SELECTION AND MODE OF PAYMENT

Selected candidates will be intimated through e-mail. They have to remit the necessary course fee to the Bank as per the details given below.

Account Name	GIAN NITW
Account No.	62447453600
Bank	State Bank of India
Branch	NIT Warangal (NIT Campus)
Branch Code	20149
IFSC	SBIN0020149
MICR Code	506004011
SWIFT Code	SBININBB018

*Candidates registering early will be given preference in shortlisting process.

For any queries regarding registration of the course, please contact the Coordinators.

CONTACT DETAILS OF COORDINATORS

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National Institute of Technology,
Warangal – 506 004,
Telangana State, INDIA,

ABOUT GIAN COURSE

Ministry of Human Resource Development (MHRD), Government of India (GoI) has launched an innovative program titled "Global Initiative of Academic Networks (GIAN)" in higher Education, in order to garner the best international experience. As part of this, internationally renowned Academicians and Scientists are invited to augment the Country's academic resources, accelerate the pace of quality reforms and elevate India's scientific and technological capacity to global excellence.

ABOUT THE DEPARTMENT

The Department of Mathematics is a highly reputed Department that functions with excellence as its motto. The Department was started in the year 1959 along with other Engineering and Science Departments and has established itself as a dynamic center for academic and research activities. In addition to the teaching of courses in Mathematics for B.Tech., M.Tech., M.C.A., M.B.A. Programs, the Department offers two P.G. Programs, M.Sc (Applied Mathematics) and M.Sc (Mathematics and Scientific Computing) along with newly introduced Integrated 5 Year M.Sc. (Mathematics). At present, 30 Research Scholars are working for their Ph.D. The Department has a full-fledged computation laboratory to meet the requirements of the M.Sc. students, research scholars, and the faculty.

ABOUT THE INSTITUTE

The National Institute of Technology (formerly Regional Engineering College), Warangal, established in the year 1959, is the first among the 31 NIT's in the country setup as joint venture of the Government of India and the state government. Over the years, the Institute has established itself as a premier Institution in imparting technical education of a very high standard, leading to B.Tech., M.Tech., M.Sc., M.C.A., M.B.A. and Ph.D. programs in various specializations of Sciences, Humanities and Engineering streams. Warangal is known for its rich historical and cultural heritage. It is situated at a distance of 140 km from Hyderabad. Warangal is well connected by road and rail. National Institute of Technology, Warangal campus is 3 km away from Kazipet railway station and 12 km away from Warangal railway station. The nearest airport is Hyderabad.

GLOBAL INITIATIVE OF ACADEMIC NETWORKS

A Two-Week GIAN course on

Linear and Non-linear Hydrodynamic Stability: Theory and Computation

April 11 – 24, 2022 (online)

Call for Registration and Participation

International Faculty

Prof. JITESH S. B. GAJJAR
Department of Mathematics
University of Manchester
England, U.K.

Course Coordinators

Prof. D. SRINIVASACHARYA
Dr. Ch. RAMREDDY

DEPARTMENT OF MATHEMATICS
NATIONAL INSTITUTE OF TECHNOLOGY
Warangal-506 004
Telangana State, India.

OVERVIEW OF THE COURSE

The aim of this course is to discuss the linear and nonlinear theory the hydrodynamic stability of fluid flows, including the classical Rayleigh-Benard flows, Gortler instability, Taylor instability between rotating cylinders, stability of parallel and non-parallel flows. The weakly non - linear theories and derivation of the amplitude equations for a class of flows, and their properties will be investigated and discussed. There will be a brief discussion of stability of compressible boundary layer flows. As a major part of the course, several techniques will be discussed for solving the eigenvalue problems including computation of the critical parameters and neutral curves using including arc-length continuation methods. In addition to this, the techniques using codes developed in MATLAB based on spectral methods will also be illustrated.

OBJECTIVES

The primary objectives of the course are as follows:

- Exposing participants to the fundamentals of linear hydrodynamic stability.
- Providing exposure to analyze non-linear hydrodynamic stability.
- Building in confidence and capability amongst the participants in developing of the mathematical theory of normal mode analysis and formulate the eigenvalue problem.
- Enhancing the capability of the participants to perform weakly nonlinear stability analysis and derive the amplitude equations.
- Provide the participants with the knowledge to compute neutral curves for the Orr-Sommerfeld equation and other model problems.
- Demonstrate how to use arc-length continuation methods to compute critical parameters.
- Provide the participants with a strong understanding of the principles and ideas behind theory and computation of linear and nonlinear stability of various fluid flows.

ABOUT INTERNATINAL FACULTY

Professor Gajjar has over 37 years of research and teaching experience. He holds a BSc, ARCS, PhD, DIC (Mathematics) degrees from the Imperial College London, United Kingdom. He worked at the University of Exeter for about six years until he joined the University of Manchester in November 1991 as Lecturer in Applied Mathematics. Currently, he is the Professor of Applied Mathematics at the University of Manchester since 2007.

He has worked and published extensively on various aspects of the linear and nonlinear development of cross flow instability in three dimensional incompressible and compressible boundary layer flows, numerical solution of the Navier-Stokes equations, nonlinear critical layer theory, instabilities in the flow over compliant surfaces. His recent research work is focussed on developing methods for computing two-dimensional and three-dimensional partial-differential eigenvalue problems for globally unstable flows. He has successfully supervised 21 PhD students and 20 M.Sc. students, His research articles have appeared in many leading academic journals in applied mathematics, physics and engineering. He is the co-author of the text book "Fluid Dynamics, part – I, classical fluid dynamics" (2014) (Oxford Univ. Press) and one more book "Fluid Dynamics, part – IV, Hydrodymanic stability theory" is in preparation. He is a fellow of Royal Society of Arts. He hold several major administrative positions within and outside the institute. He regularly re-views journal articles for several leading international journals.

WHO CAN PARTICIPATE?

This course is open to all graduate students, Ph.D. students, Post Doctoral research students and faculty working in Applied Mathematics, Mechanical Engineering, Chemical Enigneering, Civil Engineering, and Engineering Physics as well as Materials Scientists with the ideas behind the linear and nonlinear stability theory for a variety of fluid flows.

The Faculty and Research Scientitists with interests in fluid dynamics, linear and nonlinear stability theory for a variety of fluid flows are also eligible.

HOW TO REGISTER

Stage-1: Web Portal Registration

Visit: http://www.gian.iitkgp.ac.in/GREGN/index and create login User ID and Password. Fill up the blank registration form and do web registration by paying Rs. 500/- online through Net Banking / Debit / Credit card. This provides the user with life time registration to enroll in any number of GIAN courses offered.

Stage-2: Course Registration

Login to the GIAN portal with the user ID and Password already created in Step 1. Click on Course Registration option at the top of Registration Form. Select the Course titled "Linear and Non-linear Hydrodynamic Stability: Theory and Computation " from the list and click on save option. Confirm your registration by clicking on Confirm Course.

REGISTRATION FEE

Faculty & Scientists from R&D Labs	Rs. 2,000/-
Participants from Industry / Training organizations/ Consultancy firms	Rs. 4,000/-
Students & Research Scholars from India	
With the award of a grade	Rs. 1500
Without award of a grade	Rs. 1000
Participants from abroad	
For Students	USD 50
For Other participants	USD 100

The Registration fee includes instructional materials and tutorials.