

Name: AJAY KUMAR KAVITI  
 Designation: Associate Professor  
 Department: Mechanical Engineering Dept. VNR VJiet, Hyderabad,  
 T.S. 500018  
 Mail I'd: ajaykaviti@gmail.com



Experience (in years): 17

**1. Educational / Technical qualifications:**

| S. No | Level (UG / PG / Ph.D) | Year of passing | Specialization                |
|-------|------------------------|-----------------|-------------------------------|
| 1     | Ph.D                   | 2011            | Mechanics of Metal Forming    |
| 2     | M. Tech                | 2003            | Stress and Vibration Analysis |
| 3     | B. Tech                | 2001            | Mechanical Engineering        |

**2. Teaching and Learning:**

- 2.1. Teaching Interests: Finite Element method, Mechanical Vibrations, Mechanics of Materials, Machine Design, Engineering Mechanics, Engineering Graphics, Forming Processes, Numerical Methods
- 2.2. Novel Teaching & Learning Techniques adopted: Learning and teaching through NPTEL videos and MOOCs, Implementing WIT & WIL and POGIL.
- 2.3. Involvement in curriculum updating / Design:  
 Member – Curriculum and Syllabus review committee  
 Member – Choice Based Credit System (CBCS)

**3. Co-curricular and Extra-Curricular Activities**

- 3.1. Interests and Hobbies: Hearing attentively, Reading books and continuous learning
- 3.2. CCA/ECA Organized: NIL
- 3.3. CCA/ECA participated: Actively worked with students for projects in open house
- 3.4. Counselling and Mentoring Activity: Actively interact with students to inspire them to show interest in learning
- 3.5. Committees involved in:  
 Department level: NAAC -Coordinator  
 Institute Level: Library member

- **Conference / Workshop / Seminar / Guest Lectures :**

- Conducted: 10
- Attended: 20
- Expert lectures delivered: 6

- **Academic Contribution and Research & Consultancy:**

- 5.1. Invited Lectures:

1. Delivered a lecture on Principles of effective Teaching during Faculty Development Program organized by SISTec, Bhopal, 15-22 April 2013
2. Delivered a lecture on Mechanical Vibrations and its importance in mechanical engineering during Faculty Development Program organized by SISTec, Bhopal, 21-26 June 2014.
3. Delivered a lecture on Finite element analysis and its applications in mechanical engineering during One-week workshop on Advanced Numerical Modeling Techniques for Mechanical Engineering (ANMTME 2K17) during 27th – 31st March 2017 organized by VNRVJIET, Hyderabad.
4. Delivered lectures on Finite element method using ANSYS, during one-week competency development program for faculty, Organized by CDC, VNRVJIET during 18-23 June 2018.
5. Delivered lecture on Natural composites and its applications, during one-week FDP on Development, Characterization and Analysis of Composites, Organized by Department of Mechanical Engineering during 19-23 November 2019.
6. Delivered lecture on Natural Composites and its Characterization in series of Webinars Organized by department of mechanical engineering VNRVJIET during 1-5 June 2020.

## 5.2. Articles/Chapters published in Books:

1. **Ajay Kumar Kaviti**, Thakur A.K. (2020) Vibration Analysis of Carbon Fiber and Glass Fiber Composite Beam. Advances in Metrology and Measurement of Engineering Surfaces. Lecture Notes in Mechanical Engineering. Springer, Singapore. eISBN: 978-981-15-5151-2.
2. Amit Kumar Thakur, **Ajay Kumar Kaviti**, Rajesh Singh, Anita Gehlot, Roopesh Mehra (2020) Review on performance, Combustion, and Emission of Butanol-Diesel mixes in Compression Ignition Engines (Pg.123-150) eBook ISBN: 978-1-53618-180-7. Nova Publishers, 2020, USA.
3. Amit Kumar Thakur, J.V. Muruga Lal Jeyan, **Ajay Kumar Kaviti**, P.S. Ranjit (2020) Specific soft Computing strategies for Evaluating the performance and emission of Spark Ignition engine using Alcohol-Gasoline blended fuels: A Comprehensive Review (pg. 151-186) eBook ISBN: 978-1-53618-180-7. Nova Publishers, 2020, USA.
4. CN Reddy, M Bhargav, **Ajay Kumar Kaviti** (2020), Mechanical Characterization of Unidirectional Banana–Glass Fiber-Reinforced Hybrid Composites. Advances in Applied Mechanical Engineering, 1031-1038 Lecture Notes in Mechanical Engineering, Springer Nature Singapore; ISBN 978-981-15-1201-8.
5. **Ajay Kumar Kaviti**, A Kumar, O Prakash (2019) Effect of Design Parameters on Productivity of Various Passive Solar Stills(Pg.49-73) eBook ISBN: 978-981-13-6887-5, Published by Springer 2019.
6. AD Roy, O Prakash, A Kumar, **Ajay Kumar Kaviti**, A Pandey (2018) Design and Selection Criteria of Biogas Digester (Pg.91-112) eBook ISBN: 978-981-10-7326-7, Published by Springer 2018.
7. **Ajay Kumar Kaviti**, H Deep (2017) Thermal Energy Storage in Solar dryer (Pg. 603-617). eBook ISBN: 978-981-10-3833-4, Published by Springer 2017.
8. **Ajay Kumar Kaviti**, K.K. Pathak & M.S. Hora (2009). Application of Neural Networks in Preform Design of Aluminum Upsetting Process Considering Different Interfacial Frictional Conditions. S. Chaudhury et al. (Eds.): PReMI 2009, LNCS 5909, pp. 98–105, 2009. Published by Springer-Verlag Berlin Heidelberg 2009.

5.3. Books published as single author or as editor:

1. Internet of Things for Agriculture 4.0- Impact and challenges. ISBN: 9781774630020  
CRC Press, Taylor and Francis Group, 2021
2. Applied Soft Computing Techniques for Renewable Energy. eBook ISBN: 978-1-53618-180-7. Nova Publishers, 2020, USA
3. Design Analysis and Optimization of Vertical axis Wind Turbine Blade. eBook ISBN: 978-620-2-55564-7. Published by LAMBERT Academic Publishing, 2020, UK
4. An Overview of recent advances in jute fibre reinforced composites. eBook ISBN: 978-613-9-47658-9. Published by LAMBERT Academic Publishing, 2019, UK

5.4. Projects Guided:

a) UG: 17 b) PG: 14

5.5. Research Interests: Renewable energy, Mechanics of Forming and Composites, Finite element analysis, Nanostructures

5.6. Ph. Dstudents:1

a) Enrolled:1

b) Submitted:

c) Awarded:

5.7. Papers published in reviewed journals:

| S. No | Title of the Paper  | Journal Name<br>Vol.No. PP                              | ISBN/ISS<br>N No. | Impact<br>Factor/<br>Citation<br>Index                      | National/<br>International |
|-------|---|---|-------------------|---|----------------------------|
| 1     | Specific Soft Computing Strategies for Evaluating the Performance and Emissions of an SI Engine Using Alcohol-Gasoline Blended Fuels—A Comprehensive Analysis | 27, 1-14  | 1134-3060         | <b>SCI</b> listed<br>Journal 6.73<br>Springer               | International              |
| 2     | An Overview Of Butanol As Compression Ignition Engine Fuel  | 21,   | 2150-3621         | <b>Scopus</b><br>listed<br>Journal<br>SJR:0.195<br>Elsevier | International              |
| 3     | Effect of dual resin on mechanical properties of jute glass fibre reinforced hybrid composite   | Materials<br>Research<br>Express 6<br>(12)              | 2053-1591         | <b>SCI</b> listed<br>Journal<br>1.929 IOP                   | International              |
| 4     | Estimation of microscopic variables for materials system optimization using Cluster Variation Method  | Materials<br>Today:<br>Proceedings<br>26, 1621-<br>1625 | 2214-7853         | <b>Scopus</b><br>listed<br>Journal<br>SJR:0.3<br>Elsevier   | International              |

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| 5  | Degradation of Mechanical Properties of Hybrid Reinforcement with Epoxy-Polyester Matrix Under Water Absorption  | International Journal of Recent Technology and Engineering (IJRTE) 8, (5), 3586-90 | 2277-3878 | <b>Scopus</b> listed<br>Journal<br>SJR:0.14              | International |
| 6  | Evaluation and optimization of material properties of ASS 316L at elevated temperatures using Response Surface Methodology   | Materials Today: Proceedings 18, 4589-4597   | 2214-7853 | <b>Scopus</b> listed<br>Journal<br>SJR:0.3<br>Elsevier   | International |
| 7  | Modeling and Simulation of Composite Laminates Subjected to low velocity Impact  | Materials Today: Proceedings 18, 5364-5372   | 2214-7853 | <b>Scopus</b> listed<br>Journal<br>SJR:0.3<br>Elsevier   | International |
| 8  | Experimental Analysis and Contrast of LMTD and Effectiveness for Corrugated Tube (60 Degree Pitch) In Parallel Flow Arrangement with Shell and Pipe Heat Exchanger | Think India Journal 22 (07), 1527-1537   | 0971-1260 | UGC listed   | International |
| 9  | Analytical and numerical investigation on inter laminar stress pattern in FRP Composites   | Materials Today: Proceedings 18, 4305-4314   | 2214-7853 | <b>Scopus</b> listed<br>Journal<br>SJR:0.3<br>Elsevier   | International |
| 10 | Comparative study on mechanical behavior of ASS 316L for low and high temperature applications   | Materials Today: Proceedings 19, 767-771   | 2214-7853 | <b>Scopus</b> listed<br>Journal<br>SJR:0.3<br>Elsevier   | International |
| 11 | Experimental investigation of solar still with opaque north triangular face  | International Journal of Green Energy  | 1543-5075 | <b>SCI</b> listed<br>Journal<br>1.388 Taylor and Francis | International |

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|    |  | 16(6), 442-449   |           |  |               |
| 12 | Progress in regulated emissions of ethanol-gasoline blends from a spark ignition engine  | Biofuels, 1-24,  | 1759-7277 | <b>SCI</b> listed<br>1.496 Taylor and Francis          | International |
| 13 | An artificial neural network approach to predict the performance and exhaust emissions of a gasoline engine using ethanol-gasoline blended fuels | Biofuels 9 (3), 379-393  | 1759-7277 | <b>SCI</b> listed<br>1.496 Taylor and Francis          | International |
| 14 | Measurement of top and bottom unequal frictional values using profile map  | Materials Today: Proceedings 5 (13), 27285-27290,                        | 2214-7853 | <b>Scopus</b> listed<br>Journal<br>SJR:0.3<br>Elsevier | International |
| 15 | Experimental Investigation of Fibre Reinforced Composite Materials Under Impact Load   | IOP Conference Series: Materials Science and Engineering 330 (1), 012047 | 1757-899X | <b>Scopus</b> listed<br>Journal<br>SJR:0.19            | International |
| 16 | Design and computational Analysis of Semi-Elliptical and Parabolic Leaf Spring,  | Materials Today: Proceedings 5 (9), 19441-19455                          | 2214-7853 | <b>Scopus</b> listed<br>Journal<br>SJR:0.3<br>Elsevier | International |
| 17 | Experimental Investigation of Friction Stir Welded AA5052 using Square and Pentagonal Tool Pins  | Materials Today: Proceedings 5 (9), 18230-18237                          | 2214-7853 | <b>Scopus</b> listed<br>Journal<br>SJR:0.3<br>Elsevier | International |
| 18 | On the Evaporation of Fine Hydrophobic Camphor Soot Mixed Water  | Materials Today: Proceedings 5 (2), 6203-                                | 2214-7853 | <b>Scopus</b> listed<br>Journal<br>SJR:0.3             | International |

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|    |   | 6207   |                                      | Elsevier   |               |
| 19 | Micro Stress Evaluation and Analysis in FRP Composites for Rocket Motor Casing  | Materials Today: Proceedings 5 (2), 5737-5742                                | 2214-7853                            | <b>Scopus</b> listed<br>Journal<br>SJR:0.3<br>Elsevier   | International |
| 20 | Analysis of performance and emission on compression ignition engine fueled with blends of neem biodiesel                            | Egyptian Journal of Petroleum 26 (4), 927-931                                | 1110-0621                            | <b>Scopus</b> listed<br>Journal<br>SJR:1.044<br>Elsevier | International |
| 21 | Performance evaluation of profile modifications on straight-bladed vertical axis wind turbine by energy and Spalart Allmaras models | Energy. Vol 126:766-795  | 0360-5442                            | <b>SCI</b> listed<br>Journal<br>6.082<br>Elsevier        | International |
| 22 | A Comprehensive Review of Scheffler Solar Collector   | Renewable and Sustainable Energy Reviews                                     | 1364-0321                            | <b>SCI</b> listed<br>Journal<br>12.110<br>Elsevier       | International |
| 23 | An Approach on Analytical Modeling of Composite Casing for Space Applications   | IOSR Journal of Mechanical and Civil Engineering (IOSR-JMCE)<br><br>PP 28-32 | e-ISSN: 2278-1684, p-ISSN: 2320-334X |  | International |
| 24 | Progress in performance analysis of ethanol-gasoline blends on SI engine  | Renewable and Sustainable Energy Reviews. Vol 69: 324-                       | 1364-0321                            | <b>SCI</b> listed<br>Journal<br>12.110<br>Elsevier       | International |

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|----|---|---|-----------|---|---------------|
|    |   | 340   |           |   |               |
| 25 | Performance analysis of ethanol–gasoline blends on a spark ignition engine: a review                    | Biofuels 8 (1), 91-112  | 1759-7277 | <b>SCI</b> listed Journal<br>1.496 Taylor and Francis | International |
| 26 | A Review of Use FEM Techniques in Modeling of Human Knee Joint  | Trans Tech Publications Vol 28: 14-25   | 2296-9845 | <b>Scopus</b> listed Journal<br>SJR:0.17              | International |
| 27 | Inclined Solar Still Designs: A review  | Renewable and Sustainable Energy Reviews. Vol 54: 429-451                                 | 1364-0321 | <b>SCI</b> listed Journal<br>12.110 Elsevier          | International |
| 28 | An experimental study on single basin double slope passive solar still with different water depths      | International research journal of engineering and applied sciences, Vol 04 Issue 01: 1-6; | 2322-0821 |   | International |
| 29 | An experimental study on single basin double slope glass active solar still with different water depths | Elixir Mechanical Engineering Vol 92: 38774-38777   | 2229-712  |   | International |
| 30 | Different Analysis on Wind Turbine Blade: A Review  | International Journal for Scientific Research & Development, Vol 03 Issue 09: 321-326     | 2321-0613 |   | International |

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| 31 | Study and review on the analysis of leaf spring  | International Journal for Scientific Research & Development, Vol 03 Issue 09: 637-640  | 2321-0613 |  | International |
| 32 | Parameters influencing connecting rod: A review  | International Journal of Scientific Engineering and Research. Vol 6 Issue 8: 8-16  | 2229-5518 |  | International |
| 33 | Solar stills system design: A review   | Renewable and Sustainable Energy Reviews. Vol 51: 153-181  | 1364-0321 | <b>SCI</b> listed Journal, 12.110 Elsevier   | International |
| 34 | Prediction of Moisture Evaporation Rate from Jaggery in Green House Drying Using Fuzzy Logic | Heat transfer research. Vol 46 Issue 10: 923-935,  | 2162-6561 | <b>SCI</b> listed Journal 1.199 Begell house | International |
| 35 | Optimization of Wax Tank Parameter to Improve the Quality of Wax Pattern                     | International journal of emerging technologies and applications in engineering, technology and sciences. Vol 7 Issue 1:159-164 | 0974-3588 |  | International |
| 35 | Optimization of Wax Tank Parameter to  | International Journal of   | 2278-800  |  | International |



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|    | Improve the Quality of Wax Pattern in Investment Casting   | Engineering Research and Development. Vol 8 Issue 12: 49-54                |           |       |               |
| 37 | Simulation Technique used to Analyze the Inlet System in Mould Cavity  | Advances in Computational Sciences and Technology. Vol 6 Issue 1:1-10      | 0974-4738 |       | International |
| 38 | Experimental Analysis of Greenhouse Dryer in No-Load Conditions  | Journal of Environmental Research and Development. Vol 7 Issue 4:1399-1406 | 0973-6921 | 1.613 | International |
| 39 | Optimization of design and operating parameters on the year-round performance of a multi-stage evacuated solar desalination system using transient mathematical analysis | International journal of Energy and environment . Vol 3 Issue 3: 409-434   | 2076-2895 |       | International |
| 40 | Prediction of coefficient of friction for Aluminum Billet  | Archives of Applied Science Research, Vol 3 Issue 4: 328-335               | 0975- 508 |       | International |
| 41 | Friction calibration map for determination of equal frictional conditions  | Advances in Applied Science Research, Vol 2 Issue 5 279-289                | 0976-8610 |       | International |

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| 42 | Anfis Based Prediction Model for Reduction of Failure Frequency in Captive Power Plant                                      | Archives of Applied Science Research, Vol 3 Issue 1: 52-64                     | 0975-508  |   | International |
| 43 | Preform Map for Near Net Shape Upsetting of Aluminum Specimens and Its Experimental Verification                            | Journal of modeling, Simulation and Scientific computing, Vol 2 Issue 1: 67-81 | 1793-9615 | <b>Scopus</b> listed Journal SJR:0.26, World Scientific | International |
| 44 | Artificial Neural Network based Prediction Model for reduction of failure frequency in Thermal Power Plants                 | Archives of Applied Science Research, Vol 2 Issue 6: 98-107                    | 0975-508  |   | International |
| 45 | Application of Neural Networks in Preform Design of Upsetting Process Considering varying interfacial frictional conditions | JOM, Vol 62 Issue 5, pp 64-68  | 1543-1851 | <b>SCI</b> listed Journal, 2.029, Springer              | International |
| 46 | Application of Neural Networks in Preform Design of Upsetting Process Considering unequal interfacial frictional conditions | Archives of Applied Science Research, Vol 2 Issue 1: 310-317                   | 0975-508  |   | International |

5.8. Papers presented at National / International Journals:

| S. No | Title of the Paper | Names of the Conference/ Seminars | National/ International | Period |
|-------|--------------------|-----------------------------------|-------------------------|--------|
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| 1  | Comparison of tensile and impact strength of Jute-glass hybrid composite with epoxy and polyester resins                                  | ICFMD  | International | 2019   |
| 2  | Estimation of microscopic variables for materials system optimization using Cluster Variation Method                                      | ICFMD  | International | 2019   |
| 3. | Measurement of top and bottom unequal frictional values using profile map   | International Conference on Advances in Material and Manufacturing               | International | 08-10 December 2016, Osmania University and DRDO, Hyderabad.         |
| 4. | Optimized aero foil profile of vertical axis wind turbine   | International Conference on Recent Trends in Engineering, Science and Technology | International | 27 October 2016, Saint Peter's College of Engineering, Hyderabad.    |
| 5. | Investigation of Tamarind Methyl Ester Blends on Performance and Emissions Characteristics on single cylinder Compression Ignition Engine | International Conference on Recent Trends in Engineering, Science and Technology | International | 25-27 October 2016, Saint Peter's College of Engineering, Hyderabad. |
| 6. | Effects of ambient condition monsoon weather variation on the observed parameter of greenhouse dryer under unload condition               | 5th International Congress on environmental Research                             | International | 22-24 November, 2012, Malaysia.                                      |
| 7. | Application of Neural Networks in Preform Design of Aluminum Upsetting Process Considering different interfacial frictional conditions    | Third international conference on pattern Recognition and Machine Intelligence   | International | 16-20 December 2009, IIT Delhi.                                      |

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| 8.  | Preform Maps for Mild Steel Upsetting Considering Unequal Frictional Conditions                               | International Conference on Emerging Research and Advances in Mechanical Engineering | International | 19-21 March, 2009, Velemel College of Engineering, Chennai.                      |
| 9.  | Application of NN in Pre-form design of upsetting process considering equal interfacial frictional conditions | All India Seminar on "Life Cycle Analysis, Measurement & Condition monitoring"       | National      | 25-26 May 2009. organized by Institution of Engineers, M.P State Centre, Bhopal. |
| 10. | Design and Optimization of Guide Bearing  | National Conference on Design and Analysis of Aer. /Mechanical Systems- AERODYNE     | National      | October 2006. organized by Mallareddy College of Engineering, Hyderabad.         |

#### 5.9. Sponsored research Projects:

| S. No | Title  | Agency    | Period    | Grant amount | Ongoing / Completed |
|-------|--|-----------|-----------|--------------|---------------------|
| 1.    | Development of Hierarchical structures for solar desalination                | DST       | 2020-2023 | 40.73 Lakhs  | Ongoing             |
| 2.    | Development of nano and micro hierarchical structures for solar desalination | TEQIP-III | 2019-2020 | 2.85 Lakhs   | Ongoing             |
| 3.    | Comparative study of weld characteristics of IS: 65032A aluminum alloy by    | DRDO      |           | 9.91 Lakhs   | Completed           |

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|  | two process – Friction stir welding (FSW) and Gas Tungsten Arc Welding(GTAW) |  |  |  |  |
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#### 5.10 Consultancy Projects:

| S.No | Title | Agency | Period | Sanctioned Amount | Ongoing / Completed |
|------|-------|--------|--------|-------------------|---------------------|
|      |       |        |        |                   |                     |

- **Awards / Honors received:**

- Received Best Teacher Award in 2012 by a National monthly magazine named Youth Guru
- Innovative Research and Dedicated Teaching Professional by The society of Innovative Educationalist & Scientific Research Professional in 2018
- Best Reviewer award for reviewing paper in Elsevier Journal in 2020

- **Motto:**

I consider myself very fortunate having come in contact with some very wonderful teachers, who put their heart into teaching, taking learning beyond the classroom. They not only induce interest in the subject being taught, but also impart the responsibility one must feel towards the society as a consequence of learning. By their genuine teaching, they have brought transformation in my character. It is the inspiration I derived from them that made me select teaching as my career option.

Learning without practical application does not have much influence. When combined with real life examples, application and innovative research, teaching becomes a very lively and interesting experience. **Therefore, a teacher has lot of responsibility to inspire students, to prioritize his/her time and resources towards effective teaching and constructive learning in terms of research, making it better both from student and teacher's perspective.** With this understanding, I strive to be an active part of an educational organization and impart this learning methodology to students and fellow staff.