

# TEQIP-II Sponsored Faculty Development Program

On

**DISCRETE MATHEMATICS AND ITS APPLICATION IN ENGINEERING**

October 26 – 28, 2016



Organized by

Mathematics Deptt. (Science & Humanities)  
&  
Computer Science & Engineering Deptt.  
Tripura Institute of Technology, Agartala

## **Course Coordinators:**

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Mathematics Deptt (Science & Humanities)  
Tripura Institute of Technology, Agartala

&

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# THE INSTITUTE

## **Vision of the Institute:**

To emerge as one of the best Technical Institute of the Country in creating quality engineers and leaders through excellence in technical education, for industries and for the society.

## **Mission of the Institute:**

1. Imparting quality technical education to develop innovative, entrepreneurial and ethical Technocrats.
2. Developing collaborative partnership with industries and academia.
3. Developing sustainable technology solutions for the societal needs.
4. Participative learning in a cross-cultural environment that encourages learning beyond the class room.

## **About The Institute:**

**Tripura Institute of Technology** (erstwhile Polytechnic Institute, Narsingarh) bred from its embryo in the year 1958 with three conventional branches of Civil, Electrical and Mechanical Engineering, affiliated to West Bengal State Council of Technical Education. Later, one more branch namely Electronics & Tele-Communication Engineering has started in the year 1995. The institute through its excellence and glorified journey over a period of more than 50 years could attract name, fame and reputation countrywide and as a result the Ministry of Human Resource was kind enough to extend its assistance through World Bank under Tech. Ed.-III Project for the growth of this institute in terms of capacity expansion and quality improvement during the period from 2001 to 2007. Implementation of this project assistance by the Government of Tripura commensurate sea changes in the institutional infrastructure resulting into the opening up of 4 (four) more new branches such as Computer Science & Technology, Food Processing Technology, Automobile Engineering, Architecture Assistantship. Huge procurement of equipment and machineries, books and LRs, introduction of new labs and other infrastructure development have multiplied the academic resources of the institute. The Institute is administered by Education (Higher) Department, Government of Tripura and is affiliated to the Tripura University. With the introduction of the degree module from the academic session 2007-08 the entire academic control of both degree and diploma would come under Tripura University. In addition of eight diploma course, Institute has offering five degree engineering course namely Civil Engineering, Electrical Engineering, Mechanical Engineering, Electronics & Communication Engineering and Computer Sc & Engineering. Presently, Technical Education Quality Improvement Programme Phase-II (TEQIP-II), World Bank project is running in Degree module at TIT for Strengthening Institutions to produce high quality engineers for better employability. Tripura Institute of Technology is located in a beautiful landscape of natural antiquity adjacent to Agartala Aerodrome which is about 12 KM away from capital city of Tripura state Agartala. The Institute is affiliated to Tripura University (A Central University) and recognized by the AICTE, New Delhi.

## ABOUT THE PROGRAM

**Discrete Mathematics** is the study of mathematical structures that can assume only distinct, separated values rather than continuous. The objects studied in discrete mathematics such as integers, graphs, and statements in logic do not vary smoothly but have distinct, separated values. Research in discrete mathematics increased in the latter half of the twentieth century partly due to the development of digital computers, which operate in discrete steps and store data in discrete bits. Concepts and notations from discrete mathematics are useful in studying and describing objects and problems in branches of computer science, such as computer algorithms, programming languages, cryptography, automated theorem proving, and software development. Conversely, computer implementations are significant in applying ideas from discrete mathematics to real-world problems, such as in operations research.

The Department of Science & Technology (DST), Govt. of India has declared 10<sup>th</sup> June, of each year as 'Graph Theory Day' and has been providing financial support to organize major Workshops/Conferences in Discrete Mathematics around this date.

The study of how discrete objects combine with one another and the probabilities of various outcomes is known as combinatorics. Discrete Mathematics provides a common forum for significant research in many areas of discrete mathematics and combinatorics. Among the fields covered by Discrete Mathematics are graph and hyper graph theory, network theory, enumeration, coding theory, block designs, the theory of partially ordered sets, set theory, matroid theory, algebraic combinatorics, polyhedral, combinatorial and discrete geometry, matrices, and discrete probability theory.

Two important topics of Discrete Mathematics like as Combinatorics & Graph theory are closely related to major thrust areas of current research in Discrete Mathematics with tremendous potential for applications in various fields such as Computer science, Sociology, Psychology, Chemistry, Physics, Economics and several other real life problems. A lot of research is going on in various institutions all over the world in the related areas of Discrete Mathematic such as Combinatorial Optimization, Graph Theory, parallel computation, Interconnection Networks, Matroids theory, Algorithms, Coding Theory, Cryptography etc.

The workshop was intended for young faculty and researchers from all interdisciplinary courses like Mathematical Sciences, Computer Science, Electronics, and Biological Sciences who was interested in the field.

## **TOPICS TO BE COVERED**

1. Introduction to Discrete Mathematics
2. Counting Techniques
3. Combinatorics
4. Partial ordered relations, POSET, Lattices
5. Methods of Proofs
6. Recurrence relations
7. Cryptography & number theory
8. Graph theory
9. Coding theory
10. Theory of Computations & Algorithms
11. Some applications of Discrete Mathematics to solve Engineering Problems.

## **RESOURCE PERSONS**

The resource persons constitute experts/senior faculty members from IITs, ISI, NITTTRs, NITs, Central Universities etc.

## **WHO CAN ATTEND THE FDP**

The course is aimed to attract and bring together Faculty Members, Scientists, Engineers, Technologists, Technical Staffs, Technical Assistants, Research Scholars and Final Year UG/PG students from Academic and Research Institutions and Industries. The participants will be benefitted immensely and will get new insights and knowledge about the topic through close interactions/discussions with the Senior Faculty Members/Scientists and Experts of the respective field during the lecture sessions as well as in some laboratory sessions. There is no course fee.

## **BOARDING & LODGING**

Boarding, lodging and travel expenses shall be borne by the participants. No TA/DA is given to the participants. Several good hotels are available in and around Agartala, Tripura. Participants may contact directly or through the coordinator(s) for accommodation in Hotels.

## **Contact Address**

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## REGISTRATION FORM

TEQIP-II Project sponsored Three Days Faculty Development Program  
On  
**DISCRETE MATHEMATICS AND ITS APPLICATION IN ENGINEERING**



Organized by

Mathematics Deptt. (Science & Humanities)  
&  
Computer Science & Engineering Deptt.  
Tripura Institute of Technology, Agartala  
26<sup>th</sup> - 28<sup>th</sup> October, 2016

Name of the Participant: \_\_\_\_\_

Affiliation: \_\_\_\_\_

Institute/College/University: \_\_\_\_\_

Whether the Institute is AICTE / UGC affiliated: \_\_\_\_\_ Sex (M/F): \_\_\_\_\_

Highest Qualification (with Branch Specialization): \_\_\_\_\_

Experience (in years) Teaching: \_\_\_\_\_ Industry: \_\_\_\_\_ Research: \_\_\_\_\_

Publication (if any): \_\_\_\_\_

Address for Correspondence: \_\_\_\_\_

\_\_\_\_\_ Pin Code: \_\_\_\_\_

Phone (Landline): \_\_\_\_\_ Mobile No.: \_\_\_\_\_

E-mail id: \_\_\_\_\_

### Declaration by the Applicant

The information furnished above is true to the best of my knowledge. I agree to abide by the rules and regulations governing the program. If selected, I shall attend the program for the entire duration.

Place: \_\_\_\_\_

Date: \_\_\_\_\_

Signature of the Applicant

### Sponsorship Certificate

Certified that Dr./Mr./Mrs./Miss \_\_\_\_\_ is an employee of this Institution/College/University and hereby allowed to attend three days FDP on **DISCRETE MATHEMATICS AND ITS APPLICATION IN ENGINEERING** at Tripura Institute of Technology, Agartala during 26th - 28th October, 2016. On the event of selection, he /she will be permitted to participate in the program fully.

Place:-

Date:-

Signature of the sponsoring authority (HOD/Principal/Director) & Seal

**\*IMPORTANT DATES\***

\*Last date of receipt of filled in applications : 18-10-2016\*

\*Date of intimation regarding selection : 24-10-2016\*

\*N.B.--Since seat number is limited so selection may be done on FCFS basis.\*