Curriculum Vitae

Dr. Sunil Kumar

Assistant Professor
Department of Mechanical Engineering
Faculty of Engineering and Technology
Gurukula Kangri (Deemed to be University)
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Research Interests

Biofuels, Biodiesel production

Academic Background

2015 – 2022 Doctor of Philosophy (Part time)
Uttarakhand Technical University, Dehradun, India
Thesis: An experimental investigation on the performance of a Jatropha-Algae oil blend biodiesel as a fuel.

2008 - 2010 Master of Engineering (7.4 CGPA)
Mechanical Engineering
PEC University of Technology, Chandigarh, India
Thesis: An experimental investigation on EAFF of Al_2O_3 –MMC cylindrical internal surface.

2005 -Bachelor of Technology (64.18%)
Mechanical Engineering
H.C.T.M. KAITHAL (Kurukshetra University Kurukshetra) India

1995-1998- Diploma in civil engineering (64.81%)
Government polytechnic Sirsa- India

Computer knowledge
Matlab
Window (all versions)

Professional Experience

August 2005 – August2006
- Lecturer, Saint Kabir Polytechnic College Fazilka.

August 2006 – March 2008
- . Lecturer, Shanti Niketan Institute of Engineering and Technology Hisar.

March 2008- September 2008
- . Lecturer, RIMT-IET Mandi Gobindgarh.

July 2010- February 2011

- Assistant Professor, Department of Mechanical Engineering, Hindu College of Engineering Sonepat.

February 2011- December 2011

- Assistant Professor, Department of Mechanical Engineering, G. V.I.E.T. Rajpura.

August 2012- Present

- Assistant Professor, Department of Mechanical Engineering, F.E.T. Gurukula Kangri (Deemed to be University) Haridwar.

Master thesis Guided

- **1.** Experimental investigation in manufacturing of bottle cover by injection molding process. Subharti Institute Of Technology And Engineering, Meerut [(Co-supervisor) Awarded-2015)].

Doctor of Philosophy Guided

- Optimization of Parameters and Estimation of Pongamia Biodiesel with Neutral Network. **Gurukula Kangri Deemed to be University [(Co-supervisor) Pursuing)]**
- Prediction on biodiesel production from used frying oil by Mathematical Optimization technique with Artificial Neural Network. **Gurukula Kangri Deemed to be University [(Co-supervisor) Pursuing)]**
- Analysis of Parameters of biodiesel production from algae oil by using Mathematical Mathematical Optimization and Adaptive Neuro-Fuzzy Inference System. **Gurukula Kangri Deemed to be University [(Co-supervisor) Pursuing)]**

Memberships

- Life member: INDIAN SCIENCE CONGRESS ASSOCIATION.

Reviewer

- ICET-2020, MNIT-Bhopal (Elsevier, springer)
- Elsevier Journals

Conferences/ Workshop/ Short term courses attended

- Ten international conferences attended and papers presented.
- Ten national conferences attended and papers presented.
- One Week Workshop on Data Analytics Using Advanced Mathematical Tools.
- Two days Faculty Development Program on Teaching and Soft Skills.
- Three Short term course (One Week) attended.
- Three Faculty Development Program (One Week).
- One Faculty Development Program on Sustainable transport sources for future mobility application (One Week)

- Nine weeks on line course "ENERGY X: SUSTAINABLE ENERGY: DESIGN A RENEWABLE FUTURE" from Delft University of Technology.
- Refresher Course on Teacher and Teaching in Higher Education from Swayam.
- Four-week Orientation Programme for Higher Education from Delhi University.
- Five-day online STTP on Bioenergy: Technology & Transitions**.**
- Online NPTEL course on Fuzzy Logic and Neural Networks**.**

Professional Affiliation

- Worked as a Head of Department at **G.V.I.E.T.**
- Departmental time table and B.tech. Project coordinator.
- Coordinate AUTOSPARK workshop.
- Committee Member of national conference **LDMPE-2008.**
- Committee Member of national conference **ETES-2013.**
- Member of Board of Studies Mechanical Engineering Department.
- Centre Supervisor (Examination-2016).
- Speaker of Resource person Faculty Development Program (Alternate fuels).
- Practical examiner (UTU-Dehradun)
- Session Coordinator One-week online student induction Program.
- Session Chair RAIET-2023 and ICASF-2025 an International Conferences.

Patent

- FOLDABLE BRIDGE ASSEMBLY **(202011029142 A)**
- SMART HYBRID KITCHEN (**202011042085 A**)
- 3D PRINTER WITH TOOLBOX DRAWER **(349046-001) (Awarded)**

Book

- Research Methodology and Data Analysis **(ISBN: 9789357578561)**

Refereed Journal Publications

1. **Kumar S,** Singh J, Fore V and Kumar A. Performance evaluation of ANFIS, ANN and RSM in biodiesel synthesis from Karanja oil with Domestic Microwave set up. Multimedia Tools and Applications 82 (2023) 42509-42525 (*impact factor 2.5*)
2. Kumar S. Production and optimization from Karanja oil by adaptive neuro-fuzzy inference system and response surface methodology with modified domestic microwave. Fuel 296 (2021) 120684 (*impact factor 8.035*)
3. Kumar S, Jain S and Kumar H. Application of adaptive neuro-fuzzy inference system and response surface methodology in biodiesel synthesis from jatropha–algae oil with and its performance and emission analysis on Diesel engine coupled with generator. Energy 226 (2021) 120428 (*impact factor 8.8*)

4. Kumar S, Jain S and Kumar H. Experimental Study on Biodiesel Production Parameter Optimization of Jatropha–Algae Oil Mixtures and Performance and Emission Analysis of a Diesel Engine Coupled with a Generator Fueled with Diesel/Biodiesel Blends.ACS Omega 28(2020) 17033-17041 (*impact factor 3.5*)

5. **Kumar S** and V Deswal. Optimization at low temperature transesterification biodiesel production from soybean oil methanolysis via response surface methodology. Energy Sources, Part A: Recovery, Utilization, and Environmental Effects. 44 (2019) 2284-2293. (*impact factor 3.1*)
6. **Kumar S.** Comparison of linear regression and artificial neural network technique for prediction of a soybean biodiesel yield. Energy Sources, Part A: Recovery, Utilization, and Environmental Effects 42 (2019) 1425–1435 (*impact factor 3.1*)
7. **Kumar S.** Estimation capabilities of biodiesel production from algae oil blend using adaptive neuro-fuzzy inference system (ANFIS). Energy Sources, Part A: Recovery, Utilization, and Environmental Effects 42 (2019) 909–917 (impact factor 3.1)
8. **Kumar S,** Jain S and Kumar H. Prediction of jatropha-algae biodiesel blend oil yield with the application of artificial neural networks technique. Energy Sources, Part A: Recovery, Utilization, and Environmental Effects 41 (2019) 1285–1295 (impact factor 3.1)
9. **Kumar S,** Jain S and Kumar H. Performance evaluation of adaptive neurofuzzy inference system and response surface methodology in modeling biodiesel synthesis from jatropha–algae oil. Energy Sources, Part A: Recovery, Utilization, and Environmental Effects 40 (2018) 3000–3008 (*impact factor 3.1*)
10. **Kumar S,** S Kumar, A Kumar, S Maurya and V Deswal. Experimental investigation of the influence of blending on engine emissions of the diesel engine fueled by mahua biodiesel oil. Energy Sources, Part A: Recovery, Utilization, and Environmental Effects 40 (2018) 994–998 (*impact factor 3.1*)
11. **Kumar S,** Jain S and Kumar H. Process parameter assessment of biodiesel production from a Jatropha–algae oil blend by response surface methodology and artificial neural network. Energy Sources, Part A: Recovery, Utilization, and Environmental Effects 39 (2017) 2119–2125 (*impact factor 3.1*)
12. **Kumar S,** Singh J, Fore V, Amrish, Ashish Nainwal and Gorav Kumar Malik. Production and optimization of soybean biodiesel production at fixed temperature 50 °C with RSM and ANN. Environmental Science and Pollution Research https://doi.org/10.1007/s11356-025-36564-4. (***Scopus Index***).
13. **Kumar S**, Goel V, Anshika. Optimization of Process Parameters and Biodiesel Extraction of Pogamia Pinnata via Response Surface Methodology. Int. J. Appl. Comput. Math (2025) 11:111. (***Scopus Index***).
14. **Kumar S,** Divyangana Sharma and Vivek Goel**.** An appraisal of the competence of Mathematical Fuzzy Logic approach via Adaptive Neuro-Fuzzy Inference System (ANFIS) in biodiesel production from Algae oil. Eng. Res. Express 7 (2025) 015509. (***Scopus Index***).
15. **Kumar S** and Sumit Bansal. Performance evaluation of ANFIS and RSM in modeling biodiesel synthesis from soybean oil. Biosensors and Bioelectronics: X 15 (2023) 100408. (***Scopus Index***)
16. **Kumar S.** Application of response surface methodology for the optimization of biodiesel production from Jatropha-algae oil blend. International Journal of Ambient Energy 44 (2023) 1557-1562. (***Scopus Index***)

17. **Kumar S,** N Kumar, M Aggrwal and V Deswal. Optimization and Prediction of Karanja oil transesterification with domestic microwave by RSM and ANN. International Journal of Ambient Energy 43 (2022) 3744-3751(***Scopus Index***).
18. **Kumar S** and A. Manna. An Experimental Investigation during EAFF of Al/Al2O3-MMC. International Journal of Applied Engineering Research 5(2010)2943-2948 (***Scopus Index***).

Conference Paper & Book Chapter

19. **Kumar S**, preeti and Vivek Goel. Microwave-driven biodiesel production from waste cooking oil: A parametric optimization approach for next-generation biofuel upcycling. Next Generation Renewable Thermal Energy Harvesting, Conversion and Storage Technologies. DOI: https://doi.org/10.1016/B978-0-443-33184-8.00025-1**.** ***(Scopus Index)***
20. **Kumar S**, preeti and Vivek Goel. Analytical investigation of biodiesel production from used frying oil using an Artificial Neural Network technique. Journal of Computational Analysis and Applications 33 (2025) 5969-5994. (***Scopus Index***).
21. **Kumar S**, preeti and Vivek Goel. Biodiesel from frying oil with Artificial neural networks technique: Methods of production. https://ieeexplore.ieee.org/document/11059138. (***Scopus Index***).
22. **Kumar S**, Divyangana Sharma and Vivek Goel. A brief account of the ANFIS tools and optimization approaches explored during the manufacturing of biodiesel. https://ieeexplore.ieee.org/document/11059124. (***Scopus Index***).
23. **Kumar S**, Yadav V, Goyal S, Goel V and Anshika. Artificial neural networks and biodiesel production: A review. https://ieeexplore.ieee.org/document/10866609. (***Scopus Index***).
24. **Kumar S,** Singh J, Fore V, Amrish, Ashish Nainwal and Gorav Kumar Malik. Comparative study using RSM ANN and SVM modelling for Biodiesel production from Karanja oil by developed microwave set up. https://ieeexplore.ieee.org/document/10146623. (***Scopus Index***).
25. **Kumar S**, Divyangana Sharma and Vivek Goel. Optimization of microwave heated conversion of algae bio-oil into biodiesel using RSM. CRC Press (2025) ISBN9781003534785. **(*Scopus Index*).**
26. **Kumar S**, preeti and Vivek Goel. Forecasting The Biodiesel yield with ANN Tool during transesterification of Used Frying Oil. SYNERGY-2024: Innovations in Science, Engineering and Management. E-ISBN: 978-93-7020-834-6.
27. **Kumar S**, Divyangana Sharma and Vivek Goel. Evaluation of the mathematical fuzzy logic approach's proficiency in creating biodiesel from Laminaria Digitata Algae Oil using the Adaptive Neuro-Fuzzy Inference System (ANFIS). SYNERGY-2024: Innovations in Science, Engineering and Management. E-ISBN: 978-93-7020-834-6.
28. **Kumar S**, Garg S, Kumar S and Sahastranshu. Process parameters optimizing in injection moulding process on polypropylene. Discovery 52(2016), 1420-1425

29. **Kumar S**, Arora H and Singh D P. Parametric effect during plastic Injection molding process on polypropylene material. Iinternational Journal of Science, Technology & Management 4(2015), 118-1212.
30. **Kumar S**, Arora H and Singh D P. Determining the Optimum Parameters of Plastic Injection Moulding for the Production of Bottle Cover. International Journal of Science and Research 4(2015), 301-304.
31. **Kumar S** and Jain S. A review on biodiesel production technique. The Engineering Journal of Application & Scopes, 3 (2018) 5-8.
32. **Kumar S** and Kumar H. Renewable Energy Resources and their status. The Engineering Journal of Application & Scopes, 4 (2019) 1-4.

Papers in Conference Proceedings
International Conferences

1. **Kumar S,** Jain S and Kumar H. Implantation of Adaptive Neuro-Fuzzy Inference System and Artificial neural Network for Biodiesel Production From Jatropha-Algae Oil. *International Conference on Artificial Intelligence & Applications (ICAIA-2019) November 20-21, 2019.*
2. **Kumar S**, Garg S, Kumar S and Sahastranshu. Process parameters optimizing in injection moulding process on polypropylene *(IC TIME-2016).*
3. **Sunil Kumar**, Study of Process parameters in injection moulding process on polypropylene. *(IT EST-2016).*

4. **Sunil Kumar**, Vikas Deshwal and Rakesh Kumar Phanden. Small Size Injection Molding Machine Design and Fabrication for Plastic Industries. *International Conference on Newest Drifts in Mechanical Engineering. December, 2014.*

National Conferences

1. **Kumar S**, Estimation and biodiesel production at fixed temperature from soybean oil with BOX BEHNKEN DESIGN. *National Conference on Science & Technology: Rural development-2020.*
2. **Kumar S**, Jain S and Kumar H. Prediction of Biodiesel yield of Jatropha-Algae oil during transesterification technique with box behnken design. *National Conference on Trends and Innovations in Mechanical Engineering-2018*.
3. **Kumar S,** Biofuels future of India. *National Conference on Science & Technology for national development-2016.*
4. **Kumar S,** Influence of injection molding process on polypropylene material**.** *National Conference on Science & Technology for indigenous development in india-2015.*
5. **Kumar S.** Mechatronics-An Introduction. (ETES-2013).
6. **Kumar S.** Concept of Virtual Manufacturing-In design and production. (ETES-2013).
7. **Kumar S.** An Introduction to abrasive flow machining process (ETES-2013).
8. **Kumar S** and A. Manna. Micro finishing by developed extrusion abrasive flow machining setup. *National Conference on Advancements and Futuristic Trends in Mechanical and Materials Engineering-2010.*

9. **Kumar S** and A. Manna. Micro finishing developed extrusion abrasive flow machining set up *(ATET-2009).*
10. . **Kumar S** and A. Manna. An Experimental investigation during on EAFF of Al_2O_3 –MMC. *(NCPM-2010).*