



**A FIVE DAY  
NATIONAL WORKSHOP on**

**Recent Trends in Domination in Graphs:  
Algorithms, Complexity and Applications**

**8<sup>th</sup> – 12<sup>th</sup> April, 2019**

**(Under Continuous Education Program)  
Sponsored by TEQIP – III**

**On the eve of Diamond Jubilee Celebrations of  
NIT (REC) Warangal.**



**Coordinators**

**Dr. P. Venkata Subba Reddy**

**Dr. K.V. Kadambari**

**Organized by**

**Department of Computer Science and Engineering**

**National Institute of Technology  
Warangal – 506004.**

**ABOUT THE WORKSHOP**

Graph theory is playing an increasingly important role in the last decades by the growing influences from studies of large networks. Graph theory is a key approach in understanding and for leveraging big data. Importantly, the concept of domination in graphs has been an extensively researched topic and one of the fastest growing branches of graph theory. This is largely due to a variety of new concepts such as independent domination, connected domination, secure domination, restrained domination, liar's domination, roman domination, double roman domination, roman  $\{2\}$ -domination, etc., that can be developed from the basic definition of domination. The theory of domination has many applications in real life, namely, computer communication networks, social network theory, wireless sensor networks, modeling biological networks, etc. It is also a natural model for many location problems like fire station problem.

Although most of the decision problems of domination variants are NP-complete for general graphs, these can be polynomial time solvable for specific graph classes. Several researchers have worked on variants of domination decision problems which are NP-complete and consequently suggested different approximation algorithms, parameterized algorithms and exact exponential algorithms. In recent past, approximation hardness of some domination parameters has been studied. Although the domination parameter and its variants have been studied over years still there are a plenty of open problems to work on.

This workshop would help participants to get knowledge required to choose this leading domain as a research area, and the research directions for working with new variants of the domination in graphs.

**TOPICS TO BE COVERED**

- ✚ Asymptotic analysis of algorithms
  - ✚ Complexity classes
  - ✚ Graph classes
  - ✚ New variants of domination problems
- The topics with special emphasis on variants of domination problem include:
- ✚ Bounds and exact values
  - ✚ NP-completeness
  - ✚ Polynomial algorithms
  - ✚ Approximation algorithms
  - ✚ APX-hardness
  - ✚ Exact exponential algorithms
  - ✚ Parameterized complexity
  - ✚ Applications
  - ✚ Open problems in the domain

**RESOURCE PERSONS**

Eminent faculty from IITs, NITs & Industry who have the expertise in these areas will be delivering lectures.

Confirmed resource persons:

- Prof. S. Arumugam, Director,  $n$ -CARDMATH
- Prof. B.S. Panda, IIT Delhi
- Prof. K. Viswanathan Iyer, NIT Trichy

**REGISTRATION FEE**

- Faculty / Research Scholars : Rs. 2000/-
- Industry Participants : Rs. 5000/-
- NITW Participants : Rs. 500/-

**ACCOMMODATION & TRAVEL**

The registration fee shall include accommodation, breakfast, lunch and dinner. Accommodation for outstation participants will be provided on request in the institute visitors block or international students hostel. No TA and DA will be provided.

## ELIGIBILITY

The program is open to all the faculty members of AICTE approved engineering colleges, autonomous institutions, universities, Research scholars from Computer Science, Mathematics and allied areas and persons working in Industry / R&D Organizations.

## HOW TO APPLY

Interested candidates can download brochure and registration form from our Institute website <http://www.nitw.ac.in>. The number of participants in the workshop is limited to 20. The selection of participants is based on first come first serve basis. So candidates are advised to apply early to avoid disappointment. The registration fee could be paid through demand draft (DD) in favor of "TEQIP-III Funds" payable at Warangal. Application in the prescribed format duly signed by Head of the department/Institution along with the DD should reach the coordinators by post and email (scanned copy) on or before 19-03-2019. After receiving the original DD and registration form, participants will be sent a confirmation regarding their selection within two days. In case a candidate is not selected, the DD will be sent back to the candidate.

## ABOUT WARANGAL

Warangal is the second largest city in the state of Telangana. It is historically known as Orugallu or Ekashila nagaram (city carved in single stone). It is a part of tri-cities along with Kazipet and Hanamkonda. Warangal is considered the cultural capital of Telangana with many historical monuments like Thousand Pillars Temple, Warangal Fort, Bhadrakali Temple, Ramappa Temple and Laknavaram Lake located in a radius of 30 kms.

## ABOUT NIT WARANGAL

NIT Warangal, formerly known as Regional Engineering College (REC) was established in 1959.

Over the years it has developed into a premier institute of higher learning in India. There are 14 Departments offering 8 undergraduate and 31 post-graduate programmes besides doctoral programmes. About 5000 students across the country and about 500 international students study in the campus. It is a fully residential campus sprawling over 250 acres with excellent infrastructure in the form of state of the art library, seminar halls, auditorium, guest houses and laboratories. Now NIT Warangal is celebrating Diamond Jubilee (1959- 2019).

The campus is situated at a distance of 140 km from the state capital Hyderabad (Nearest Airport). It is well connected by Rail (Kazipet Junction is two km away and Warangal Station is 12 km away) and by Road (NH 202).

## ABOUT THE DEPARTMENT

The Department of Computer Science and Engineering (CSE) offers B.Tech. course in CSE, M.Tech courses in CSE, Computer Science and Information Security (CSIS) and Master of Computer Applications (MCA). The Department is supported by well experienced and qualified faculty members. The department focuses on imparting practical and project based training to students through competency based curriculum. The Department has liaison with reputed industries and R&D organizations like Microsoft, IBM, Oracle, Infosys, IDRBT and tie up with IISc in certain areas.

## ADDRESS FOR CORRESPONDENCE

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FORMAT OF REGISTRATION FORM

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Department of Computer Science and Engineering  
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Warangal – 506004.

1. Name :
2. Educational qualification :
3. Designation :
4. Experience :
5. Department :
6. Institution :
7. Mailing Address :
8. E-mail :
9. Contact No :
10. Accommodation required (yes/no)? :
11. Payment Details
  - i) DD No :
  - ii) Date :
  - iii) Bank :
  - iv) Amount (in Rupees):

## DECLARATION:

The information provided is true to the best of my knowledge. If selected, I agree to abide by the rules and regulations of the workshop and shall attend all sessions of the workshop.

Place:

Date:

Signature of the applicant

## Recommended and forwarded.

Signature of the HOD /Head of institution  
(With Seal)