

Engineering Measurements and Metrology

INTERNATIONAL FACULTY

Prof. S. Chandrasekar

Professor in Schools of Industrial Engineering and Materials Engineering,
Purdue University, West Lafayette, IN, USA

HOST FACULTY/COURSE COORDINATOR

Dr. Anil Chandra A.R.,

Asst. Professor, Dept. of Mechanical Engg., BMSCE, Karnataka, India

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Asst. Prof, Dept. of Mechanical Engg., BMSCE, Karnataka, India

MAY 23 - 27, 2022

OVERVIEW

Measurements and Metrology are key to a number of engineering applications ranging from manufacturing to materials processing to quality control to infrastructure. The recent development of new manufacturing techniques such as additive manufacturing and robotic manufacturing poses new challenges to the measurements and metrology fraternity. Measurements could be during the process or post-process and can be performed using contact or non-contact type instruments. Several new techniques of measurements are being used in the R&D/ industry to address the challenges posed by the growing demand for accuracy and repeatability. Nevertheless, this has not phased out the older systems of measurements and the use of appropriate techniques depends on the accuracy, repeatability, and the cost involved. All measured parameters can be fundamentally related to basic parameters such as displacement, temperature, and time and can be used in measuring force/pressure/surface texture and so on, all relevant to branches of Engineering. This course includes,

- Surface topography and Coordinate Measuring System.
- Transducers and Strain measurement
- Temperature and Pressure measurement
- Flow measurement
- Statistical Data analysis
- Vision-based measurement systems such as DIC, 3D scanner

Introduction to contact and non-contact measurement techniques forms the basis of this course with hands-on exposure to using advanced instruments in the industry. The course is intended for all practitioners, researchers, and academicians in the engineering domain with an interest in measurements and metrology. It will provide them with information from the basics of measurements to the latest in the science of measurements. We envisage that it will be valuable in supporting the Make In India initiative.

OBJECTIVES

The primary objectives of the course are as follows:

- i) To ensure the participants understand the fundamentals of measurements and surface/form metrology in areas of force, pressure, temperature, displacement, and surface topography
- ii) The participant must be able to analyze the need for making use of the appropriate measurement technique for various applications. The participant must develop a temper of metrology for engineering applications
- iii) Applying best measurement techniques and their science for better products.
- iv) Provide an opportunity for the participants to experience industrial and research problems in the field
- v) Expose the participants to the latest technology in the field of measurements and metrology



WHO CAN ATTEND

- Engineers and researchers from manufacturing, service, and government organizations including R&D laboratories
- Faculty/Scientists/Technologists from academic institutions/research organizations. Research Students/Master's students from academic institutions you are a mechanical engineer or research scientist interested in characterizing materials for their mechanical properties and quality inspection.

ABOUT THE COURSE

This course on measurements and metrology is an interdisciplinary one that will be beneficial to students/research scholars/faculty members/scientists and technologists of all branches of Engineering. It will assist in disseminating the knowledge and know-how related to various aspects of measurements pertaining to academia and industry.

The course includes lecture classes and lab demonstrations.

The number of participant registration will be limited to fifty.

IMPORTANT DATES

Registration closing date :

13-MAY-2022

Course commencing date:

23-MAY-2022

INTERNATIONAL FACULTY



Prof. S.Chandrasekar is a Professor in Schools of Industrial Engineering and Materials Engineering. He is also the Director of Center for Materials Processing and Tribology, Purdue University, West Lafayette, IN, USA.

His research interests include Manufacturing Processes, Metrology, Tribology.

HOST FACULTY



Dr. Anil Chandra A.R. is an Assistant Professor at Department of Mechanical Engineering, B.M.S.College of Engineering, Bengaluru. His research interests are in the areas of materials processing, structural integrity and nanocomposites.



Dr. Shivashankar R. Srivatsa is an Assistant Professor at the Department of Mechanical Engineering, B.M.S.College of Engineering, Bengaluru. His research interests include numerical analysis using FEM, Digital Image Correlation technique of strain measurements.

ABOUT GIAN COURSE

Govt. of India approved a programme titled Global Initiative of Academic Networks (GIAN) in Higher Education aimed at tapping the talent pool of internationally renowned scientists and entrepreneurs. This is to encourage their engagement with the institutes of Higher Education in India so as to augment the country's existing academic resources, accelerate the pace of quality reform, and elevate India's scientific and technological capacity to global excellence; <http://www.gian.iitkgp.ac.in>

REGISTRATION PROCESS

- Web Portal Registration: For Visit GIAN website: <https://gian.iitkgp.ac.in/GREGN/index> and create a login, user ID, and password. Fill up the GIAN registration form and complete one-time web registration by paying Rs.500/- online. This enables the user lifetime access to enroll in any GIAN courses.
- Login to the GIAN Portal with the registered user credentials and register for the course titled "Engineering Measurements and Metrology".
- Fill in the course registration google form https://docs.google.com/forms/d/1IfKpDIap426Rgn_z17ec07l_VW3_ed5HkFfXmY6UlpE/edit after making the payment through IMPS/ NEFT/ Demand Draft on or before MAY 13th 2022.
- Submit the payment acknowledgment receipt or screenshot of the payment to the coordinator at anilchandraar.mech@bmsce.ac.in

ABOUT BMSCE



BMSCE is the first Indian private sector initiative in engineering education established in 1946. It is located in the heart of Bengaluru with a campus area of 11+ Acres. In the past 75 years, the institution has produced more than 40,000 engineers/leaders who have enriched the world through their immense contributions to mankind. Currently, more than 350 research scholars are pursuing their doctoral degrees. The institute became autonomous in 2008 and it is ranked 69 by the NIRF, 40 by Outlook India's and 6th among private engineering by India Today in 2019.

ABOUT MECHANICAL ENGINEERING DEPARTMENT

The Department of Mechanical Engineering came into existence in the year of 1946. The Department has over 50+ well-experienced, qualified, and dedicated faculties with specialization covering various areas of Mechanical Engineering. The department has well-equipped laboratories and workshops and has many research projects sponsored by various organizations. The Department is offering three Post-Graduate programs in Machine Design, Manufacturing Science and Engineering, and Thermal Engineering. The department is recognized as a research center by VTU, Belgaum, as well as QIP Centre for Ph.D. program by AICTE. The major research areas are Fluid flow and Heat transfer, MR Fluids, Smart Materials and MMC, Thermo acoustic refrigeration and Structural Dynamics.

FEES

The Registration fees for the course is as follows:

Participants from abroad	: USD 50
Industry/ Research Organizations	: INR 1000
Faculty members	: INR 600
Students /Research Scholars	: INR 300

FEE TO BE PAID TO:

ACCOUNT NAME	: HOD MECHANICAL
ACCOUNT NUMBER	: 20274181802
BANK BRANCH	: INDIAN BANK - HANUMANTH NAGAR
BRANCH IFSC	: IDIB000B607

ADDRESS FOR CORRESPONDENCE

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