the Taramani Guest House, IIT Madras. Accommodation will be on twin sharing basis. **Family accommodation is not available.**

## AICTE Sponsored QIP Short Term Course on

### *Evolution Equations: Theory and Computation*

**12- 17 August, 2019**

## APPLICATION

Name (in BLOCK letters):

Designation :

Department :

Address of the College:

Academic Qualification:

Experience (in years):

Communication Address:

Office/Residence Phone:

Mobile:

E-mail :

Date:

**Signature of the Applicant**

## SPONSORSHIP CERTIFICATE

It is certified that Dr./Shri./Smt.

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is a faculty of our institute and is being sponsored hereby for attending the QIP short term course on “**Evolution Equations: Theory and Computation**” to be conducted at IIT Madras during **12 - 17th August, 2019**.

**Signature of Sponsoring Authority**  
(with date and seal)

**Please scan the filled in application and send the same by Email to [eetc19iitm@gmail.com](mailto:eetc19iitm@gmail.com) and also post the hard copy.**

## DEPARTMENT OF MATHEMATICS, IIT MADRAS

The Department of Mathematics has been in existence since 1960 and offers M.Sc/Ph.D programs in Mathematics and M.Tech in Industrial Mathematics and Scientific Computing. Equipped with state of the art facilities in a serene campus, the department offers an enriching academic environment.

### RELEVANCE OF THE COURSE

The topics covered in this course will help the candidates to understand how to use the methods for solving the specific problem(s). Moreover, they would be able to use this expertise efficiently in other mathematical fields and in application as well.

### IMPORTANT DATES

Last date for applications: **20-06-2019**  
Intimation of selection: **28-06-2019**  
Confirmation by participants: **12-07-2019**

**For further details, please contact:**

**Dr. Shruti Dubey**

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## AICTE Sponsored QIP Short Term Course on

### *Evolution Equations : Theory and Computation*

**12 - 17 August, 2019**

### Coordinators

**Dr. Shruti Dubey**  
**Prof. Ch. Srinivasa Rao**



**Organized by**

**Department of Mathematics**  
**Indian Institute of Technology Madras**  
**Chennai - 600 036**

**URL: <https://mat.iitm.ac.in>**