

## Profile Page



Name : Dr Sarbjot Singh Sandhu

Designation : Associate Professor

Department : Mechanical Engineering

Qualification : PhD Energy Studies (IIT, Delhi)  
M.Tech Industrial Engineering (GNEC, Ludhiana)  
B.Tech Mechanical (GNEC, Ludhiana)

Address : Room No. 209, Department of Mechanical Engineering  
Dr. B.R. Ambedkar National Institute of Technology  
Jalandhar, Punjab - 144011

Email : sandhuss@nitj.ac.in

Phone : 0181-2690301 (Extn 3113)

### **Research Interests :**

Alternative Fuels for Combustion Engines, IC engine Emission Control, Engine Combustion Investigations, Biodiesel Development, Fuel Efficient Engines.

### **Journal Publications :**

Year	Journal	Publication
2023	Clean Energy Journal; Vol. 7, Issue 2; pp 363-374	Experimental investigation on the effects of Argemone biodiesel/diesel blends on cyclic variations in a multi-cylinder CRDI engine; Abhinav Sharma, Prem Kumar, Sarbjot Singh Sandhu, Mandeep Singh
2023	Sustainable Energy Technologies and Assessments	Prem Kumar and Sarbjot Singh Sandhu, Optimization study on the production of Argemone Mexicana biodiesel and its effects on diesel engine combustion stability: Taguchi model and wavelet analysis
2022	Chaos: An Interdisciplinary Journal of Nonlinear Science; 32(4), pp. 043107 (1-17)	Prem Kumar, Mandeep Singh and Sarbjot Singh Sandhu, Wavelet analysis for cyclic combustion dynamics of a multi-cylinder CRDI diesel engine fuelled with a blending of argemone biodiesel–diesel oil
2022	Fuel 323 (2022) 124372	Prem Kumar and Sarbjot Singh Sandhu; An attempt to implement partially premixed combustion strategy in multi-cylinder CRDI engine: a detailed experimental and wavelet transform analysis
2022	International Journal of Engine Research	Prem Kumar and Sarbjot Singh Sandhu; An experimental investigation into the combustion stability and emissions of an n-butanol/diesel blended fueled partially premixed compression ignition (PPCI) engine
2022	Experimental investigation on the effects of Argemone biodiesel/diesel blends on cyclic variations in a multicylinder CRDI engine	Abhinav Kumar, Prem Kumar and Sarbjot Singh Sandhu,
2022	Energy Sources, Part A: Recovery, Utilization, and Environmental Effects	Sudhansu Sekhar Das, Pramod Kumar & Sarbjot Singh Sandhu; Performance investigation of acetone and mobiltherm as a heat transfer medium in a hybrid photovoltaic-thermal system

2022	Clean Energy;	Abhinav Sharma, Prem Kumar, Sarbjot Singh Sandhu* and Mandeep Singh; Experimental investigation into the effects of Argemone biodiesel/diesel blends on cyclic variations in a multi-cylinder CRDI engine
2021	Environmental Progress & Sustainable Energy	Deepak Singh, Sarbjot Singh Sandhu, Anil Kumar Sarma; An experimental investigation of injection timings and injection pressures on a CI engine fueled with hybrid fuel (HB-1) derived from waste cooking oil
2021	Fuel 300 (2021) 121001	Mandeep Singh, Sarbjot Singh Sandhu; Effect of boost pressure on combustion, performance and emission characteristics of a multicylinder CRDI engine fueled with argemone biodiesel/diesel blends
2021	Materials Today: Proceedings 45(6)	Prem Kumar, Sarbjot Singh Sandhu; Impact analysis of partially premixed combustion strategy on the emissions of a compression ignition engine fueled with higher octane number fuels: A review
2020	Fuel 265 (2020) 117024	Mandeep Singh, Sarbjot Singh Sandhu; Performance, emission and combustion characteristics of multi-cylinder CRDI engine fueled with argemone biodiesel/diesel blends
2020	International Journal of Sustainable Energy	Sudhansu Das, Pramod Kumar, Sarbjot Singh Sandhu; Hybrid Photovoltaic-Thermal system for simultaneous generation of power and hot water utilizing Mobiltherm as heat transfer fluid
2020	Energy Sources, Part A: Recovery, Utilization and Environmental Effects	Comprehensive Analysis of Oxidation and Storage Stability of Argemone Biodiesel and Development of Correlations Based on Experimental results
2019	International Journal of Green Energy, 16 (14), 1152-1164	Deepak Singh, A.K. Sarma, Sarbjot Singh Sandhu; A Comprehensive Experimental Investigation of Green Diesel as a Fuel for CI Engines
2019	Energy Sources, Part A: Recovery, Utilization, and Environmental Effects	Sudhanshu Das, Pramod Kumar, Sarbjot Singh Sandhu; Hybrid photovoltaic-thermal systems utilizing liquid-gas phase change material
2019	International Journal of Engineering and Advanced Technology (IJEAT), 8(6), pp 2739-2744	Sandeep Kumar Duran, Pramod Kumar, Sarbjot S Sandhu; Prospect of Algal Biodiesel as a Fuel in Engine
2019	Journal of Physics: Conf. Series; vol 1240, 012074	Jagotra, D K Singh, S S Sandhu, S Kango and S S Bhadauria; Experimental investigation on performance and emission characteristics of single cylinder CI engine using waste cooking oil (WCO) with diethyl ether (DEE)
2019	Environmental Progress & Sustainable Energy, 38 (4)	Deepak Singh, Akash Deep, Sarbjot Singh Sandhu, A.K. Sarma. Experimental Assessment of Combustion, Performance and Emission Characteristics of a CI Engine Fueled with Biodiesel and Hybrid Fuel Derived from Waste Cooking Oil
2019	Energy Sources, Part A: Recovery, Utilization, and Environmental Effects, 42 (4), 432-445	Deepak Singh, Sarbjot Singh Sandhu and A.K. Sarma. A comprehensive study for setting up of mini biorefinery pilot plant for biodiesel, hybrid fuel and hydroprocessed fuels derived from waste cooking oil
2019	Waste and Biomass valorization	Effect of Metal Contaminants and Antioxidants on the Oxidation Stability of Argemone mexicana Biodiesel: Experimental and Statistical Study
2019	Energy Sources, Part A: Recovery, Utilization, and Environmental Effects	Sunil Mahla, Kulwinder Parmar, Jujhar Singh, Amit Dhir, Sarbjot Singh Sandhu, Bhupendra Chauhan; Trend and time series analysis by ARIMA model to predict the emissions and performance characteristics of biogas fuelled compression ignition engine
2018	Journal of Scientific & Industrial Research, vol 76; pp 1-4	V S Gurau and S S Sandhu. Optimization and Characterization of Biodiesel production from Indian Originated Bitter Apricot kernel oil

2018	Energy Exploration & Exploitation, 36(3), pp 535-555	Mandeep Singh, Surjit Kumar Gandhi, Sunil Kumar Mahla, Sarbjot Singh Sandhu, Experimental investigations on performance and emission characteristics of variable speed multi-cylinder compression ignition engine using Diesel/Argemone biodiesel blends
2018	Energy Sources, Part A: Recovery, Utilization, and Environmental Effects, Vol 40; No. 8, pp 968-976	Deepak Singh, S.S. Sandhu and A.K. Sarma. An investigation of green diesel produced through hydro-processing of waste cooking oil using an admixture of two heterogeneous catalysts
2018	Environmental Science and Pollution Research, vol 25; pp 9722-9729	Sunil Kumar Mahla, Varun Singla, Sarbjot Singh Sandhu and Amit Dhir. Studies on biogas-fuelled compression ignition engine under dual fuel mode
2018	Biofuels, pp 1-12	Sandeep Kumar Duran, Pramod Kumar & Sarbjot S Sandhu. A review on microalgae strains, cultivation, harvesting, biodiesel conversion and engine implementation
2017	Environmental Progress & Sustainable Energy, 36(4), 1139-1150	Experimental Investigations on Castor Biodiesel as an Alternative Fuel for Single Cylinder Compression Ignition Engine
2017	Fuel, 210, 15-22	Experimental Investigations on the influence of fuel injection timing and pressure on single cylinder C.I. engine fueled with 20% blend of castor biodiesel in diesel
2017	Journal of Scientific & Industrial Research, Vol 76, pp 115-118	Optimization of reaction parameters of transesterification for Castor oil
2016	Energy and Fuels, 30 (10), pp 8377–8385	Experimental Study on Storage and Oxidation Stability of Bitter Apricot Kernel Oil Biodiesel
2016	Advances in Energy Research, 4(3)	Process optimization for biodiesel production from indigenous non-edible Prunus armeniaca oil
2016	International Journal of Oil, Gas and Coal Technology, 12(4), pp 425-439	Review and Prospects of Bitter Apricot oil as an alternative feedstock for Biodiesel Production- An Indian perspective
2015	RSC Advances, vol. 5, pp. 91069-91081	Performance and emission characteristics of an indirect injection (IDI) multi-cylinder compression ignition (CI) engine using diesel/Argemone maxicana biodiesel blends

## Conference Publications :

Year	Conference	Publication
2021	International Conference on Innovative Engineering Technologies (ICIET-21) Coimbatore, India; September 18, 2021	Abhinav Sharma, Sarbjot Singh Sandhu, Prem Kumar; Analysis of cyclic variations in a diesel engine using Wavelets: A Review
2019	2nd International Conference on New frontiers in Engineering, Science & Technology	Experimental Investigation on Performance and Emission Characteristics of Single Cylinder CI Engine Using Waste Cooking Oil (WCO) with Diethyl Ether (DEE),
2019	6th International Conference on Production and Industrial Engineering (CPIE2019)	Mechanical Stability Of Fabricated Superhydrophobic Aluminum Alloy
2019	6th International Conference on Production and Industrial Engineering (CPIE2019)	Emission Analysis Of A Diesel Engine Fueled With Argemone Biodiesel And Its Blends
2019	International Conference on Materials Science and Engineering (ICMSE)	Fabrication of Hydrophobic and Superhydrophobic Aluminum Surfaces
2019	2nd International Conference on Computational Experimental Methods in Mechanical Engineering, ICCEMME 2019–India	Experimental Investigation of Combustion, Performance and Emission Characteristics of Partially Premixed Charge Compression Ignition Diesel (PPCI-Di) Engine using Ethanol

2019	2nd International Conference on Environmental Geotechnology, Recycled waste Materials and Sustainable Engineering (EGRWSE), Chicago USA	Comprehensive Analysis of Performance and Emission Characteristics of an Indirect Injection Compression Ignition Engine Fueled with Argemone Mexicana Biodiesel
2019	19th ISME Conference-Advances in Mechanical Engineering, Dec.20-22, 2018, NITJ	Studies on Multi-cylinder compression Ignition Engine fueled with blends of Argemone Biodiesel and Diesel
2017	International Conference on Energy and Environmental Science (ICEES 2017)	SS Sandhu, Varinder Gurau, Akashdeep. Studies on performance and emission characteristics of diesel engine fueled with diesel and bitter apricot kernel oil biodiesel blends
2016	National Conference on Recent Trends & Innovations in Engineering Science, Technology and Management. 12th April 2016.	A review on production of biodiesel from Prunus Armeniaca and its physico-chemical characteristics
2015	International Journal of Arts & Sciences' (IJAS) International Conference for Technology and Science at Florence, 16-19 June 2015.	Fuel Induction Techniques For A Hydrogen Fuelled Engine
2015	First International Conference on 'Recent Advances in Bio-energy Research Mar 14-17, 2015 at SSS-NIRE Kapurthala	Effect on performance and emission characteristics of CI engine using Biodiesel produced from non-edible prunus armeniaca (bitter apricot) oil
2013	International conference on Mechanical Engineering: Theory and Application, 4-5 July 2013 held at Singapore.	Improvement in Performance and Emission Characteristics Of A single Cylinder S.I. Engine Operated On Blends Of CNG And Hydrogen
2013	International conference on alternative fuels for I.C. Engines (ICAFICE 2013) Malaviya National Institute of Technology Jaipur, 6-8 Feb 2013.	Performance and combustion characteristics of a Motor bike engine operated on blends of CNG and hydrogen
	National conference on Recent Advances in Bio-energy Research	Effect on performance and emission characteristics of CI engine using biodiesel produced from high FFA non-edible need oil (Azadirachta Indica)

### Book/Chapter Publications :

Type	Title	Publisher	Authors	ISBN/ISS N No.	Year
Methanol A sustainable Transport fuels for CI Engines	Potential Assessment of Methanol to Reduce the Emission in LTC Mode Diesel Engine	Springer	Prem Kumar, Sarbjot Singh Sandhu, Mandeep Singh, and Akash Deep	978-98116 12794	2021
Proceedings of CPIE	Mechanical stability of fabricated superhydrophobic Aluminium alloy and enhancement of its oleophobic characteristics	Springer, Singapore	Rishab Raj, Saurabh Kango and Sarbjot Singh Sandhu	978981154 6198, 981154619 3	2019

### Research Projects :

Role	Project Type	Title	Funding Agency	From	To	Amount	Status	Co-Investigator
------	--------------	-------	----------------	------	----	--------	--------	-----------------

Project Investigator	Research Project	Comparative Performance Evaluation, Emissions and Combustion Characteristics of a Compression Ignition Engine using Castor Biodiesel	SERB, DST	September 2013	March 2017	16.67 lacs	In-progress	N.A.
----------------------	------------------	--	-----------	----------------	------------	------------	-------------	------

### Events Organized :

Category	Type	Title	Venue	From	To	Designation
STC	National	IC Engine Fuels & Combustion Technologies, Sponsored by TEQIP II	IT Park, NIT, Jalandhar	14-12-13	18-12-13	Coordinator
STC	National	Advanced Engine Technologies (With Open ECUs)	IT Park, NIT, Jalandhar	15-10-15	16-10-15	Coordinator
STC	National	IC Engine Fuels & Combustion Technologies, Sponsored by TEQIP III	IT Park, NIT, Jalandhar	19-3-19	24-3-19	Coordinator

### Professional Affiliations :

Designation	Organization
Member	The Institution of Engineers (India)
Member	Indian Society for Technical Education

### PhD Supervised :

Scholar Name	Research Topic	Status	Year	Co-Supervisor
Prem Kumar Chaudhary	Characterization of the Partially Premixed Combustion Strategies of N-Butanol-Diesel Blends in Multicylinder CRDi Engine: Performance, Combustion and Emissions	In progress	2019	
Mandeep Singh	An Experimental Investigation on Production & Storage Stability of Biodiesel Produced from Argemone oil and its Utilization in Multicylinder CRDi Engine	Awarded	2016	
Sudhansu Sekhar Das	Design and experimentation of hybrid photovoltaic and collar thermal systems using phase change materials	Awarded	2015	Dr. Pramod Kumar
Virender Singh Gurau	Study the Potential of Apricot Kernel seed oil for Biodiesel Production and its Engine applications	Inprogress	2014	

Deepak Singh	Comparative study of Performance analysis with Biodiesel, Microemulsion And Green Diesel produced from Waste Cooking Oil	Awarded	2014	Dr. A.K. Sarma
Sandeep Kumar Duran	Study Of The Potential Of Algae Oil For Biodiesel Production And Engine Applications	Awarded	2014	Dr. Pramod Kumar
Akash Deep	Study on performance, emissions and combustion characteristics of Single Cylinder C.I. engine using optimized castor biodiesel and diesel blend	Awarded	2013	Dr. Subhash Chander

### Patents :

Name	Reg./Ref. No.	Date of Award/Filling	Organization	Status
Intelligent automatic solar powered agri-cutter	201811025496A	09/07/2018		Application awaiting for examination
Renewable solar energy system for simultaneous generation of electrical energy and hot water	202011010257	10.03.2020	NIT, Jalandhar	awaiting for examination
Hybrid renewable power platform: harvests wind, solar and water current power from running water-channel	332221-001	22/08/2020		awaiting for examination