



PMMMNTT

Scheme



MHRD
Govt. of India

सत्यमेव जयते

A Five-Day Faculty Development Programme on

Innovative Methods for Teaching Mechanical Engineering (IMTME2017)

22-26 March, 2017



Coordinators

Dr. Hari Kumar Voruganti, Ph.D., IIT Kanpur

Prof. P. Bangaru Babu, Ph.D., IIT Madras

Prof. R. V. Chalam, Ph.D., IIT Kanpur

<https://sites.google.com/view/imtme2017>

Organized by

Department of Mechanical Engineering
National Institute of Technology
WARANGAL – 506 004
Telangana State, INDIA

About the Programme

There is a large gap in *what is taught in engineering institutions* and *what is expected of young graduate engineers*. Shortage of quality teachers in engineering is resulting in graduates with poor abilities in solving real world problems. There is a dire need for training of faculty in engineering both in pedagogical skills and domain knowledge.

Since most of the content of mechanical engineering involves the physics of the real-world, it is possible to explain the concepts in such a way that the students *experience* or *gets the feel of it*. Unfortunately, not many books are written in this manner and, often subjects are not taught it this way. The concepts are best explained by designing simple and cost effective experiments. Similarly, the concepts of advanced courses like CAD and FEA can be better appreciated by implementing the ideas using a computer code- say in Matlab which can address the limitation faced in hand-calculations/calculator based approach. This program aims at training of teachers of mechanical engineering and allied disciplines in the best of the methods to teach fundamental and critical topics that constitute basis for mechanical engineering. It also includes setting up simple experiments to make students easily learn difficult concepts in Mechanical engineering. Major part of the course content is based on indigenous teaching methods developed by the faculty of mechanical engineering over a period of time. For example, a simple experiment with threads and beads itself is developed to explain the concept of *Coulomb friction*. Apart from being popular teachers, a text-book on Mechanical Vibrations (published by PHI), a few journals papers also have been published by the coordinators in the International Journal of Mechanical Engineering Education on some of these concepts. Two patents related to mechanisms are also in process. A set of computer programs for classroom teaching are also developed to explain the concepts of CAD and FEM which are appreciated by students.

Course Content:

- ✓ Innovative methods of introducing concepts in subjects like *kinematics and dynamics of machinery, mechanical vibrations, machine design and basics of numerical methods*.
- ✓ Effective ways of teaching *fluid mechanics and heat transfer- transport phenomenon/unified approach*
- ✓ Developing *simple and cost-effective experiments* to teach concepts in mechanical engineering.
- ✓ Developing computer codes to teach concepts of *geometric modeling for computer aided design (CAD), finite element method (FEM) using MATLAB*.
- ✓ Insights into *numerical solutions of complex problems*.
- ✓ Inspirational lectures by stalwarts of mechanical engineering in the country and abroad on *teaching with passion*.

Resource Persons

Partial list of resource persons is as follows:

Invited Speakers:

Prof. A.K. Mallik, Former Professor, IIT Kanpur. (Popular teacher and author of book, 'Theory of Mechanisms and Machines')

Prof. Raghu Echampati, Kettering University, USA.

Design subjects:

Prof. R. V. Chalam, Mech. Engg. Dept., NITW.

Prof. P. Bangaru Babu, Mech. Engg. Dept., NITW.

Dr. Hari Kumar V., Mech. Engg. Dept., NITW.

Fluid Mechanics and Heat Transfer:

Sri.V.N.Kameswara Rao, Civil Engg. Dept., NITW.

Pedagogy:

Prof. I.A.K. Reddy, TLC, NITW.

Prof. B.V. Appa Rao, TLC, NITW.

About the Department and NIT Warangal:

The department of Mechanical Engineering offers an UG program, seven PG programs and a Ph. D program as well. There are 39 qualified and experienced faculty in the department. The department has liaison with reputed industries and R & D organizations like NFTDC, BHEL, DMRL, DRDL etc. Presently the department is handling several R & D projects and consultancy works. The department has also been recognized as QIP centre for M. Tech and Ph. D.

National Institute of Technology Warangal, was established in 1959. Over the years it has developed into a premier institute of higher learning and is ranked among the top technical education institutions in India. There are 14 Departments offering eight undergraduate and 32 post-graduate programmes besides doctoral programmes. About 5000 students across the country and about 500 international students study in the campus.

Teaching-Learning Centre of NIT Warangal:

The Teaching-Learning Centre (TLC) is established at NIT Warangal with grants from the MHRD, GoI under the scheme, 'Pandit Madan Mohan Malaviya National Mission on Teachers and Teaching' (PMMMNTT). Many senior and young faculty members across various departments of the Institute are associated with this center as members of the Core-Team.

One of the important objectives of the center is to conduct training programs for Aspiring, Newly Inducted and In-Service faculty in Science and Engineering disciplines. Other activities of the TLC include preparation of e-learning materials, offering courses on-line, curriculum development, carrying out research in pedagogy and integrating ICT into teaching-learning process.

About Warangal

Warangal is the second largest city of the new state of Telangana. It 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). Warangal is renowned for its rich historical and cultural heritage. It was the seat of erstwhile 5th Kakatiya dynasty. It is a place of tourist attraction with a number of historical monuments like Thousand Pillars Temple, Warangal Fort, Bhadrakali Temple, Ramappa Temple and Laknavaram Lake.

Registration is open to:

This program is open to Faculty of mechanical engineering and allied disciplines/ Professionals involved in training of mechanical engineers / Post-Graduate students and Research scholars aspiring for an academic career

How to Apply:

Eligible candidates may apply by submitting the scanned copy of the filled in registration form by Email to imtme2017@gmail.com on or before **15-03-2017** along with the registration fee. See <https://sites.google.com/view/imtme2017> for schedule, more about the course and regular updates.

Registration fee:

Category of Participant	Local/NITW Participants	Participants requiring accommodation
Faculty	Rs.600	Rs.1200
Students	Rs.300	Rs.600
Participants from Training / Consultancy organization etc		Rs.2500

Note: Fee for Faculty and Students of SC/ST category is half of the amounts mentioned above as applicable.

Registration fee may be sent in the form of a DD or remitted through On-line to the Bank account given below. Local participants may also pay the registration fee in cash to the Coordinator, Mechanical Engineering Department. Scanned copy of the DD / Proof of remittance of the requisite registration fee (with transaction number if online transaction) shall be sent as attachment to imtme2017@gmail.com

Account Name	DIRECTOR, NIT WARANGAL
Account Number	52109375198
Bank	State Bank of Hyderabad
Branch	REC Warangal (NIT Campus)
Branch Code	20149
IFSC code	SBHY0020149

Confirmation of Participation:

On receipt of the registration form along with proof of payment of registration fee, participants will be sent confirmation of their participation through Email by **15-03-2017**. As the programme is conducted in an interactive mode with hands-on sessions, the number of participants in the workshop is limited to **40**. *Candidates are advised to register early to avoid disappointment.*

Address for correspondence.

Coordinator, IMTME2017

Department of Mechanical Engineering,
National Institute of Technology, Warangal
Telangana State, India- 506 004.

Mobile: +91 89 859 29 103

Email: imtme2017@gmail.com

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REGISTRATION FORM

Name : _____

Date of Birth : _____

Place of Birth: Village/Town/City: _____ Tick as applicable (Rural / Urban)

District _____ State: _____

Gender (Put a \sqrt Mark) : Male Female

Category (Tick as applicable) : **Open / OBC / SC / ST / PWD**

Qualification : _____

Designation : _____

Organization : _____

No. of Years of Teaching Experience: _____

Address for Correspondence : _____

Mobile(s): _____

Email(s) _____

Details of Remitting Registration Fee: (i) Amount in Rs. _____

(ii) Name of the Bank Through which Remitted/DD Taken : _____

(iii) On-line Transaction No./ DD No: _____ (iv) Date: _____

Accommodation (Put a \sqrt Mark) : Required Not Required

Declaration by the Applicant

If selected, I agree to abide by the rules and regulations of the workshop / training programme and shall attend all the sessions.

Date:

Signature of the Applicant

Recommended and Forwarded

Office Seal

Signature of the Head of the Department/ Institution