



ME X PRESS



Attitude takes you to Altitude

A Half yearly Newsletter from Department of Mechanical Engineering
Dr. M.G.R. EDUCATIONAL AND RESEARCH INSTITUTE,
Maduravoyal, Chennai-600 095.

Volume: 1 Issue: 1 January - June, 2018

Editorial Board:

Department of Mechanical
Engineering



Message

Chief Editor:

Dean and Addl. Dean (E & T)

Editor:

HOD (Department of Mechanical
Engineering)

Technical Board:

Department Faculty

I am extremely delighted to hear the pleasant news that Mechanical Engineering Department has decided to publish a newsletter at half yearly named "MeXpress". This is bound to be a distinguished landmark in the history of Dr. M.G.R. Educational and Research Institute. Hope this newsletter will enlighten the readers the highlights during the respective periods besides disseminating useful information on contemporary Mechanical Engineering.

A. C. S. Arunkumar,
President,

Dr. M.G. R. Educational and Research Institute,
Chennai-600 095

Editor's Desk

Dear Readers,

We are very happy to announce a newsletter at half-yearly interval named *MeXpress* of our Department. We thank our beloved chairman **Dr. A. C. Shanmugam** for his constant encouragement and support in launching this maiden venture. The newsletter is a brainchild of our President, who is keen in developing our Institute as a leading technical university. Your suggestions and criticisms are most welcome for embellishing this newsletter.

"Happiness is a Habit"

SPECIAL NOTE FROM EDITOR: Since this happens to be the first issue of our newsletter basic information viz..

- **University Vision & Mission**
- **Department Vision & Mission**
- **Program Educational Objectives (PEO)**
- **Program Outcomes (PO)**
- **Program Specific Outcomes (PSO)**
- **PEO Vs Mission Statement**

are covered to enable everybody to be thorough with all these aspects.

University Vision & Mission

Vision

To provide for contemporary knowledge delivery of global standards, excellence in knowledge creation in emerging areas and mutually rewarding university societal interactions

Mission

- Our Mission is to make the Institution as a Resource Centre for Higher Level Teaching – Learning Process, in the fields of Engineering, Dental Surgery, Medicine, Allied Health Sciences, Humanities & Sciences, Architecture, Management & Education
- We wish to impart relevant training and education to the youth to make them technically qualified, practically competent and skilled human resources, to suit the needs and demands of the modern industries, business or research and development organizations
- We also wish to promote ethical values and encourage creative ideas among the younger generation and thereby to develop their entrepreneurial skills which will ultimately benefit the Society and Nation

“Our Students are to be Job Creators and not Job Seekers”

Department Vision and Mission

Vision:

To educate, nurture and motivate the upcoming Engineering professionals with moral and ethical values to become a committed punctilious Engineers to the Nation

Mission:

- M1:** Providing quality education through well structured curricula supplemented with practical training, guest lectures by eminent professionals, field visits to leading industries and also in-plant training.
- M2:** Enhancing skills through faculty development programmes.
- M3:** Providing ambience for innovative projects and extra-curricular activities.
- M4:** Equipping the department with contemporary infra-structure and the state of art R&D centre to cater to the needs of research scholars and industries.
- M5:** Providing training to students in emerging areas like robotics and CAD/CAM.
- M6:** Nurturing students having creative ideas to adopt innovative projects which can be subsequently Commercialized.

Program Educational Objectives (PEO):

1. Graduates will learn and utilize the basics of science and Mechanical Engineering knowledge to excel in their Industrial, Academic, Research and entrepreneurship career.
2. Graduates will contribute to the society as technically educated, ethical and responsible citizens with proven expertise
3. Graduates will fulfill their goals with thrive to pursue lifelong learning with creativity and innovation.

Program Outcomes (PO):

Engineering Graduates will be able to:

1. **Engineering knowledge:** Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems
2. **Problem analysis:** Identify, formulate, review research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences
3. **Design/development of solutions:** Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal, and environmental considerations.
4. **Conduct investigations of complex problems:** Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions.
5. **Modern tool usage:** Create, select, and apply appropriate techniques, resources, and modern Engineering and IT tools including prediction and modeling to complex engineering activities with an understanding of the Limitations.
6. **The engineer and society:** Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional engineering practice.
7. **Environment and sustainability:** Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.
8. **Ethics:** Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.
9. **Individual and team work:** Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.
10. **Communication:** Communicate effectively on complex engineering activities with the engineering community and with society at large, such as, being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions.
11. **Project management and finance:** Demonstrate knowledge and understanding of the engineering and management principles and apply these to one's own work, as a member and leader in a team, to manage projects and in multidisciplinary environments
12. **Life-long learning:** Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change.

Program Specific Outcomes (PSO):

1. Students will have knowledge of Mechanics of Fluids, Thermal Energy and their applications.
2. Students will learn to design Mechanisms and Mechanical components.
3. Students will learn the various concepts of Manufacturing in Industrial scenario .
4. Students will be exposed to multi disciplinary subjects in Engineering field.

Program Educational Objectives (PEO) Vs Mission Statement

Program Educational Objectives (PEO)	PEO No.	Mission Statement					
		M1	M2	M3	M4	M5	M6
1. Graduates will learn and utilize the basics of science and Mechanical Engineering knowledge to excel in their Industrial, Academic, Research and entrepreneurship career.	PEO1	3	-	-	3	2	2
2. Graduates will contribute to the society as technically educated, ethical and responsible citizens with proven expertise.	PEO2	3	2	2	3	-	-
3. Graduates will fulfill their goals with thrive to pursue lifelong learning with creativity and innovation..	PEO3	-	2	3	-	2	3

p.s.: 1: Slight (Low) 2: Moderate (Medium) 3: Substantial (High) - No correlation

TECHNICAL EVENTS ORGANIZED FOR STUDENTS

Sl. No.	Topic	Date	Resource Person
1	An overview to the science of materials	15/02/18	Mr. W.Andrew Nallayan, MGRE& RI / ME
2	Automobile Tech. Services	20/02/18	Mr. P. Xavier Jaganathan, Goodwin Motors
3	Heat Recovery Process	20/02/18	Mr. P. Wilson John, MGRE& RI / ME
4	Certificate Training Program – Solid Works Software	27/02/18-03/03/18	CADD CAM Solutions
5	Mechatronics	01/03/18	Mr. A. Manoj Babu, MGR E& RI / ME
6	Additive Manufacturing	16/03/18	Mr. Abilash Chakravarthy, Infant Engrs. Pvt. Ltd.
7	Cloud Computing	19/03/18	Dr. M.S. Josephine, MGRE&RI / MCA
8	Materials Mgmt. & Inventory Control	11/04/18	Mr. D. Sekar, ACMA UNIDO



An Overview to “The Science of Materials” Automobile Tech. Services



Heat Recovery Process



Solid Works Software Training



Mechatronics



Additive Manufacturing



Cloud Computing



Materials Mgmt. & Inventory Control

- Besides a National Level Conference **TIME 2018** was conducted on 5th & 6th April 2018. **The focus was on “RECENT ADVANCEMENTS IN MATERIAL PROCESSING AND CHARACTERIZATION”**



TIME 2018 “Recent Advancements in Material Processing and Characterization”

IIT PALS EVENTS

Sl. No.	EVENT	DATE	Resource Person
1	Theory to Practice Lectures – Data driven Automotive design	15/02/18	1. Prof. Palaniappan Ramu Engg. Design IIT Madras 2. Mr. Murali Balsubramanian Fiat Crysler Automotives, Chennai
2	Innowah Finals	01/03/18	
3	PALS Valedictory: “Digital disruption – Redefining business & education”	17/03/18	Shri. Sunil Paliwall IAS Secy., Higher Education, Govt... of Tamil Nadu

PARTICIPATION IN INTERNATIONAL EDUCATIONAL FAIRS

S.No	Event	Date	Staff
1.	"INDIA EDUCATION FAIR 2018" - HANOI, VIETNAM	19TH & 20TH MARCH 2018	1. Mr. A.Manoj Babu MGR E& RI / ME 2.Mr. P. DINESH KUMAR MGR E& RI International Relations
2.	"EDUCATION FAIR" PORTBLAIR, ANDAMAAN	APRIL 2018	
3.	"THE GREAT INDIA EDUCATION FAIR" KATHMANDU, NEPAL.	20TH & 21ST MAY 2018.	



"India Education Fair 2018" Vietnam Nepal



"Education Fair" Andaman



"The Great India Education Fair"

Reviewer in Journal



Publications by Faculty:

- Lokeshwaran, N., Suresh, T., Booneshwaran, P., Thirunavukkarasu, V., Gnanasekaran, M., Nallusamy, S. Enhancement of productivity in textile industries through weavers ergonomic factors (2018) International Journal of Mechanical Engineering and Technology, 9 (12), Art. no. 0912061, pp. 585-595.
- Sivakumar, K., Mohankumar, T., Rajan, K. Numerical analysis of heat transfer characteristics with triangular cut twisted tape inserts (2018) AIP Conference Proceedings, 2039, Art. no. 020059, DOI: 10.1063/1.5079018
- Kumar, A., Rajan, K., Naraynan, M.R., Kumar, K.R.S. Experimental study of diesel engine using cashew nut Shell oil (CNSO) with varying injection pressures (2018) AIP Conference Proceedings, 2039, Art. no. 020058, DOI:10.1063/1.5079017

4. Srinivasan, R., Devi, S.P., Manivannan, S., Ethiraj, N. Fraudulent claims detection in automobile industry using predictive data analytics (2018) International Journal of Mechanical Engineering and Technology, 9 (11), pp. 1447-1452.
5. Racharla, S., Rajan, K., Rajaram Narayanan, M., Senthil Kumar, K.R. Experimental investigation on efficiency enhancement of the solar panels with mirrors and parabolic platform using fuzzy logic (2018) International Journal of Mechanical Engineering and Technology, 9 (11), pp. 360-369.
6. Karthikeyan, A., Nallusamy, S. Experimental investigation of wear properties on aluminium-6061 based silicon carbide composites using sem(2018) International Journal of Mechanical Engineering and Technology, 9 (10), pp.454-463.
7. Narayanan, M.R., Nallusamy, S., Sathiyam, M.R. Design and analysis of a wind turbine blade with dimples to enhance the efficiency through CFD with ANSYS R16.0 (2018) MATEC Web of Conferences, 207, Art. no. 02004, DOI: 10.1051/mateconf/201820702004
8. Kandasamy, A., Jabaraj, D.B., Chandran, M. Investigation of biodiesel (Jatropha) with AL₂O₃ in ci engine (2018) International Journal of Mechanical and Production Engineering Research and Development, 8 (4), pp. 929-937.
9. Kandasamy, A., Jabaraj, D.B., Chandran, M. Investigation of biodiesel (Jatropha)with al₂o₃ in ci engine(2018) International Journal of Mechanical and Production Engineering Research and Development, 8 (4), pp. 961-970. DOI: 10.24247/IJMPERDAUG2018100
10. Bhaskar, K., Sendilvelan, S. Experimental evaluation of jatropha oil methyl ester (JOME) and fish oil methyl ester(FOME) in a compression ignition engine with exhaust gas recirculation(2018) Pertanika Journal of Science and Technology, 26 (3), pp. 1067-1080
- 11..Kiani Deh Kiani, M., Rostami, S., Eslami, M., Yusaf, T., Sendilvelan, S. The effect of inlet temperature and spark timing on thermo-mechanical, chemical and the total exergy of an SI engine using bioethanol-gasoline blends (2018) Energy Conversion and Management, 165, pp. 344-353. DOI: 10.1016/j.enconman.2018.03.066
12. Muruganandham, S.K., Soby, D., Nallusamy, S., Mandal, D.K., Chakraborty, P.S. Study on leaf segmentation using K-means and K-medoid clustering algorithm for identification of disease (2018) Indian Journal of Public Health Research and Development, 9 (5), pp. 289-293. DOI: 10.5958/0976 5506.2018.00456.4
13. Kumar, D.S.L., Nallusamy, S., Ramakrishnan, V. Proposed inventory management model to improve the supply chain efficiency and surplus in textile industry(2018) International Journal of Mechanical Engineering and Technology, 9 (5), pp. 675-686
14. Soby, D., Muruganandham, S.K., Nallusamy, S., Chakraborty, P.S. Wireless ECG monitoring system using IoT based signal conditioning module for real time signal acquisition (2018) Indian Journal of Public Health Research and Development, 9 (5), pp. 294-299. DOI: 10.5958/0976-5506.2018.00457.6
15. Bhaskar, K., Sendilvelan, S. Performance and emission characteristics of a diesel engine with Diesel Premixed Compression Ignition and exhaust gas recirculation (2018) Heat Transfer - Asian Research, 47 (3), pp. 507-519. DOI: 10.1002/htj.21315

16. Ayshath Zaheera, K.M., Kumar, C.B.S., Nallusamy, S. Significance of an employee and team satisfaction for augmentation and successfulness of an organization (2018) *International Journal of Mechanical Engineering and Technology*, 9 (4), pp. 771-779
17. Ayshath Zaheera, K.M., Senthilkumar, C.B., Nallusamy, S. Important factors on human recruitment approach for the accomplishment of an organization(2018) *International Journal of Mechanical Engineering and Technology*, 9 (4), pp. 450-459
18. Kaleel Ahmed, A., Kumar, C.B.S., Nallusamy, S. Significance of research design in supply chain management for small and medium enterprises(2018) *International Journal of Mechanical Engineering and Technology*, 9 (4), pp. 763-770
19. Prabhahar, M., Krishnamoorthi, S., Francis Xavier, J., Sendilvelan, S. Experimental investigations on dual bio-fuel (Pine biodiesel and palm biodiesel) blended with diesel on a single cylinder diesel engine (2018) *International Journal of Mechanical and Production Engineering Research and Development*, 8 (2), pp. 87-92.
20. Prabhahar, M., Sendilvelan, S., Sassykova, L.R. Studies on pongamia oil methyl ester fueled direct injection diesel engine to reduce harmful emissions (2018) *Indian Journal of Environmental Protection*, 38 (4), pp. 269-277
21. Kumar, S.L., Nallusamy, S., Modak, R. Execution of value engineering approach for design development and cost reduction of monoblock pump (2018) *ARPJ Journal of Engineering and Applied Sciences*, 13 (5), pp. 1734-1741
22. Krishnamoorthi, S., Prabhahar, M., Saravana Kumar, M., Sendilvelan, S. Yield characteristic of biodiesel derived from used vegetable oil methyl ester (UVOME) blended with diesel, in the presence of sodium hydroxide (NAOH) and potassium hydroxide (KOH) catalyst, as alternative fuel for diesel engines (2018) *International Journal of Mechanical and Production Engineering Research and Development*, 8 (1), Art. no. IJMPERDFEB20182, pp. 9-16. DOI: 10.24247/ijmpferdfeb20182
23. Nallusamy, S., Paul, C.M.P., Sujatha, K. Bio-medical waste management system in multi-specialty hospital using birnbaum's measures—a case study (2018) *Indian Journal of Public Health Research and Development*, 9 (2), pp. 283-289. DOI: 10.5958/0976-5506.2018.00134.1
24. Nallusamy, S., Paul, C.M.P., Dolia, P.B. Development of inventory model for health care system in multi-speciality hospitals using arena (2018) *Indian Journal of Public Health Research and Development*, 9 (2), pp. 276-282. DOI: 10.5958/0976-5506.2018.00133.X
25. Elangovan, K., Senthilkumar, C.B., Nallusamy, S. Study on effect of chennai metro rail limited routing system and its future growth (2018) *International Journal of Mechanical and Production Engineering Research and Development*, 8 (1), pp. 1079-1086
26. Ramakrishnan, V., Nallusamy, S., Rajaram Narayanan, M. Study on lean tools implementation in various Indian small and medium scale manufacturing industries (2018) *International Journal of Mechanical and Production Engineering Research and Development*, 8 (1), pp. 969-976
27. Nallusamy, S., Kumar, V., Yadav, V., Prasad, U.K., Suman, S.K. Implementation of total productive maintenance to enhance the overall equipment effectiveness in medium scale industries (2018) *International*

Journal of Mechanical and Production Engineering Research and Development, 8 (1), Art. no. IJMPERDFEB2018123, pp. 1027-1038

28. Kaleel Ahmed, A., Senthilkumar, C.B., Nallusamy, S. Study on amalgamation of internet of things in industrial applications (2018) International Journal of Mechanical and Production Engineering Research and Development, 8 (1), pp. 1279-1286. DOI: 10.24247/ijmperdfeb2018148
29. Ayshath Zaheera, K.M., Senthilkumar, C.B., Nallusamy, S. Investigation study on effective tools for conscription of various industrial applications (2018) International Journal of Mechanical and Production Engineering Research and Development, 8 (1), Art. no. IJMPERDFEB2018143, pp. 1221-1230
30. Ayshath Zaheera, K.M., Senthilkumar, C.B., Nallusamy, S. Execution of selection process in regular area of industrial application with its current features for manufacturing enhancement in SMEs (2018) International Journal of Mechanical and Production Engineering Research and Development, 8 (1), pp. 1191-1198
31. Kaleel Ahmed, A., Senthilkumar, C.B., Nallusamy, S. Study on environmental impact through analysis of big data for sustainable and green supply chain management (2018) International Journal of Mechanical and Production Engineering Research and Development, 8 (1), Art. no. IJMPERDFEB2018145, pp. 1245-1254
32. Bhaskar, K., Sassykova, L.R., Prabhakar, M., Sendilvelan, S. Effect of dimethoxy-methane (C₃H₈O₂) additive on emission characteristics of a diesel engine fueled with biodiesel (2018) International Journal of Mechanical and Production Engineering Research and Development, 8 (1), pp. 399-406
33. Nallusamy, S., Rajaram Narayanan, M., Saravanan, S. Investigation on structural steel and silicon carbide aluminum metal matrix composite spur gears using PTC creo and ANSYS 16.0 (2018) Materials Science Forum, 937, pp. 33-41. DOI: 10.4028/www.scientific.net/MSF.937.33
34. Nallusamy, S., Rekha, R.S., Saravanan, S. Study on mechanical properties of mono composite steel plate cArt spring using pro engineer and ANSYS R16.0 (2018) International Journal of Engineering Research in Africa, 37, pp. 13-22. DOI: 10.4028/www.scientific.net/JERA.37.13
35. Elangovan, K., Senthil Kumar, C.B., Nallusamy, S. Enhancement of navigation and people life style at metros-A CMRL study (2018) International Journal of Mechanical Engineering and Technology, 9 (2), pp. 679-685
36. Rajaram Narayanan, M., Nallusamy, S. Experimental analysis of aluminium alloy metal matrix composite with tungsten carbide by in-situ method using sem(2018) Rasayan Journal of Chemistry, 11 (1), pp. 355-360. DOI: 10.7324/RJC.2018.1112047
37. Sundara Raman, R., Sankara Narayanan, G., Manoharan, N., Sendilvelan, S. Experimentation on emission analysis of a compression ignition engine run with bio-diesel (2018) Journal of Engineering and Applied Sciences, 13 (1), pp. 172-176. DOI: 10.3923/jeasci.2018.172.176
38. Nallusamy, S., Rajaram Narayanan, M., Suganthini Rekha, R. Design and performance analysis of vehicle tyre pattern material using finite element analysis and ANSYS R16.2 (2018) Key Engineering Materials, 777, pp. 426-431. DOI: 10.4028/www.scientific.net/KEM.777.426
39. Suresh Kumar, D., Ethiraj, N. Experimental investigation on AISI 304 steel sheets formed by multi stage incremental forming (2018) IOP Conference Series: Materials Science and Engineering, 402 (1), Art. no.

012107, . DOI: 10.1088/1757-899X/402/1/012107

40. Adithiyaa, T., Jabaraj, D.B., Periyasamy, P., Vijaya Kumar, K.R. Fabrication of AA2219 alloy with silicon nitride metal matrix composites and its characterization (2018) International Journal of Mechanical and Production Engineering Research and Development, 2018 (Special Issue), pp. 417-421.
41. Nallusamy, S., Rao, G.V.P. Enhancement of pass percentage through lean six sigma approach in degree level technical educational institutions (2018) International Journal of Engineering Research in Africa, 39, pp. 191-201. DOI: 10.4028/www.scientific.net/JERA.39.191
42. Mohanavel, V., Rajan, K., Kumar, S.S., Udishkumar, S., Jayasekar, C. Effect of silicon carbide reinforcement on mechanical and physical properties of aluminum matrix composites (2018) Materials Today: Proceedings, 5 (1), pp. 2938-2944. DOI: 10.1016/j.matpr.2018.01.089