

### ELIGIBILITY:

The ISTE-AICTE Refresher programme is open to all faculty members from AICTE approved Institutions, research scholars, participants from Government organizations and Industries. Priority should be given to ISTE Life Members. On completion of each day an online objective test/ quiz-based assessment will be conducted. Those who have an attendance of minimum 80% and score more than 60% in the test will be issued a digital certificate.

### FEE:

No registration fee is charged for the programme, since the program is fully sponsored by AICTE-ISTE, New Delhi.

### Important Dates:

Last Date of Registration: 19<sup>th</sup> Dec, 2021

Announcement of selected candidates 20<sup>th</sup> Dec, 2021

Schedule of the event: 22<sup>nd</sup> December to 29<sup>th</sup> December, 2021

**ONLINE REGISTRATION:** To join this Online FDP, you are requested to register your name and whatsapp number by clicking the registration link:

<https://forms.gle/uZKFMs63LUgiM6q58>

### ADDRESS FOR CORRESPONDENCE:

#### Coordinator

**Dr. C. Padmaja**

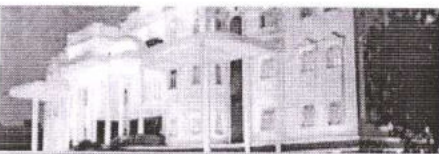
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### CONVENER

Dr. B. VENKATESHULU, Professor, HOD-ECE

### COORDINATOR

Dr. C. PADMAJA, Assistant Professor, ECE

### RESOURCE PERSONS

Eminent faculty from IIT's, NIT's, IIIT, SAU, MNIT's, NITTTR and Nokia Network will deliver lectures and hands-on sessions.

Dr. Chella Sastry, IIT

Dr. Rajib Kumar Bhattacharjya, IIT Guwahati

Dr. P. Ubaidulla, IIIT Hyderabad

Dr. Neeraj Sharma, IIT BHU

Dr. Ravi Kumar Jatoh, NITW

Dr. Satish Kumar, NIT Jamshedpur

Amitav Panda, Solution Specialist, Nokia Network

Dr. Jagdish Chand Bansal, South Asian University

Prof. Rajesh Kumar, MNIT, Jaipur

Dr. S. J. Nanda, MNIT, Jaipur

Dr. Urvashi P. Shukla, Banasthali Vidyapeeth

Dr. Balwinder S. Dhalrwal, NITTTR Chandigarh

Prof. Sitanshu Sekhar Sahu, Birla Institute

Dr. N.S. Murthy, Vasavi College of Engg, Hyderabad

Dr. C. Padmaja, GNITS, Hyderabad



AICTE-ISTE Sponsored One Week

INDUCTION/REFRESHER  
PROGRAMME – 2021-22

On

OPTIMIZATION in  
COMMUNICATION ENGINEERING



DECEMBER 22-29, 2021

Coordinator

**Dr. C. PADMAJA**

Assistant Professor, ECE

Organized by

Department of Electronics and  
Communication Engineering

**G. NARAYANAMMA INSTITUTE OF  
TECHNOLOGY & SCIENCE (For Women)**  
(Autonomous)

Approved by AICTE, New Delhi & Affiliated to  
JNTUH, Accredited by NBA & NAAC. ISO  
9001:2015 Certified, Shaikpet, Hyderabad,  
Telangana, India – 500 104

*Handwritten signature*  
G. Narayanamma Institute of  
Technology & Science (for woman)  
(AUTONOMOUS)  
Shaikpet, Hyderabad - 500 104

## ABOUT THE INSTITUTE

G.Narayanamma Institute of Technology & Science, a leading Engineering college in Hyderabad for women, was founded by late Sri G.Pulla Reddy garu in 1997, with an objective of providing excellent learning facilities for women to pursue education in Engineering since two decades. The aim is to promote Technical education among women to enhance and build-up a new generation of thinkers, innovators and planners in the realms of Science and Technology. GNITS received UGC autonomous status for 10 years from 2018 and is affiliated to Jawaharlal Nehru Technological University Hyderabad. It is approved by All India Council for Technical Education, accredited by NAAC & NBA (AICTE) and ISO 9001:2015 Certified Institution. "AICTE Internshala Award" by AICTE in August, 2018. "National Employability Award" 3 times in a row for being among top colleges in the State from AMCAT from 2017 to 2019.

## ABOUT DEPARTMENT

The department of ECE was started in the year 1997 with an intake of 60 students. The intake was increased to 180 students. A Separate block is provided to develop the department as a centre of excellence. The department has established laboratories which are fully equipped with test & measuring equipment and trainers specially designed for lab work. The department has R & D Equipment such as 2x2 MIMO, Nexys 4 A7 FPGA boards, XILINX Vivado system edition 2018.1 version, NetSim, HFSS, LABVIEW, MATLAB, Mentor graphics HEP1 and 2, LIDAR, RFID Reader, ADS 1198 kit for 3, EKG interface board, Smart Vision Camera, GSM/GPRS module, Node MCU, Ultra sonic & MQ3 Sensor, CHIPKIT Microcontroller etc of worth 12 Lakhs are available. The Alumnae are well-placed in reputed organizations like INFOSYS, Micron, Deloitte, NCR, Accenture FSE, Quantum Analytics, Ford, Optum, Colruyt, Virtusa, ADP, LVL7, Value labs and many more.

## ABOUT AICTE-ISTE INDUCTION/ REFRESHER PROGRAMMES

All India Council for Technical Education (AICTE) was setup in November 1945 as a national level Apex Advisory Body to conduct survey on the facilities on technical education and to promote development in the country in a coordinated and integrated manner. The Indian Society for Technical Education (ISTE) is the leading National Professional Non-Profit making Society for the Technical Education System in our country with the motto of Career Development of Teachers and Personality Development of Students and overall development of our Technical Education System.

The major objective of the AICTE-ISTE Induction/Refresher Programme are:

- Providing quality training programmes to teachers and administrators of technical institutions to update their knowledge and skills in their fields of activity.
- To assist and contribute in the production and development of top quality professional engineers and technicians needed by the industry and other organizations.

## OVERVIEW OF THE COURSE


The Induction/Refresher programme is to provide a platform for the participants to learn and share the knowledge through the lecture delivered by the eminent speakers and discussions with the practitioners. It is intended to describe the systematic approach of optimization, which includes problem definition, its mathematical formulation, selection of a suitable optimization method, and detailed analysis of the solution obtained. The participants will not only exposed to traditional theoretical developments and natured inspired techniques in the field of optimization but also learn about the practical applications of optimization techniques in diverse areas. Both theories and practices of optimization techniques will be covered during the course of the workshop.

## OBJECTIVES OF THE COURSE

1. Exposure to the basic concepts of mathematics to formulate an optimization problem.
2. Inculcate and promote research interest in applying optimization techniques in solving problems of Engineering and Technology.
3. Acquire a multi-objective problem through weighted and constrained methods.
4. Exploit elaborated the evolutionary algorithms and steps involved with special emphasis on their application in the field of communications.
5. Apply the latest development in convex optimization to the design and analysis of communication systems.
6. To promote quality teaching and research projects in the field of Optimization.

## TOPICS TO BE COVERED

- Introduction to properties of Vectors, Norms, Positive Semi-Definite matrices, Sparsity promoting optimization techniques
- Linear Programming, Constrained & Unconstrained Optimization Techniques
- Fundamentals of Optimization: Optimization to Clustering & Classification
- Convex optimization for communications
- Multi-objective Optimization
- Particle Swarm Optimization, Differential Evolution
- Genetic Algorithm and Bio inspired algorithms
- Social spider optimization, grey wolf optimization
- Implementation of using Excel Solver and MATLAB Optimization Toolbox
- Design of Linear Phase FIR Low Pass Filter Using Mutation-Based Particle Swarm Optimization Technique
- Optimization to System Identification
- Application to Channel Equalization using Bio-inspired Algorithm
- Numerical Optimization and Applications with Lab classes
- Application in the area of biomedical engineering

  
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**AICTE-ISTE INDUCTION/REFRESHER PROGRAMMES (Online)****ISTE/AICTE-ISTE FDP/2021-22****Title: OPTIMIZATION in COMMUNICATION ENGINEERING****Schedule Plan:****From: December 22<sup>nd</sup> to December 29<sup>th</sup>, 2021**

Date	Session I (10AM-11.30AM)	11.30AM to 11.45AM	Session II (11.45AM-1.15PM)	1.15PM to 1.55PM	Session III (2PM-3.30PM)
22-12-2021 (Wednesday)	Inaugural function Chief Guests: Col. B Venkat Director Faculty Development Cell, AICTE Prof. Vijay D. Vaidya Executive Secretary, ISTE	T E A  B R E A K	Col. B Venkat Director Faculty Development, AICTE	L U N C H  B R E A K	Dr. Chella Sastry, IITH
23-12-2021 (Thursday)	Dr. Rajib Kumar Bhattacharjya, IIT Guwahati		National education policy 2020		Introduction to properties of Vectors, Norms, Positive Semi-Definite matrices, Sparsity promoting optimization techniques.
24-12-2021 (Friday)	Linear Programming, Constrained & Unconstrained Optimization Techniques		Dr. S. J. Nanda MNIT, Jaipur		Dr. P. Ubaidulla, IITH
27-12-2021 (Monday)	Dr. Jagdish Chand Bansal, South Asian University, New Delhi		Fundamentals of Optimization		Convex Optimization for Communications
28-12-2021 (Tuesday)	Multi-objective Optimization		Amitav Panda, Solution Specialist, Nokia Network		Prof. Rajesh Kumar, MNIT, Jaipur
29-12-2021 (Wednesday)	Dr. Urvashi P. Shukla, Banasthali Vidyapith		Particle Swarm Optimization, Differential Evolution		Genetic Algorithm and Bio inspired algorithms
	Social spider optimization, Grey Wolf optimization		Dr. C. Padmaja, GNITS		Dr. Balwinder S. Dhaliwal, NITTR Chandigarh
	Sitanshu Sekhar Sahu Birla Institute of Technology Mesra, Ranchi		Implementation of using Excel Solver and MATLAB Optimization Toolbox		Design of Linear Phase FIR Low Pass Filter Using Mutation-Based Particle Swarm Optimization Technique
	Optimization to System Identification		Dr. Ravi Kumar Jatoth NITW		Dr. Satish Kumar, Associate Professor NIT Jamshedpur
	Dr. Neeraj Sharma School of Biomedical Engineering IIT BHU	Application to Channel Equalization using Bio-inspired Algorithm	Numerical Optimization and Applications with Lab classes		
	Application in the area of biomedical engineering	Dr. N.S. Murthy, Vasavi College of Engg, Hyderabad	Online Quiz (2PM-3PM) Feedback	Valediction (3PM-4PM)	
		Efficient Management of Research and Stress through Yoga			

*Dr. C. Padmaja*  
Coordinator  
Dr. C. Padmaja

*Dr. B. Venkateshulu*  
HOD-ECE  
Dr. B. Venkateshulu

*Dr. K. Ramesh Reddy*  
PRICIPAL  
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# Certificate



This is to certify that **NERELLA HARINI** has successfully completed the AICTE-ISTE approved Orientation/Refresher Programme on **“Optimization in Communication Engineering”** held during **22.12.2021** to **29.12.2021** organized by **G. Narayanamma Institute of Technology and Science (For Women), Shaikpet, Hyderabad, Telangana.**

Director (FDC)  
AICTE, ND

Executive Secretary  
ISTE, ND

Program Coordinator  
GNITS, Hyderabad

Principal  
GNITS, Hyderabad

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