Department of **Mechanical Engineering**

Name	***Dr RAJKUMAR P R***				
Date of Birth	06.03.1982				
Unique ID	*1-422451311*				
Educational Qualifications	*B.E., M.E., Ph.D.*				
Designation	ASSOCIATE PROFESSOR				
Email ID	prrajkumar@sethu.ac.in				
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Experience	Industry	Teaching	Others	Total	
	-	17 Years and 7 Months	-	17 Years and 7 Months	
Date of Joining the Institution	02.01.2008				
Area of Specialization	***Composite Materials, Wear, Corrosion***				
Courses taught	Strength of Materials, Design of Machine Elements Dynamics of Machinery, Kinematics of Machinery Engineering Graphics, Engineering Mechanics Engineering Materials and Metallurgy Unconventional Machining Processes, Statistical Quality Control Basic Civil and Mechanical Engineering, Strength of Materials Laboratory, Dynamics Laboratory Engineering Practices Laboratory				
Research Focus	***Composite Materials, Bio Films, Wear, Corrosion***				
Subject Competency	Strength of Materials, Design of Machine Elements Dynamics of Machinery, Kinematics of Machinery Engineering Graphics, Engineering Mechanics Engineering Materials and Metallurgy				
No. of papers published	National Journals	International Journals	Conferences		
	-	***20***	***7***		
PG Specialization	Production Engineering				
Ph.D. Specialization	Composite Materials				
Projects Carried out	***Unath Bharath Abiyan***				
Patents (Filed & Granted)	2				

Academic Credentials

Level	Degree	Specialization	University	Year of Completion
UG	B.E.,	Mechanical Engineering	Madurai Kamaraj University	2003
PG	M.E.,	Production Engineering	Anna University, Chennai	2007
Ph.D.	Ph.D.	Mechanical Engineering	Anna University, Chennai	2022

Details of Journal Publication:

1. **Rajkumar, P.R.,** Kailasanathan, C., Senthilkumar, A., Selvakumar, N. and John Rajan, A., 2020. Study on formability and strain hardening index: influence of particle size of boron carbide (B4C) in magnesium matrix composites fabricated by powder metallurgy technique. *Materials Research Express*, *7*(1), p.016597.
2. Kailasanathan, C., **Rajkumar, P.R.,** Rajini, N., Sivakumar, G.D., Ramesh, T., Ismail, S.O., Mohammad, F. and Al-Lohedan, H.A., 2021. Characterization and optimization of influence of MoS2 hybridization on tribological behaviours of Mg–B4C composites. *Bulletin of Materials Science*, *44*(3), p.192.
3. Perumal, A., **Rajkumar, P.R.,** Venkatesan, G., Paramasamy, S. and Gangadharan, T., 2023. Multi-response optimization of machining parameters of Ti-6Al-2Sn-4Zr-2Mo alloy using EDM process through grey relational analysis. *Engineering Research Express*, *5*(2), p.025005.
4. Perumal, A., Azhagurajan, A., Kumar, S.S., Prithivirajan, R., Baskaran, S., **Rajkumar, P.R.,** Kailasanathan, C. and Venkatesan, G., 2021. Influence of optimization techniques on wire electrical discharge machining of Ti–6Al–2Sn–4Zr–2Mo alloy using modeling approach. *Journal of Inorganic and Organometallic Polymers and Materials*, *31*(8), pp.3272-3289.
5. T Gangadharan, C Kailasanathan, **PR Rajkumar,** A Perumal, KR Darshini, "Tribological and Mechanical Properties of Hybrid nHAp/SiO2/Chitosan Composites

Fabricated from Snail Shell Using Grey Rational Grade (GRG) Analysis", *Silicon*, Nov 2021. https://doi.org/10.1007/s12633-021-01436.

6. Perumal, A., Kailasanathan, C., Stalin, B., Suresh Kumar, S., **Rajkumar, P.R.,** Gangadharan, T., Venkatesan, G.K.D.P., Nagaprasad, N., Dhinakaran, V. and Krishnaraj, R., 2022. Multiresponse Optimization of Wire Electrical Discharge Machining Parameters for Ti-6Al-2Sn-4Zr-2Mo (α-β) Alloy Using Taguchi-Grey Relational Approach. *Advances in Materials Science and Engineering*, *2022*(1), p.6905239.
7. Perumal, A., Azhagurajan, A., Sureshkumar, S., Prithivirajan, R., Kailasanthan, C., JohnRajan, A., Venkatesan, G. and **Rajkumar, P.R.,** 2020. Experimental investigation on surface morphology and parametric optimization of Ti-6Al-2Sn-4Zr-2Mo alpha-beta alloy through AWJM. *Tierarztl Prax*, *40*, pp.1681-1703.
8. Perumal, A., Kailasanathan, C., Stalin, B., **Rajkumar, P.R.,** Gangadharan, T. and Venkatesan, G., 2021. Evaluation of EDM process parameters on titanium alloy through Taguchi approach. *Materials Today: Proceedings*, *45*, pp.2394-2400.
9. Perumal, A., Kailasanathan, C., Wilson, V.H., Kumar, T.S., Stalin, B. and **Rajkumar, P.R.,** 2023. Machinability of Titanium alloy 6242 by AWJM through Taguchi method. *Materials Today: Proceedings*, *81*, pp.606-611.
10. Rajan, A.J., Kailasanathan, C., Stalin, B., **Rajkumar, P.R.,** Gangadharan, T. and Perumal, A., 2021. Optimization of mould sand properties by mixing of granite powder using Taguchi method. *Materials today: Proceedings*, *45*, pp.2254-2259.
11. Velmurugan G., Dinesh Kumar N., Perumal A., **Rajkumar P. R.,** Gangadharan T., Sekar S., Suresh Kumar S., Siva Shankar V. and Bhagavathi M.S., 2022, November. Potential utilization and characterization of epoxy based biomaterials under alkaline environment. In *AIP Conference Proceedings* (Vol. 2516, No. 1). AIP Publishing.
12. **Rajkumar Putta Ramarathinam,** Prasanna Venkatesh Ramdas, Anand Palanivel, Vijayan Rajendran, Lakshmanan Selvam, Venkatesan Ganapathy and Perumal Arumugam. "Synthesis, characterization and corrosion resistance of sol-gel treated aluminium alloy." In AIP Conference Proceedings, vol. 3192, no. 1. AIP Publishing, 2024.
13. Perumal Arumugam, **Rajkumar Putta Ramarathinam,** Prasanna Venkatesh Ramdas, Anand Palanivel, Vijayan Rajendran, Lakshmanan Selvam and Venkatesan Ganapathy. "Experimental investigation of machining parameters of EDM process

for machining Ti alloy." In AIP Conference Proceedings, vol. 3192, no. 1. AIP Publishing, 2024.

14. Venkatesan Ganapathy, Perumal Arumugam, **Rajkumar Putta Ramarathinam,** Prasanna Venkatesh Ramdas, Anand Palanivel, Vijayan Rajendran and Lakshmanan Selvam. "Review on dissimilarly welding techniques titanium alloys." In AIP Conference Proceedings, vol. 3192, no. 1. AIP Publishing, 2024.
15. Lakshmanan Selvam, Venkatesan Ganapathy, Perumal Arumugam**, Rajkumar Putta Ramarathinam,** Prasanna Venkatesh Ramdas, Anand Palanivel and Vijayan Rajendran. "A study of oxidation behaviour of hard-faced surface on steel using SMAW." In AIP Conference Proceedings, vol. 3192, no. 1. AIP Publishing, 2024.
16. Prasanna Venkatesh Ramdas, Anand Palanivel, Vijayan Rajendran, Lakshmanan Selvam, Venkatesan Ganapathy, Perumal Arumugam and **Rajkumar Putta Ramarathinam.** "Reinforcement learning technique applied to the manufacturing industry for material handling system." In AIP Conference Proceedings, vol. 3192, no. 1. AIP Publishing, 2024.
17. Anand Palanivel, Vijayan Rajendran, Lakshmanan Selvam, Venkatesan Ganapathy, Perumal Arumugam, **Rajkumar Putta Ramarathinam** and Prasanna Venkatesh Ramdas. "Optimizing noise reduction through redesigned three-blade horizontal axis wind turbine." In AIP Conference Proceedings, vol. 3192, no. 1. AIP Publishing, 2024.
18. Vijayan Rajendran, Lakshmanan Selvam, Venkatesan Ganapathy, Perumal Arumugam, **Rajkumar Putta Ramarathinam,** Prasanna Venkatesh Ramdas and Anand Palanivel. "Finite element analysis on natural fibre (Musa sapientum and hibiscus sabdariffa) reinforced composite leaf spring." In AIP Conference Proceedings, vol. 3192, no. 1. AIP Publishing, 2024.
19. Perumal, A., Prithivirajan, R., Suresh Kumar, S. and **Rajkumar, P.R.,** 2025. Surface Topographical Analysis and Empirical Assessment of Wire Electrical Discharge Machining on Ti-6242 Alpha-Beta Alloy. Journal of Materials Engineering and Performance, pp.1-13.
20. Anjaneyulu, M., **Rajkumar, P.R.,** RiadHwsein, R. and Sangeetha, S., 2025, April. Optimized Traffic Flow in Smart Cities Using Precision manufacturing empowered Reinforcement Learning for Urban Sustainable Mobility. In 2025 International

Conference on Computational Innovations and Engineering Sustainability (ICCIES) (pp. 1-6). IEEE.

Details of Conference attended:

1. International Conference on Emerging Trends in Science, Engineering and Technology, "Investigation on Corrosion Protection Behavior of Mg–B_4C Composites under Salt Spray Environment", at Fatima Michael College of Engineering and Technology, Madurai on 28-06-2023.
2. International Conference on Emerging Trends in Science, Engineering and Technology, "Structural and Thermal Analysis of Steam Turbine Blade Using Ansys Software", at Fatima Michael College of Engineering and Technology, Madurai on 28-06-2023.
3. International Conference on Emerging Trends in Science, Engineering and Technology, "Synthesis and Characterization of Calcium Phosphate from Biodegradable Waste", at Fatima Michael College of Engineering and Technology, Madurai on 28-06-2023.
4. International Conference on Materials, Analysis & Advanced Manufacturing (MA'AM - 23), "Synthesis, Characterization and Corrosion Resistance of Sol-Gel Treated Aluminium Alloy", at Vel Tech Rangarajan Dr. Sagunthala R&D Institute of Science and Technology, Chennai on 31-10-2023.
5. National Conference on Research Advances in Mechanical Engineering, "Design and Analysis of Snap-Fit", at P.S.R. Engineering College, Sivakasi on 05-04-2024.
6. **P.R. Rajkumar,** G. Venkatesan, K. Arun Balasubramanian, A. Perumal, T. Yogesh, "Enhancing Corrosion Resistance of Double Layer Epoxy Coating for Mg-B4C Composites through Synergistic Effect of Functionalized Graphene and Blocking Layer", International Conference on Recent Advances and Trends in Science, Technology, Engineering and Management RATSTEm-2025 on 03 & 04 April 2025.
7. G. Venkatesan, **P.R. Rajkumar,** A. Perumal, S. Paramasamy, M. Dinesh Kumar, "Study on Mg-B4c Composites with Double Layered Hybrid Epoxy Resin Coating through Ionic Liquid Conversion Pretreatment to Improve its Corrosion Resistance", International Conference on Recent Advances and Trends in Science, Technology, Engineering and Management RATSTEm-2025 on 03 & 04 April 2025.

Details of Patents Filed and Granted:

1. Dr. A. Perumal, Dr. G. Venkatesan, **Dr. P. R. Rajkumar,** Mr. S. Paramasamy and Dr. J. David Gnanaraj published a design patent titled "Solar Grass Cutting Machine." Journal No is 43/2023 and Journal Date is 27/10/2023.
2. Dr. A. Perumal, **Dr. P. R. Rajkumar,** Dr. G. Venkatesan, Dr. K. Arun Balasubramanian, Mr. S. Paramasamy, and Dr. J. David Gnanaraj published a utility patent titled "Integrated Knuckle Semi-Trailing Arm Suspension System for Vehicles."

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