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Department of Mechanical engineering

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incredible innovations that improved the world in 2016

An edible drone delivering humanitarian aid

The only thing cooler than a drone is an *edible* drone — especially one that saves lives.

An inexpensive drone prototype, called Pouncer, was designed to help deliver humanitarian aid to remote regions with impassible roads. The drone doesn't just carry essential items for relief, but also features a plywood frame for firewood, wings packed with food and protective covers that can double as shelter.

Windhorse Aerospace, the company behind Pouncer, designed the drone in an effort to revolutionize aid in the aftermath of natural disasters. The team hopes the prototype will become a reality in 2017.

A wheelchair made for people in developing countries

For people with mobility-related disabilities, wheelchairs can be essential. But for people in developing regions, traditional wheelchairs are often unusable on the rough, rural terrain.

SafariSeat, an all-terrain wheelchair, is a low-cost solution to this often overlooked problem. The durable wheelchair is propelled forward by hand levers and features sturdy wheels. It's also made entirely of repurposed bicycle parts, designed to be manufactured and maintained in impoverished regions.

SafariSeat began crowdfunding on Kickstarter in November, and plans to start production in Kenya in 2017.

A bot that helps low-income families fight eviction

When expensive lawyers won't fit your budget, getting legal aid can seem impossible. But that's where robots come in.

Stanford undergrad Joshua Browder released a bot called Do Not Pay in August, which helps those unable to afford legal aid fight evictions.

To use Do Not Pay, a person facing eviction has a simple instant message-like conversation with the bot, which acts as a virtual lawyer. Based on the conversation, the bot decides how to best serve the user, usually crafting a claims letter based on the information provided.

Through this computerized consulting process, the Do Not Pay bot can potentially help low-income users save hundreds of dollars in legal fees.

Research Projects in Progress

- ❖ Two UGC projects ,worth 12 lakh and 4 lakh,received by Dr.K.Ravindra, Professor and HoD on ‘Development of High Strength Polymer Matrix Composites Reinforced with Metallic Glass Particulates’ and ‘Fabrication and Characterization of Nano Al₂O₃ reinforced magnesium metal matrix Composites’ in 2014 are in progress.
- ❖ Professor K.Srinivas received an 8 lakh worth UGC-MRP research project on ‘Tool Condition Monitoring Based on Acoustic Emission Techniques’ in 2015.This project is in progress.
- ❖ Dr.K.Ravindra was granted with a forty thousand worth, Institution of engineers UG2015029 Project ‘Design and Fabrication of 3D Printer’. This project is also in progress.

Guest Lectures Delivered:

- ❖ Dr.S.Radhika delivered a guest lecture on ‘Evolutionary algorithms DE and TLBO’ in a three day National Workshop on ‘Computational Research Using Matlab (CRUM)’ organized by the Department of Mechanical Engineering, Rama Chandra College of Engineering (RCCE), on Nov 11, 2016

Session Co-Chair:

- ❖ Dr.S.Radhika Co-Chaired a Session IV on ‘Metal Cutting’ on 17th December 2016 at AIMTDR 2016, organized by the Department of Production Engineering and Industrial Management, College of Engineering, Pune (COEP).

Paper Publications:

- ❖ A research paper on ‘Optimization of Drilling Parameters for HFRP Composite Using Anova Analysis written by K.V. Satyanarayana and Prof.D.V.V.Krishna Prasad was published in the International Research Journal Of Mathematics,

Engineering and IT Vol. 3, Issue 5, ISSN: 2349-0322, May 2016.

- ❖ A research paper on ‘Optimization of Drilling Parameters for Delamination Factor in Hybrid Fiber Reinforced Polymers written by K.V. Satyanarayana and Prof.D.V.V.Krishna Prasad was published in the IJSET - International Journal of Innovative Science, Engineering & Technology, Vol.3 Issue 6,ISSN:2348-7968, June 2016.
- ❖ A research paper on ‘Investigation of Mechanical Properties of Al356 Metal Matrix Composites’ written by Assistant Professors Sneha. H. Dhoria, M. Vijaya, P. Santhi Priya, T.Yamini was published in the journal of ‘Design of Back stopper Mechanism for Automobiles’ - IJETT Oct, 2016.
- ❖ A research paper on ‘Design and Optimization of Metal Matrix Composite (MMC’S) Spur Gear’ written by J.P.Karthik,Asst.Prof.,Rohith Sai Tunuguntla, Sai Praneeth Singu was published in the International Journal of Advanced Design and Manufacturing Technology, Vol. 9,Issue 3,2016.
- ❖ A research paper on ‘Design and Optimization of Locomotive Suspension System Using Ant Colony Optimization’ written by B. Bhavani, S. Srinivas Prasad J.P. Karthik, Asst.Prof. was published in the journal Trends in Machine design,Vol.3,issue 2,pp 44-49,Sept.2016.
- ❖ A research paper on ‘Fabrication and Friction Stir Welding of Aluminium SiC metal matrix composites’, written by C.Sailaja and B.Ramgopal Reddy, Assoc.Prof.was published in the International Journal of Innovative Research in Science, Engineering and Technology (IJIRSET), ISSN 2347-6710, Vol. 5(7), pp: 13153-13159, 2016.
- ❖ A research paper on ‘Sliding Wear Behavior of High Velocity Oxy-Fuel Sprayed WC-CO Coatings’ written by Y.N.V.SaiRam and Ch.Devaraj,Assistant .Professors was published in the International Journal of Advanced Science and Technology Vol.93 (2016), pp.45-54,ISSN 2005-4238,Sept.2016.
- ❖ A research paper on ‘Mechanical and Tribological properties of AA7075-TiC metal matrix composites under heat-treated (T₆) and cast conditions’ written by V.Ramakoteswara Rao, Asst.prof. N.Ramanaiah and M.M.M.Sarcar, was



published in the Journal of Materials Research and Technology, vol.5 (4), pp 377-383, 2016.

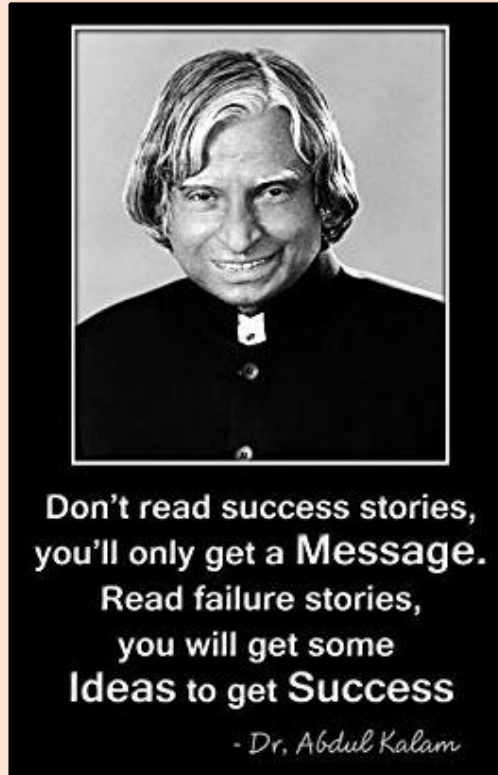
- ❖ A research paper on “Application of Grey-Taguchi Technique for Optimization of Process Parameters for wear behavior on AA7075-TiC metal matrix composites’ written by V. Ramakoteswara Rao, N. Ramanaiah, M.M.M. Sarcar and Ch. Deva Raj was published in the Proceedings of 6th International & 27th All India Manufacturing Technology, Design & Research (AIMTDR-2016), pp:1685-1688, 2016.

Paper Presentations in Conferences:

- ❖ C. Tara Sasanka, D.Sameer Kumar, Assistant Professors and Prof. K. Ravindra K.N.S. Suman, Palash Poddar presented a paper on ‘Microstructure and Hardness Evaluation of AZ91–Al₂O₃ Nano-Composites fabricated by Semi Solid Stir Casting’ in the 6th International & 27th All India Manufacturing Technology, Design and Research Conference (AIMTDR-2016), during Dec 16-18, 2016 at, College of Engineering, Pune, INDIA.
- ❖ Dr. V.Chittaranjan Das presented a paper on ‘Effect of Fuel injection Pressures on performance and emission characteristics of DI-CI Engine with Shea Olein’ in the International Conference on processing of Materials, Minerals and Energy (PMME) conducted by PACE institute of technology, ongole during 29-30 July, 2016.
- ❖ Dr. V.Chittaranjan Das and Dr.N.V.V.S.Sudheer presented a paper on ‘Optimization of multiple performance characteristics of the electrical discharge machining process on metal matrix composite (Al/5%TiCp) using Response surface methodology and desirability approach’ in the AIMTDR Conference, during 16-18 Dec.2016.
- ❖ Dr.N.V.V.S.Sudheer and Dr.V.Chittaranjan Das presented a paper on ‘Effect of Eco Friendly High Heat Transfer rate Soap nut solution in turning of Aluminium Metal Matrix Composite’ in the AIMTDR Conference, during 16-18 Dec.2016.
- ❖ Reddy Sreenivasulu, Asst.Prof B.Bhargavi Presented a paper in the conference proceedings on ‘Overview on Hybrid Metal Matrix Composites

(HMMC)’ at National Conference on Technological Advancements in Mechanical Engineering (TAME-2016) organized by Department of Mechanical Engineering, JNTUK, Kakinada pp 104-106. ISBN: 978-93-85100-57-4, during 22-23 July, 2016.

- ❖ Dr.N.V.V.S.Sudheer, Dr.V.Chittaranjan Das presented a paper on ‘Application of Grey-Taguchi Technique for Optimization of Process Parameters for wear behavior on AA7075-TiC metal matrix composites’ in the 6th International and 27th All India manufacturing technology, Design and Research conference (AIMTDR-2016), Organized by Pune College of Engineering, Pune, during 16-18, December 2016.



- ❖ Dr.S.Radhika, Assistant Prof. presented a paper on ‘Multi-objective optimization of master production scheduling problems using jaya algorithm’ in the 6th International and 27th All India Manufacturing Technology, Design and

Research (AIMTDR2016) Conference conducted by Department of Production Engineering and Industrial Management, College of Engineering, Pune (COEP), Maharashtra, during 16-18 Dec, 2016.

Conferences/ Workshops Attended:

- ❖ Dr. K. Praveen Kumar, Assoc. Professor participated in the ‘International Conference on Advancements in Aeromechanical Materials for Manufacturing (ICAAMM-2016)’, organized by MLR Institute of Technology, Hyderabad during July 7-9, 2016.
- ❖ Y.N.V. SaiRam and K. Hari Prasad, Asst. Professors, attended a short term course on ‘Digital Optical Measurements: Digital Photo elasticity and Digital Image Correlation’ organized by the Department of Applied Mechanics, IIT Madras, during 12-17 Sept, 2016.
- ❖ Y.N.V. SaiRam and K. Hari Prasad, Asst. Professors, participated in a one day Indian National Academy of Engineering (INAE) workshop on ‘Digital Photo elasticity using

DigiTFP™ organized by the Department of Applied Mechanics, at IIT Madras, on Sept 18, 2016.

- ❖ Reddy Sreenivasulu, Asst. Prof., participated in a workshop on ‘Introduction to Robotics’ organized by CMR Engineering College, Hyderabad. on Sept. 16 & 17, 2016.
- ❖ Prof. Dr.V.Chittaranjan Das, Dr. B. Ramgopal Reddy, Dr.C.Srinivas Assoc. professors and J.P. Karthik, Asst.Prof. participated in a short term course on ‘Optimization for Engineering Design’ organized by the Department of Engineering Design, IIT Madras., during Sept. 26 to Oct. 1, 2016.
- ❖ Md.Hasheer, D.Kondal Rao, V.Tarachand Assistant Professors attended a two Day National Seminar on ‘March to Make in India through Engineering Advancements (MMIEA)’ during 29 -30 Sept, 2016 at RVR&JC College of Engineering, Chowdavaram.
- ❖ D. Kondala Rao, Sneha. H. Dhoria, M.Vijaya Assistant professors participated in short term course on ‘Tribology in Design’ organized by Department of Mechanical Engineering, IIT Madras., during Nov 7-12, 2016.
- ❖ K. Lakshmi Chaitanya and G.Kishore chowdary, Asst.Professors. participated an FDP on ‘Powder Metallurgy & Particulate Materials – Fundamentals and Industrial Applications’ organized by Department of Mechanical Engineering, Siddhartha Institute of Technology, Vijayawada., during Nov 10-11, 2016.
- ❖ Dr. N.V.V.S. Sudheer, Assoc. Prof., participated in a short term course on ‘Advanced IC Engine Technologies’ organized by Department of Mechanical Engineering, IIT Madras., during Nov 21-26, 2016.
- ❖ Dr. S. Radhika and D.Swapna Asst. Professors, participated in a two week FDP on ‘Entrepreneurship’ organized by PSG – STEP during Nov 21 - Dec 2, 2016.
- ❖ J.Rangaraya Chowdary, Ch.Devaraj, V.Ramakoteswara Rao Asst. Professors, participated in short term course on ‘Autodesk Nastran In-CAD’ conducted in R.V.R & J.C College of Engineering, during Nov 28 - Dec 3, 2016.
- ❖ C.Tarasasanka, V.Ramakoteswara Rao, D. Sameer Kumar, Dr. S.Radhika, Mr. J. Purushottam Karthik, Assistant Professors participated in FDP on ‘Use of ICT in Education for Online and Blended

Learning’ conducted by IIT Bombay, during May 2 -July 10, 2016.

- ❖ J.Rangaraya Chowdary, Ch.Devaraj, V.Ramakoteswara Rao Asst. Professors, participated in a FDP on ‘Autodesk Nastran’ conducted by APSSDC, in association with EDS technologies, during Nov 28 -Dec 3, 2016 at Madanapalli, Chittor.

ISTE Activities:

- ❖ Dr.A.Bala Sudhakar Sastry, Founder of Srimaharshi Research Institute of Vedic Technology (SRIVT), delivered a lecture on Rediscovering India for the benefit of Teaching and Non-teaching staff on 2nd December 2016. The lecture covers the concept of our ancient technologies and importance of Nanotechnology. About 50 faculty members from all departments attended this lecture.

Awards:

- ❖ Dr.S.Radhika, D.Sameer Kumar and V. Ramakoteswara Rao, Assistant professors are one amongst the Top Performers of the 4-week FDP on “Use of ICT in Education for Online & Blended learning” conducted by IIT Bombay and is also conferred “Award of Excellence” sponsored by SAP India Pvt. Ltd.

Results Analysis:

Year	Total Appeared	Total Pass	Pass %
IV/IV B.Tech (VII Semester)	209	174	83.25
III/IV B.Tech (V Semester)	196	168	85.71
II/IV B.Tech (III Semester)	205	140	68.29
I/IV B.Tech (I Semester)	173	112	64.74
I/IV B.Tech (II Semester)	174	110	63.21
I/II M.Tech (I Semester)	18	15	83.33

