Department of Mechanical Engineering VELAGAPUDI RAMA KRISHNA SIDDHARTHA ENGINEERING COLLEGE

Academic Year 2021-22



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VELAGAPUDI RAMAKRISHNA SIDDHARTHA ENGINEERING COLLEGE

Vision of the College

To nurture excellence in various fields of engineering by imparting timeless core values to the learners and to mould the institution into a centre of academic excellence and advanced research.

Mission of the College

To impart high quality technical education in order to mould the learners into globally competitive technocrats who are professionally deft, intellectually adept and socially responsible. The institution strives to make the learners inculcate and imbibe pragmatic perception and pro-active nature so as to enable them to acquire a vision for exploration and an insight for advanced enquiry.

DEPARTMENT OF MECHANICAL ENGINEERING

Vision of the Department

The Department of Mechanical Engineering endeavours to become a centre of academic excellence and research **Mission of the Department**

Preparing graduates by providing a comprehensive knowledge and experience in a state of the art mechanical engineering education to become creative, inquisitive and innovative professionals in global environment.

PROGRAM EDUCATIONAL OBJECTIVES (PEOs)

PEO1: Progress in professional career with a solid foundation in Physical and Engineering sciences.

PEO2: Solve real time engineering problems using professional knowledge and skills resulting in significant societal development.

PEO3: Demonstrate multidisciplinary skills to analyze engineering issues in a broader perspective with ethical responsibility towards sustainable development.

PEO4: Demonstrate interpersonal skills, leadership and team building to achieve organization goals and pursue lifelong learning and higher education, necessary for successful profession

PROGRAM OUTCOMES (POs)

- 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.

PROGRAMME SPECIFIC OUTCOMES (PSOs)

PSO1: Apply their Knowledge in the domain of thermal systems to solve engineering problems using modern technological tools.

PSO2: Develop and implement new ideas related to product design and manufacturing for societal and industrial needs using modern CAD/CAM/CAE tools.

WORKSHOPS/SEMINARS/FDP/CONFERENCS ORGANISED

3 weeks Faculty Development Program on CAD, CNC, Electrical Engineering and Automation

Department of Mechanical Engineering organized a 3 weeks Faculty Development Program on CAD, CNC, Electrical Engineering and Automation Sponsored by Siddhartha Academy of General and Technical Education, Vijayawada and APSSC Andhra Pradesh during 20.09.2021 to 09.10.2021. This FDP aims to provide the opportunity to gain hands on experience in the field of Essentials for NX designers, NC Programming, Basics of Induction Motors, Basics of LVSG, PLC, SCADA, HMI & Networking.



Essentials for NX designers

This program provide intensive skill-oriented training in the domain of Modelling, Simulation, and Analysis related to the concepts of mechanical engineering, Electrical & Electronics Engineering, Electrical & Instrumentation Engineering and Electronics & Communication Engineering. The program was organized at Siemens COE laboratories established at V. R. Siddhartha Engineering College, Vijayawada.

These laboratories have the state of art in automated manufacturing facilities like CNC controller kits for simulation of tool path generation, Additive manufacturing cell. The experimentation facility is endowed with different industry-oriented machines like 3-axis CNC milling machine and 2-axis CNC turning machine along with automatic tool changer. The 'Additive Manufacturing' is one of the most sophisticated laboratories intended for customized manufacturing and rapid prototype modelling.



Basics of PLC

Faculties from V. R. Siddhartha Engineering College, Vijayawada, and Vasireddy Venkatadri Institute of Technology Guntur have participated. The FDP was organized by Dr. G Dilli Babu, Associate Professor, Department of Mechanical Engineering, V. R. Siddhartha Engineering College, Vijayawada.

Resource persons details: Trainers from APSSDC 1. Sri D Sateesh, 2. Sri V Sarangapani, 3. Sri T Lokanadham, 4. Sri Satya Sivaram, 5. Sri K Ammi Raju, 6. Sri PPP Saradhi.



Basics of LVSG-1 & 2

3-Day FDP on "Robotic systems: Trends, Opportunities and Research Directions"

Department of Mechanical Engineering, V R Siddhartha Engineering College, Vijayawada has organised an FDP titled "Robotic Systems: Trends, Opportunities and Research Directions", during 28-30th October 2021, under the AICTE Margdarshan scheme. The FDP aimed at providing exposure to participants regarding the latest developments in the robotic system development and deployment, opportunities arising out of the widespread automation and the challenges involved.

Primarily faculty members, PG students and researchers from various colleges across Andhra Pradesh and Telangana states have registered for the FDP. Six Resource persons from reputed organisations viz. ABB, IITs and NITs have delivered lectures on various aspects related to job potential in this sector, relevant skills & competency required, research directions for the academicians and researchers. Lectures on topics relevant to robotic system design viz. design and control issues, role of modelling and simulation, novel sensors and actuators pertaining to robotic systems has been addressed during the FDP.



Basics of LVSG-1 & 2

Resource persons details: 1. Shri J Balaji, Regional Manager- Robots & Applications, ABB, Chennai, 2. Dr. Arun Dayal Udai, Assistant Professor, Department of Mechanical Engineering, IIT Dhanbad, 3. Prof. P M Pathak, Professor, Department of Mechanical & Industrial Engineering, IIT-Roorkee, 4. Dr. Jayant Kumar Mohanta, Assistant Professor, Department of Mechanical Engineering, IIT Jodhpur, 5. Dr. Vijay Kumar Dalla, Assistant Professor, Department of Mechanical Engineering, NIT Jamshedpur, 6. Dr. Atul Kumar Sharma, Assistant Professor, Department of Mechanical Engineering, IIT Jodhpur.

One day seminar on "Role of Internships and Industrial projects in Engineering Education"

One day seminar on "Role of Internships and Industrial projects in Engineering Education" Under AICTE Margdarshan was organized by Mechanical Engineering Department V R Siddhartha Engineering College on 11th November 2021.

It is the main responsibility of all Engineers belonging to various branches of Engineering, to ultimately work in various Industries to produce different types of gadgets and products, which are useful to the Society and to improve the economic Status of Country as a whole. Students need to attend Internships during their four years of Under-graduate Studies, to enhance their practical exposure. If the Students attend the Internships during their Under-graduation study, it

will give very sound knowledge to them and they will be moulded as Engineers with good Quality and Responsibility. With this motivation department of Mechanical Engineering planned to organize one day seminar on "Role of Internships And Industrial Projects In Engineering Education".

The seminar has inaugurated at 9.15 am with honorable speaker Er. Sunil Yellapradgada, Managing Director, Triovision Composite Technologies Kadapa, Head of the Department, Dr. N. Vijaya Sai, Co-Ordinator's, faculty members and participants.



Around 200 participants from various colleges from A.P. (including Mentee colleges under Margdarshan scheme) and other states have participated and interacted with the resource persons and received a good feedback from the participants. The outcome of the program is many people known the importance of industrial internships/projects and the possible ways to get the job opportunities in the industry.

Resource persons details: 1. Nandan Reddy M V B S, Corporate Director, Triovision Technologies, Kadapa, 2. Sunil Yellapragada, Managing Director, Triovision Technologies, Kadapa.



A 3 day FDP on "Recent Trends, Opportunities & Challenges in Tribology and Surface Coating"

A 3 day FDP on "Recent Trends, Opportunities & Challenges in Tribology and Surface Coating" Under AICTE Margdarshan organized by Mechanical Engineering Department V R Siddhartha Engineering College on 16th -18th November 2021. The major contents delivered in the FDP were related to Tribology and Surface Coatings (from Basic to Recent Development).



Objective of this program is to understand the technological development in the field of tribology and surface coatings. Also learn about the recent development and challenges in surface characterisation technique and develop the opportunities to tribologist scopes as an entrepreneur. This FDP provided the platform to faculty, researchers, PhD scholars, MTech, Industry personnel who want to start a research carrier and work in the field of tribology and surface

coatings.



Resource persons details: 1. Dr. Jayashree Bijwe, Centre for Automotive Research & Tribology, IIT,Delhi, 2. Dr.B.M.Sutaria, Associate professor, ME Department, SVNIT, Surat, 3. Dr. Sonawane Shirish Hari, professor, Chemical Engg Department NIT, Warangal, 4. Dr. D.V.Bhhatt, Retired professor, ME Department, SVNIT, Surat, 5. Dr. Ravikumar.D, Assistant professor, ME Department, VNIT, Nagpur, 6. Dr. Syed Ismail, Assistant professor, ME Department, NIT, Warangal, 7. Dr. C.P.Paul, Head, Laser additive manufacturing lab & incubation centre, indore, 8. Dr. Jyoti. V. Menghani, Associate professor, ME Department, SVNIT, Surat.

Two-day webinar on "Thermal analysis of heat pipe for energy saving Applications"

Two-day webinar on "Thermal analysis of heat pipe for energy saving Applications" Under AICTE Margadarshan organized by Mechanical Engineering Department V R Siddhartha Engineering College on 23rd -24th November 2021.



Heat pipes in Heat exchangers and Thermal management is the challenging scenario, expanding fast due to their advantageous characteristics compared with conventional heat exchange and temperature control systems. Due to this sustainability challenges such as climate change, food, water and environmental issues call for researchers in different disciplines around the globe to take action and work collaboratively. The Webinar on Heat pipe aims to stimulate and highlight innovations and advances in theory, materials, devices, and systems for efficient thermal energy conversion, storage, transport and utilization. Outcome Based Education turning into a significant desire from Higher Education Institutes, With this motivation Department of Mechanical Engineering planned to organize a Two Day Webinar on Thermal Analysis of Heat Pipe For Energy Saving Applications" to empower participants from mentee Institutions. This e-learning program organised through online platform WEBEX existing in the Institute.

The webinar was inaugurated at 9.15AM with honorable speaker Dr A V S S Kumara Swami Gupta, Professor, JNTUH, Hyderabad, Head of the Department, Dr. N. Vijaya sai, Co-ordinators, Faculty Members and Participants. Around 160 participants from various colleges from AP (Including Mentee colleges under Margadarshan Scheme) and other states have participated and interacted with the resource persons and received a good feedback from the participants. About 10 nearby Institutes has participated through online. The outcome of the program is that the students will be able to identify and perform projects on Heat pipes with best energy management techniques.



Resource persons details: 1.Dr.A.V.S.S Kumar Swami Gupta, Professor, JNTUH, Hyderabad, 2. Dr.Chinige Sampath Kumar, Assistant Professor, NIT, Warangal, 3. . Dr. Devanuri Jaya Krishna, Associate Professor, NIT, Warangal, 4. Dr. T Srinivas, Associate Professor, NIT, Jalandhar and 5. Dr. B. Raghava Rao, professor, VRSEC, Vijayawada.

FACULTY PUBLICATIONS

INTERNATIONAL JOURNALS:

- J. Karthik, SK. Meghana, P. Satheesh Kumar Reddy, "Automated Cast Quality Inspection using Deep Learning", International Journal of Mechanical and Production Engineering Research and Development, ISSN (P): 2249–6890; ISSN (E): 2249–8001 Vol. 11, Issue 4, Aug 2021, 165-172, Paper Id.: AUG202114.
- P. Kishore Kumar, Mariyappan, N. Vijayasai, A. Gopalakrishna, "Effect of Compaction Pressure on Mechanical Properties of powder steel 0.065C-22% Cr-13%Ni-5%Mn-2%", Metal Science and heat Treatment 63, 132-139(2021) July 2021, SCIE
- 3. M. Bala Chennaiah, K. Dilip Kumar, B. Sudheer Kumar, "Characterization of zinc oxide nanoparticles herbal synthesized coated with Ocimum tenuiflorum",

Advances in Materials and Processing Technologies, 11 June 2021, 2374-0698 PP:2214-7853, https://doi.org/10.1080/2374068X.2021.1934642. SCOPUS, ESCI.

- Sunil Goone, V. Sridhar, D. Pamu, "Low- temperature electrical characteristics of nanocrystalline BaTiO₃ thinn films for cryogenic applications", Materials Letters : X 11 (2021) 100090, August 2021. SCI
- 5. Bapi Raju. V, Rambabu G, "A Construction Heuristic for finding an initial solution to a very large-scale capacitated vehicle routing problem", RAIRO Operations research, ISSN 1290-3868, 55(2021), vol 55, no 4, PP 2265-2283, August 2021, SCIE, IF:1.21
- 6. V. Rama Krishna, S. Srinivasa Prasad, N. Pardhasardahi, **B. Raghava Rao**, Hydro-elastic computational analysis of a marine propeller using two-way fluid structure interaction", Journal of Ocean engineering and Science, ISSN: 2468-0133 24th August 2021. **SCIE, IF: 3.408.**
- Ch. Nagaraju, Ch. Hari Krishna, R Venkata Kiran, Pardha Saradhi Dandamudi, "An intelligent system for predicting roll pressure in the cold rolling of Ti6Al4V", Engineering Research Express 3, September 2021, 035046, PP 1-11, SCOPUS, ESCI
- Sanjaya K. Sahoo, Srinivas Kuchipudi, R. Narasimha Rao, Manoj K. Buragohain, Ch.Sri Chaitanya "Detection of Planar Defects in Multilayered GFRP Composite Structures using Low-Field Nuclear Magnetic Resonance", Materials Evaluation, 79(9): 897-904, September 2021, SCIE
- Supraja Reddy. B, Ram Gopal Reddy.B, "Influence of Process Parameters and tool on mechanical and metallurgical properties of pure copper and aluminum alloy AA7075 dissimilar friction stir welded joints", International Journal of Engineering Trends and technology, ISSN 2231-5381, vol 69, issue 9, 73-79, September 2021. SCOPUS.
- V.V. Spanadana, G. Jamuna Rani, K. Venkateswarlu, V. V. Venu Madhav, "Effect of Yatria stabilized zirconia and titanium oxide Thermal Barrier coating on engine performance", International Journal of Engineering Transactions C: Aspects Vol.35, No. 12, (December 2021) 2611-2616, SCOPUS
- **11.** K. Ramanaiah, A.V. Ratna Prasad, K. HemaChandara Reddy "Eco friendly sisal fiber /poly lactic acid composite material for thermal insulation applications, CompositeMaterials for Extreme loading, Lecture Notes in Mechanical Engineering, SCOPUS
- Jyoti Menghani, Akash Vyas, satish More, Christ paul, Amar Patnaik, "Parametric investigation and optimization for CO₂ Laser Cladding of AlFeCoCrNiCu Powder on AISI 316", High Temperature Materials and Processes 2021, 40, 265-280, SCOPUS
- G. Jamuna Rani, Gangadhar Rao P, Konuru Srinivasa Rao, M. Ravi Teja, "Design and Optimization of 200 Ton H-Type Hydraulic Press", E3S web of Conferences, 309, 01155(2021) ICMED 2021, October 6-9th October 2021. SCOPUS

- Pidathala Siva, Vallabhaneni Balakrishna Murthy, "Numerical simulation of a composite shell for underwater application Using CFD and FEA", E3S web of Conferences, 309, 01155(2011) ICMED 2021, October 6-9th October 2021. SCOPUS
- K. Srinivas, K. Mahesh Babu, AHR Madhuri, "Performance and emission characteristics of fumigated butanol on a duel fuel mode hcci engine" E3S web of Conferences, 309, 011228(2021) ICMED 2021, October 6-9th October 2021. SCOPUS
- Praveen, Anchupogu, G. Jamuna Rani, and B. Balakrishna. "Effect of MWCNTs as nano additives in C. Inophyllum biodiesel blend (CIB20) on the performance and emission parameters of a diesel engine." *Materials Today: Proceedings* (2021), November 2021 SCOPUS

International Conferences:

- Gavireddi Abhinav bharat, Alluri Sai Nandini, Malladi Jogendra Prasad, "Generative Design of a Quad-copter Frame", ASME International Conference on Smart Materials, Adaptive Structures and Intelligent Systems (SMASIS 2021), September 14-15 2021, Virtual.
- 2. P. Ravi Chandra, **M. Jogendra Prasad**, "The effect of piston -velocity programs on fuel air mixing characteristics of a buoyant vortex ring", 15th international conference on heat transfer, fluid mechanics and thermodynamics , pp 2144-2339, 26-28th July 2021, Virtual.
- Mounika G, Dilli Babu G, Vijaya Sai N, "Experimental Investigation on Geometrical accuracy of FDM 3D Printer Using CMM", Virtual International Conference on Product Design, Development and Deployment (PD3 -2021), 11th & 12th September 2021.
- 4. Kanchibotla Hima Teja, Srivalli Gollamudi, Balakrishna Murthy Vallabhaneni, "A Solution of Scour at bridge pier through computational fluid dynamics (CFD) simulations, " International Conference on Advances in Structural Mechanics and Applications (ASMA - 2021), 6th to 8th October 2021, organized by department of Civil Engineering, NIT Silchar, India.
- Mukesh CH.S.N.B , Venkateswarao A, Md. Mukheem and Balakrishna Murthy V, " Numerical Simulations on Alignment of Sacrificial Piers in Scour Reduction", 66th Congress of the Indian Society of Theoretical and Applied Mechanics (ISTAM), 3rd -5th December 2021, organized by ISTAM and VIT -AP University, Amaravathi, AP., PP 72
- Mulupuri Gnana Deepthi Keziya, Mullapudi Sri Lasya, Balakrishna Murthy V, ", Analysis of scour formation at bridge abutments", 66th Congress of the Indian Society of Theoretical and Applied Mechanics (ISTAM), 3rd -5th December 2021, organized by ISTAM and VIT -AP University, Amaravathi, AP., PP 100

- 7. Sri Pavan Krishna A, Mohan Sai Raju, Mukesh CH.S. N. S. B, Balakrishna Murthy.V, " Numerical Simulations on Effectiveness of Sacrificial Piers in Scour reduction", 66th Congress of the Indian Society of Theoretical and Applied Mechanics (ISTAM), 3rd -5th December 2021, organized by ISTAM and VIT -AP University, Amaravathi, AP, PP 74
- I Manoj Kumar, Vaidyabhushan Leela Krishnan, "Design of Internet of Things based System for Ensuring Reliable Performance of Solar Powered Quadrotor", Proc. CIMS 2021 organized jointly by Dr. B R Ambedkar NIT Jalandhar and Punjab Engineering College, Chandigarh, 11-13th November 2021.
- 9. Obulasu Tapela, G. Dilli Babu, G. Ranga Janardhana, "An analysis of the behaviour of peepal fiber reinforced polyester composites for tensile, flexural and impact strengths", International conference on third Innovative Product Design and Intelligent Manufacturing Systems (IPDIMS)during 30th and 31st December 2021, organized by Department of Industrial design and Department of mechanical Engineering of NIT Rourkela.
- 10. G. Dilli Babu, D. Siva Kumar, M. Bala Chennaiah, K. Sivaji Babu, "Experimental Investigation and Optimization of IRB6700 ABB Robot Spot welding process Parameters" , International conference on third Innovative Product Design and Intelligent Manufacturing Systems (IPDIMS) during 30th and 31st December 2021, organized by Department of Industrial design and Department of mechanical Engineering of NIT Rourkela
- 11. M. Bala Chennaiah, G. Srivalli, Design and Fabrication of Regenerative Roller Braking Syatem", International conference on third Innovative Product Design and Intelligent Manufacturing Systems (IPDIMS) during 30th and 31st December 2021, organized by Department of Industrial design and Department of mechanical Engineering of NIT Rourkela.

WORKSHOPS/SEMINARS/FDP ATTENDED BY FACULTY

- 1. Dr.M.Balaji attended a webinar on "3D Printing: Defence and Aerospace Applications" at Vignan's University (Guntur District) on 2nd July, 2021.
- Dr G.Jamuna Rani attended a webinar on "20+ Open for small and Grass Root NGOs" at Navjivan Center for Development, Gujarat on 2nd July, 2021.
- 3. Dr M.Balaji attended FDP on "Application Of Design, Modeling & Optimization Techniques In Mechanical Engineering" at Tirumala Engineering College, Narasaraopet (Guntur District) on 28th June-2nd July, 2021.

- V.Vasu attended a STTP on "Hybrid & Electric Vehicle Technologies For Sustainable Mobility (HEVTSM-2021)" at Maharaj Vijayaram Gajapathi Raj College of Engineering, Vizianagaram during 28th June-2nd July, 2021.
- 5. Dr N.Vijaya Kumar attended a STTP on "Innovations and Challeges in Industry 4.0 Automation and Smart Manufacturing" at Kallam Haranadhareddy Institute of Technology, Guntur during 28th June-3rd July, 2021.
- G.Srivalli, Dr G.Jamuna Rani attended FDP on "Research Practices in Thermo-Fluid and Renewable Energy Systems" at Sreenidhi Institute of Science & Technology, Hyderabad during 28th June – 3rd July 2021.
- Dr G.Jamuna Rani attended a webinar on "Journal citation reports (JCR) certification series-2021" at Clarivate Journal citation reports, USA on 9th July 2021.
- Dr G.Jamuna Rani attended a webinar on "Startups-The GST Perspective" at VRSEC, Vijayawada on 9th July 2021.
- Dr S.Sriniasa Prasad attended FDP on "Technological Advancements in NAVAL, DEFENCE & Space Applications: An Itegrated Industry 5.0 Approach" at N.S.Raju Institute of Technology, Visakhapatnam during 8th – 10th July 2021.
- Dr M.Jogendra Prasad attended a webinar on "Opportunities for Engineers in Earth and Space Science" at Fabtec Technical Campus College of Engineering & Research, Sangola on 15th July 2021.
- V.Sudheer Kumar attended FDP on "Fuel Powered, Hybrid Electric and Modern Vehicles" at VNRVJIET, Hyderabad during 19th – 24th July 2021.
- 12. Dr M.Sumalatha attended a workshop on "Advances in Materials Processing- 3D Printing and Opportunities" at VIT-AP University during 24th 26th July 2021.
- Dr K.Naga Malleswara Rao attended FDP on "Innovation Ambassador training" at MoE's Innovation Cell & AICTE (Govt of India) during 30th June- 30th July 2021.
- Dr G.Jamuna Rani attended FDP on "Emerging Technologies in Automotive Industry" at VNR Vignana Jyothi Institute of Engineering and Technology, Hyderabad during 16th -20th Aug, 2021.
- Dr Satish R More, V.Sridhar, Dr V.L.Krishnan attended FDP on "Robotics" at APSSDC, Namburu during 9th -22nd Aug, 2021.
- Dr M.Bala Chennaiah attended FDP on "Electric Vehicle: Opportunities & Challenges" at Sharda University during 16th-27th Aug, 2021.
- Dr Satish R More attended FDP on "Novel Materials" at AICTE, New Delhi during 23rd-27th Aug, 2021.

- Dr M.Jogendra Prasad attended FDP on "Emerging Trends in Automotive and Energy Systems" at Sree Vidyanikethan Engineering College, Tirupati during 23rd-27th Aug, 2021.
- Dr M.Bala Chennaiah attended a webinar on "IEEE Authorship and OA Symposium" at IEEE on 26th Aug, 2021.
- 20. Dr Ch.Chaitanya attended a workshop on "Structural & CFD Analysis Using ANSYS" at VIT-AP, Amaravati during 28th-30th Aug, 2021.
- 21. B.Supraja reddy attended FDP on "Digital Additive Manufacturing (3D Printing)" at ICFAI Foundation for Higher Education, Hyderabad during 6th -10th Sep, 2021.
- 22. Dr M.Bala Chennaiah attended workshop on "Master Class Series on Structural Welding" at India Welds on 10th Sep 2021.
- 23. Dr Satish R More, Dr V.L.Krishnan attended FDP on "Industrial Robots for Future Factories" at NIT, Puducherry during 13th -17th Sep, 2021.
- 24. Dr K.Naga Malleswara Rao attended FDP on "Fund Raising for New Business Start-up" at NITTTR, Chandigarh during 13th -17th Sep, 2021.
- 25. Dr.V.V.Venu Madhav attended FDP on CNC-Turning NC Control Programming" at APSSDC, Vijayawada during 20th -24th Sep, 2021.
- B.Supraja Reddy, Ch. Venkata Prasad attended FDP on "CAD-Essentials for NX Desinger" at APSSDC, Vijayawada during 20th -24th Sep, 2021.
- B.Supraja Reddy, Ch.Venkata Prasad attended FDP on "CAD-Synchronous Modeling & Parametric Design" at APSSDC, Vijayawada during 27-30th Sep, 2021.
- V.V.Venu Madhav attended FDP on "CNC-Milling NC Control Programming" at APSSDC, Vijayawada during 25th Sep- 1st Oct 2021.
- 29. Ch.Venkata Prasad attended FDP on "CAD-Drafting Essentials" at APSSDC, Vijayawada during 1st 5^{th t} Oct 2021.
- 30. Dr Satish R More, Dr Ch.Chaitanya attended FDP on "Artificial Intelligence in Remote Sensing Applications" at VRSEC, Vijayawada during 27th Sep-8th Oct, 2021.
- 31. D.Pardha Saradhi attended FDP on "Internet of Things Master Class" at APSSDC, Pantech e Learning Pvt Ltd, Chennai during 19th Sep-18th Oct, 2021.
- V.V.Venu Madhav attended FDP on "CAM-NX-Manufacturing Fundamentals" at APSSDC, Vijayawada during 6th -8th Oct, 2021.
- B.Supraja Reddy, Ch.Venkata Prasad attended FDP on "CAD-Mechanical Free-Form Modelling" at APSSDC, Vijayawada during 6th -8th Oct, 2021.
- 34. V.V.Venu Madhav, D.Siva Shankar, Dr Ch.Chaitanya, D.Pardha Saradhi, Dr M.Balaji, Dr M.Sumalatha, Dr G.Jamuna Rani, B.Supraja Reddy, A.N.Phani Deepthi, Dr M.Jogendra

Prasad, Ch.Venkata Prasad attended FDP on "Robotic Systems: Trends, Opportunities and Research Directions" at VRSEC, Vijayawada during 28-30th Oct, 2021.

- 35. Dr M.Sumalatha attended a webinar on "Science Technology and Innovation Policy 2020: A Transformative S & T Agenda" at SRM University-A.P on 30th Oct, 2021.
- 36. Dr V.Balakrishna Murthy attended STC on "Applications of Vibration and Heat Transfer in Mechanical Engineering(AVHTME-2021)" at NIT Manipur on 27th -31th Oct, 2021.
- 37. Dr M.Bala chennaiah attended a webinar on "IRIS Webinar Series" at IIT Madras during July 2021- Oct 2021.
- 38. Dr V.Balakrishna Murthy, Dr M.Sumalatha, M.Rajesh, B.Supraja Reddy, A.N.Phani Deepthi attended a seminar on "Role of Internships and Industrial Projects in Engineering Education" at VRSEC, Vijayawada on 11th Nov, 2021.
- V.V.Venu Madhav, G.Srivalli, Dr G.Dilli Babu, Dr M.Sumalatha, Dr G.Jamuna Rani, B.Supraja Reddy, Dr V.L.Krishnan, Ch.Venkata Prasad, Dr Ch.Chaitanya attended FDP on "Recent Trends, Opportunities & Challenges in Tribology and Surface Coatings" at VRSEC, Vijayawada during 16th -18th Nov, 2021.
- 40. Dr M.Bala chennaiah attended FDP on "Implementation of Emerging Waste-To-Energy Technologies- An Opportunity and The Challenges On Energy Recovery Systems" at New horizon College of Engineering, AICTE, New Delhi during 15th -19th Nov, 2021.
- 41. Dr V.Balakrishna Murthy, Dr C.Mahesh attended a workshop on "Computational Fluid Dynamics (CFD) Using Ansys Fluent" at VIT-AP University during 18th -20th Nov, 2021.
- 42. V.V.Venu Madhav, Dr M.Sumalatha, Dr K.Naga Malleswara Rao, M.Rajesh, Dr G.Jamuna Rani, A.N.Phani Deepthi, Dr V.L.Krishnan attended a webinar on "Global Digital Transformation: Career Opportunities" at VRSEC, Vijayawada on 20th Nov, 2021.
- V.V.Venu Madhav, Dr G.Dilli Babu, M.Rajesh, Dr G.Jamuna Rani, B.Supraja Reddy, Dr V.L.Krishnan attended a webinar on "Thermal Analysis of Heat Pipe for Energy Saving Applications" at VRSEC, Vijayawada during 23rd -24th Nov, 2021.
- 44. Dr M.Bala chennaiah attended FDP on "Innovations in Manufacturing of Novel Materials and Composites" at Christian College of Engineering and Technology, AICTE, New Delhi during 23rd -27th Nov, 2021.
- 45. A.N.Phani Deepthi attended STTP on "Advances and Applications of Artificial Intelligence and Machine Learning (AIML)" at Sinhgad College of Engineering, Pune during 22nd Nov-2nd Dec, 2021.
- 46. Dr Ch.Chaitanya attended FDP on "Inculcating Universal Human Values in Technical Education" at AICTE, New Delhi during 6th -10th Dec, 2021.

- 47. Dr V.V.Venu Madhav, Dr M.Bala chennaiah attended FDP on "Metal Additive Manufacturing" at VNIT, Nagpur during 13th -17th Dec, 2021.
- 48. G.Srivalli attended a workshop on "Energy Conservation, Efficiency & Sustainability" at NIT, Kurukshetra during 13th -17th Dec, 2021.
- 49. Dr M.Bala chennaiah attended FDP on "3D Printing & Design" at Sardar Patel College of Engineering, Mumbai during 20th -24th Dec, 2021.
- 50. B.Supraja Reddy, Dr.M.Sumalatha attended STC on "Smart Manufacturing Technologies & Applications (SMTA 2021)" at Sant Longowal Institute of Engineering and Technology, Longowal, Punjab during 20th -24th Dec, 2021.
- 51. Dr V.V.Venu Madhav attended FDP on "Modeling & Simulation using MATLAB" at NITTTR, Chandigarh during 27th -31th Dec, 2021.
- 52. G.Srivalli attended FDP on "Emerging Trends in Thermal Engineering" at PVPSIT, Vijayawada during 27th -31th Dec, 2021.

DEPARTMENT PROFESSIONAL ASSOCIATION/CHAPTER EVENTS



A Technical Quiz competition organized by the ASME and conducted in Mechanical Engineering Department, V R Siddhartha Engineering College, on 24/09/2021.



 Technical Paper Contest on "Recent Trends in Automotive Technologies" organized by the SAE and conducted in Mechanical Engineering Department, VR Siddhartha Engineering College on 27/10/2021.



 Webinar on "Global Digital Transformation: Career Opportunities" organized by the ASME and conducted in Mechanical Engineering Department, VR Siddhartha Engineering College on 20/11/2021, Speaker: Prasanna Meher Nori Associate Director, IBM Pvt. Ltd.



 Webinar on "Life coming out of college and finding your way to corporate world, being entrepreneurs" organized by the Institution of Engineers INDIA (IEI), Students' chapter and conducted in Mechanical Engineering Department, VR Siddhartha Engineering College on 11/12/2021, Speaker: Mr. Sridhar Sannidhi Google, USA.



 Webinar on "Digital Twin - Virtually Integrated Real Time Industry Operations" organized by the Institution of Engineers INDIA (IEI), Students' chapter and conducted in Mechanical Engineering Department, VR Siddhartha Engineering College on 18/12/2021, Speaker: Dr. Y. V. Sathish Kumar Co-founder and Director of ASquare Infotech Consultancy Pvt Ltd, Hyderabad.

GUEST LECTURES DELIVERED BY FACULTY

 Dr M. Jogendra Prasad delivered a guest lecture on "Symposium on Computational Heat and Fluid Flow" on 24th July, 2021 at IIT Madras.

DOCTORAL DEGREES AWARDED

- Dr.V.Bapi Raju, Assistant Professor of Mechanical Engineering Department was awarded Ph.D Degree from AU, Visakhapatnam on 03rd August 2021 for the thesis "Heuristic Algorithms for Large Scale Vehicle Routing Problems" in the area Industrial Engineering and Management.
- Dr.V.Sridhar, Assistant Professor of Mechanical Engineering Department has awarded Ph.D Degree from AU, Visakhapatnam on 6th December 2021 for the title "Synthesis, Characterization and Wear Behavior of Magnesium Matrix Nano Alumina Reinforced Composites" in the area of Nano Materials.
- Dr.V. V.Venu Madhav, Assistant Professor of Mechanical Engineering Department has awarded Ph.D Degree from J N T U Hyderabad on 14th December 2021 for the title "Fracture Analysis of FRP Composites For Different Geometry Cut-Outs Under Thermo-Mechanical Loads" in the area Natural Fibre Reinforced Composites.
- Dr. K.Ramanaiah, Senior Assistant Professor of Mechanical Engineering Department has awarded Ph.D Degree from JNTU, Anantapur in the month of 28th December 2021 for the title "Experimental Study on Some Properties of Natural Fibre Reinforced Composites" in the area Natural Fibre Reinforced Composites.

RESEARCH AND DEVELOPMENT PROJECTS SANCTIONED

S. No	Title of the Project& File No.	Funding Agency & Scheme	Amount &duration	Sanctioned date	Name of the Investigator
1	Studies on Mixing and Combustion of Methane-Air in the Presence of a Vortex Flow Field.	SERB- TARE	Rs.18.30 Lakhs (3 Years)	06 th December 2021	Dr. M Jogendra Prasad

RESEARCH AND DEVELOPMENT PROJECTS APPLIED

S. No.	Principal investigator	Title of the project and duration	Funding agency	Project Cost (in Lakh Rupees)	Applied date
1	Prof. V. Balakrishna Murthy Co-investigator Prof. B. Raghava Rao; Prof. N. Vijaya Sai	Fabrication and Testing of Carbon Composite Bracket for Mounting Sensitive Navigation Systems for Airborne Applications (08 Months)	RCI, DRDO, Hyderabad	8.5	01 st October 2021
2	Dr Satish R More	Influence of HEA Ceramic-Organic Coating on Cavitation Erosion and Corrosion under the Artificial Marine Environment (2 years)	DST	17.82	20 th July 2021
3	Dr. M Balaji	Sustainability in Friction Stir Welding: An Optimization Strategy to Reduce Power Consumption and Improve Mechanical Characteristics (3 years)	DST- SERB;	44.41	20 th July 2021
4	Prof. B. Raghava Rao Co-investigator Prof. V. Balakrishna Murthy Prof A V Ratna Prasad	3-D FE Methodology and analysis of internal thermal insulation for CRMC (9 months)	CPDC, DRDO, Hyderabad	18.00	23 rd November 2021

PATENTS APPLIED, PUBLISHED AND AWARDED

Published :

Karteek Navuri, **Dr. M. Balaji**, M. Venkataiah, Dr. D.Brahmeswara Rao, Vookoti Uma Sai Vara Prasad filed a patent on 22nd August 2021 on "Integrated airless wheel" with application number 348201-001. It was published on 22nd October 2021

Applied:

Dr. K V Durga Rajesh, Sriram Swaroop Rejeti, **Dr. G. Jamuna Rani,** Dr. P. Gangadhara Rao filed a patent on 31st October 2021 on "Multiple Nut Remover" with application number 352426-001.

CONSULTANCY DETAILS

S.No	Nature of the work	Agency to which consultancy is offered	Date	Revenue earned (Rs.)
1.	Tensile, Flexural and Impact testing	Y.Sunny Diol, QIS College of Engineering and Technology, Ongole	05/07/2021	6,372
2.	Tensile, Flexural and Impact testing	K.D.S Prakash, SASI Institute of Technology and Engineering, Tadepalligudem	06/07/2021	2,124
3.	Tensile, Flexural and Impact testing	K.Ashok Reddy, QIS College of Engineering and Technology, Ongole	06/07/2021	4,248
4.	Tensile, Flexural Impact testing and Thermal Conductivity	K.Ashok Reddy, QIS College of Engineering and Technology, Ongole	06/07/2021	4,484
5.	Tensile, Flexural and Impact testing	M.Rohit Verma, SASI Institute of Technology and Engineering, Tadepalligudem	09/07/2021	6,372
6.	Wear Test	K. Sriram Vikas, PVPSIT, Vijayawada	27/07/2021	1,770
7.	Wear Test	Principal, PVPSIT, Vijayawada	06/08/2021	2,832
8.	Wear Test	Principal, PVPSIT, Vijayawada	29/10/2021	6,372
	Total Re	venue Generated from July 2021 to De	ecember 2021	34,574

STUDENT CO-CURRICULAR EXTRACURRICULAR ACTIVITIES

Sl. No	Date	Name and Roll Number of Student	Particulars of Achievements
1	14 th to 20 th November 2021	G Durga Prasad (198W1A0377)	LIBRARY DAY in K B N Degree College, Vijayawada 1 st Prize in Essay Writing
2	14 th to 20 th November 2021	I Siddhartha (198W1A0378)	LIBRARY DAY in K B N Degree College, Vijayawada 2 nd Prize in Essay Writing
3	14 th to 20 th November 2021	P Bharath Naga Siva Sai (198W1A03A4)	LIBRARY DAY in K B N Degree College, Vijayawada 3 rd Prize in Essay Writing
4	26 th & 27 th November 2021	K Chaitanya Sai Teja (198W1A03F6), G Dhanya Lahari (198W1A0319)	Ekta Diwas events as a part of Azadi ka Amrit Mahotsav, organized by Governament of Andhra Pradesh 1 st Prize in Singing (with band)
5	December 2021	M Beulah Prathibha (198W1A0335)	in SAMALOCHANA at NTR Bhavan, Vijayawada. 1 st Prize in Group Discussion
6	14 th to 20 th November 2021	K Nithyasri 208W1A0326 M Kiranmai 198W1AO3 T Naga Harika 208W1A0350 Sk Sattar 208W1A0344 V Harshavardhan 208W1A0322	LIBRARY DAY in K B N Degree College, Vijayawada
7	14 th to 20 th November 2021	M Leela Krishna Babu N Manoj Kumar B Akash K Sai Charan Kumar 208W1A0330 G Prem Kumar Reddy 208W1A0372 P Tejesh 208W1A396 P Vamsi krishna	LIBRARY DAY in K B N Degree College, Vijayawada Quiz contest
8	14 th to 20 th November 2021	K Shanmuka Sai 208W1A0325 K Sai charan 208W1A0330	LIBRARY DAY in K B N Degree College, Vijayawada Paper presentation contest`

STUDENTS PUBLICATION

International Journals:

- J. Karthik, SK. Meghana, P. Satheesh Kumar Reddy, "Automated Cast Quality Inspection using Deep Learning", International Journal of Mechanical and Production Engineering Research and Development, ISSN (P): 2249–6890; ISSN (E): 2249–8001 Vol. 11, Issue 4, Aug 2021, 165-172, Paper Id.: AUG202114.
- V.V. Spanadana, G. Jamuna Rani, K. Venkateswarlu, V. V. Venu Madhav, "Effect of Yatria stabilized zirconia and titanium oxide Thermal Barrier coating on engine performance", International Journal of Engineering Transactions C: Aspects Vol.35, No. 12, (December 2021) 2611-2616, SCOPUS
- G. Jamuna Rani, Gangadhar Rao P, Konuru Srinivasa Rao, M. Ravi Teja, "Design and Optimization of 200 Ton H-Type Hydraulic Press", E3S web of Conferences, 309, 01155(2021) ICMED 2021, October 6-9th October 2021. SCOPUS
- Pidathala Siva, Vallabhaneni Balakrishna Murthy, "Numerical simulation of a composite shell for underwater application Using CFD and FEA", E3S web of Conferences, 309, 01155(2011) ICMED 2021, October 6-9th October 2021. SCOPUS
- K. Srinivas, K. Mahesh Babu, AHR Madhuri, "Performance and emission characteristics of fumigated butanol on a duel fuel mode hcci engine" E3S web of Conferences, 309, 011228(2021) ICMED 2021, October 6-9th October 2021. SCOPUS

International Conference :

- Gavireddi Abhinav bharat, Alluri Sai Nandini, Malladi Jogendra Prasad, "Generative Design of a Quad-copter Frame", ASME International Conference on Smart Materials, Adaptive Structures and Intelligent Systems (SMASIS 2021), September 14-15 2021, Virtual.
- 2. **P. Ravi Chandra**, M. Jogendra Prasad, "The effect of piston -velocity programs on fuel air mixing characteristics of a buoyant vortex ring", 15th international conference on heat transfer, fluid mechanics and thermodynamics, pp 2144-2339, 26-28th July 2021, Virtual.

- Mounika G, Dilli Babu G, Vijaya Sai N, "Experimental Investigation on Geometrical accuracy of FDM 3D Printer Using CMM", Virtual International Conference on Product Design, Development and Deployment (PD3 -2021), 11th & 12th September 2021.
- 4. Kanchibotla Hima Teja, Srivalli Gollamudi, Balakrishna Murthy Vallabhaneni, "A Solution of Scour at bridge pier through computational fluid dynamics (CFD) simulations, " International Conference on Advances in Structural Mechanics and Applications (ASMA -2021), 6th to 8th October 2021, organized by department of Civil Engineering, NIT Silchar, Indi
- Mukesh CH.S.N.B Venkateswarao A, Md. Mukheem and V. Balakrishna Murthy V, " Numerical Simulations on Alignment of Sacrificial Piers in Scour Reduction", 66th Congress of the Indian Society of Theoretical and Applied Mechanics (ISTAM), 3rd -5th December 2021, organized by ISTAM and VIT -AP University, Amaravathi, AP., PP 72
- Mulupuri Gnana Deepthi Keziya, Mullapudi Sri Lasya, Balakrishna Murthy V, ", Analysis of scour formation at bridge abutments", 66th Congress of the Indian Society of Theoretical and Applied Mechanics (ISTAM), 3rd -5th December 2021, organized by ISTAM and VIT -AP University, Amaravathi, AP., PP 100
- Pavan Krishna A, Mohan Sai Raju, Mukesh CH.S. N. S. B, Balakrishna Murthy.V, " Numerical Simulations on Effectiveness of Sacrificial Piers in Scour reduction", 66th Congress of the Indian Society of Theoretical and Applied Mechanics (ISTAM), 3rd -5th December 2021, organized by ISTAM and VIT -AP University, Amaravathi, AP, PP 74
- I Manoj Kumar, Vaidyabhushan Leela Krishnan, "Design of Internet of Things based System for Ensuring Reliable Performance of Solar Powered Quadrotor", Proc. CIMS 2021 organized jointly by Dr. B R Ambedkar NIT Jalandhar and Punjab Engineering College, Chandigarh, 11-13th November 2021.

Models Prepared by the Students

S. No	Title	Name	Roll No.	Supervisor
	Solar Panel	M. Sri Saketh Krishna	188W1A0330	
	Cleaning with	Syed Nazeer	188W1A0349	
1	Microfiber using	Ch. Koteswara Rao	188W1A0357	Dr. N. Ravi Kumar
	Aurdino and LDR	M. Naga Sai	188W1A0328	
	Sensor	Ch. Sai Susmitha	198W5A0302	
	Automatic Side	P. Anjana Sai	188W1A03B8	Dr K
2	Stand Retrieving	A. Nithya Sri	188W1A03B6	DI. K. Nagamalleswara
	System for Two	P. Bala Surya	188W1A03C0	Rao
	Wheelers	B. Sowmya Deepika	188W1A03B9	Rao
	Enhancing the	N. Bhanu Teja	188W1A0394	
	performance of a	R. Gireeswar	188W1A03A4	
3	solar panel using	Md. Musharraf	198W5A0313	Dr. V. L. Krishnan
	flat plate	O A Mohammed Anas	188W1A0397	
	reflectors	S. NV Syam Surya	178W1A03A3	
	IOT Based Smart	M. Pavan Kumar	188W1A0329	
	Fish Farming	A. Nayab Baba	188W1A0302	Dr
	Aquaculture Monitoring	P Chandrakanth	188W1A0339	A.Venkateswarlu
4	System	G. Manasa Tejaswinin	188W1A0318	
	Fabrication of	S. Yuvaraj Reddy	188W1A03A5	
	Copper Based	Ch. Pradeep	198W5A0309	
5	Catalytic	K. Naga Karthik	188W1A0380	Dr. K. Srinivas
	Converter	L Joseph Emmanuel	188W1A0385	
		K Sri Sai	188W1A0381	
		K. Janardhan	188W1A0383	
	Adaptive	U. Hemanth Kumar	188W1A03B0	Dr M Bala
6	Headlight system	Farha Tabassum	188W1A0369	Chennaih
	in Automobiles	N. Jayaraju	198W5A0315	Chemiani
		G. Seshadri Naidu	188W1A0372	
	Entrination of	N Lakshmipathi Rao	188W1A0396	
	Brick Using	B. Karthik	188W1A0363	
7	Biomedical	M Raju	188W1A0387	Dr. M. Balaji
	Waste	DVV Sudheer	188W1A0368	
		U Nagarjuna	188W1A03A9	
8	Design and	V. Vamsi	188W1A0352	
	Fabrication of a	Md. Mustafa	188W1A0332	Dr. Ch. Sri
	Water Can	L. Vinit	188W1A0326	Chaitanya
	Carrying Machine	P. Gopichand	188W1A0338	

	Energy	A. Sai Teja	188W1A0303	
9	Energy Harvesting with Different Beams	J Surya Simha	188W1A0321	Dr. T. Hari Vrishna
		M. Nagendra Sai Babu	188W1A0327	DI. I. Hall Klishila
		A Harshini	198W5A0301	
10		K. Abhiram	188W1A0382	
	Design and Fabrication of Wind Blade	M. Vijay Kiran	188W1A0392	
		K. Sai Kiran	188W1A0378	Sri M. Rajesh
		Ch. Shanmukh	188W1A0367	
		Srinivas		
		Y. Praneeth	188W1A03B3	
		S. Surya Vamsi	188W1A03G1	
	Object Detection	NPSS Venkata Raman	188W1A03F2	
11	in Extreme Dark	Y. Gopi Krishna	188W1A03G9	Dr. M. Sumalatha
	Conditions	MVSS Rama Krishnan	188W1A03F0	
		V. Sai	188W1A03G7	
	Air Filtration by Vacuum Process	V. Sai Krishna	188W1A03B1	
		M. Keerthana	188W1A0388	
12		K. Ajay Sagar	188W1A0377	Smt. G. Sri Vall
		Ch. Sudar Rao	188W1A03B4	
		Ch. Gireesh	188W1A0366	
	Semi Automatic Farming	P. Raghava Sai	188W1A0341	
		Murthy		
13		P. Naga Bharadwaj	188W1A0342	Sri. P. Gopinadh
		S. Sri Charan	188W1A0347	
		Gaurav S Kumar	188W1A0316	
1	Four-Wheel Steering System	Y. Naga Sai Chandrika	188W1A03B2	
		M. Raghu Datta	188W1A0393	Dr. P. V.Viron
14		D. Puja	198W5A0310	DI. K V Kilali Kumar
		B. Jeevan Reddy	188W1A0361	Kumar
		G. Anandh	188W1A0375	
	Mini Peltier Based Cooler	G. Naveen	188W1A0320	
15		CH. Avinash	188W1A0313	Dr. V.V.Venu
		Y. Sai Babu Patnaik	188W1A0356	Madhav
		SK. Altaf Rehman	188W1A0348	
16	Android	G. Teja	188W1A0373	
	Controlled	N. Raghuanth	188W1A03A3	
	Automatic Jack	B. Nissy Flora	188W1A0362	Smt. G. Sri Valli
	System for	M. Kiran Kumar	198W5A0312	
	Vehicle	N Ravi Varma	168W1A3A1	

INNOVATION DAY















DEPARTMENT OF MECHANICAL ENGINEERING V.R. SIDDHARTHA ENGINEERING COLLEGE Kanuru, Vijayawada - 520 007.