

Faculty Profile

Name: **Sanjeev Anand**
Designation: **Assistant Professor and In- charge Head SoEM**
School: **Energy Management**
Email ID: sanjeev.anand@smvdu.ac.in;
hod.dem@smvdu.ac.in
Contact Number and Extn.: 01991-285535 Extn.: 2362 Mobile: 9419104580



Qualification: B.E. (Mechanical Engineering), M.Tech. (Energy Management), Ph.D.

Experience:

Teaching: 11 Yrs Research: 5 Yrs Administration: 05 Yrs Industry: 09 Yrs Total: 20

Areas of Interest / Specialization:

Extensive multidisciplinary research and experience in (Energy Studies, Heat Transfer, Exergy, and Refrigeration) which can be summarize in the following specializations:

- Performance analysis and assessment of distillation plants using waste heat from diesel engine and water purification plants.
- Vapor absorption refrigeration systems for cold storage applications
- Vapor compression-absorption hybrid heat pump for industrial waste heat recovery
- Design improvements, modifications and analysis of hybrid absorption/compression heat pump using ammonia-water as the working fluid
- Energy and exergy analyses of thermal energy conversion systems
- Cogeneration and analyses of power cycles, refrigeration and heat pump systems
- Solar dryer, water heating and solar cookers
- Energy and exergy analysis of solar thermal power generation and solar collectors.
- Planning and Executing Jobs as per Planned Maintenance system.
- Performance analysis of large slow speed diesel engines upto 34000 BHP
- Condition Monitoring of Engine to reduce time between overhauls (TBO). Following Parameters are involved:- Bearing Temperatures, Crankshaft Deflections, Bearing clearances, Exhaust

Temperatures, Exhaust valve rotation, Cylinder Lubrication, Variable fuel injection timing, Diesel Engine Analyzer, Specific fuel oil consumption, Specific lub. oil consumption, Lub. Oil and Fuel oil testing.

- Performance analysis and assessment of Oil Fired Steam Boilers up to 32 Tons/Hour Steam Generating Capacity, Steam Turbines, Steam Condensers-Vacuum and Atmospheric, Exhaust Gas boilers, Composite Boilers, Super heaters, turbo alternators.
- Performance analysis and assessment of central Air Conditioning plants and Refrigerating Plants.
- Performance analysis and assessment of Pumps (Centrifugal and Positive Displacement) up to 210 HP
- Performance analysis and assessment of Air Compressors (Reciprocating and screw) of 30 cu./hour capacity, Air dryers Refrigerated type and Activated Alumina Type
- Performance analysis and assessment of high capacity centrifugal separators.

Brief Bio-data:

Dr. Sanjeev Anand is presently working as Assistant Professor and Head School of Energy Management, Faculty of Engineering, Shri Mata Vaishno Devi University, Katra (J&K) India. He received his B.E. degree in Mechanical Engineering in 1995 from Nagpur University and his M.Tech. & Ph.D. Degree in Energy from SMVD University. His area of interest is energy efficiency, heat and mass transfer, energy and exergy analyses and has many publications of international repute to his credit. He is life member of Solar Energy Society of India and member of Indian Society of Heating Refrigeration and Air conditioning Engineers and ASHRAE.

Earlier, he worked as a Marine Engineer Officer in shipping companies. He holds a Chief Engineer Officer Certificate of Competency issued by the Maritime and Coastguard Agency, Government of UK, Great Britain and Northern Ireland which accounts for competence in both electrical and mechanical systems.

TEACHING & ACADEMIC ACTIVITIES

- Power Plant Engineering (M. Tech. Energy Management)
- Industrial Energy Management (M. Tech. Energy Management)
- Energy Auditing (M. Tech. Energy Management)
- Principles of Energy Conversion (M. Tech. Energy Management)
- Refrigeration & Air Conditioning (B. Tech. Mechanical Engineering)
- Heat & Mass Transfer (B. Tech. Mechanical Engineering)
- Internal Combustion Engines (B. Tech. Mechanical Engineering)
- Kinematics of Machines (B. Tech. Mechanical Engineering)
- Project Management & Evaluation (M. Tech. Energy Management)
- Technology Forecasting (M. Tech. Energy Management)
- Building Services (B.Arch.)
- Energy management (B.Tech. Mechanical)
- Thermal Science & Engineering (M.Tech. Renewable Energy)
- Energy Efficiency in Buildings (M.Tech. Renewable Energy)

RECOGNITION

Certified Marine Chief Engineer, Certificate of Competency Issued By Maritime And Coast Guard Agency, United Kingdom (2003)

Research Profile

Research Projects Undertaken:

S. No.	Role	Title	Funding Agency	Current Status (Closed/Running)
1	PI	Simulation and Performance Evaluation of Vapor-Compression-Absorption (VCA) Hybrid Refrigeration System for Cooling and Heating Applications	CSIR	Completed

Research Publications:

S. No.	Year	Publication
1	2009	Economical and thermal optimization of possible options to control visible plume from wet cooling towers, Indian Journal of Pure & Applied Physics 47: 597-608 (SCI Journal, IF: 0.739)
2	2010	First and second law analyses of a typical solar dryer: A case study, International Journal of Sustainable Energy 29 (1):8-18 (EI Journal)
3	2010	Second law based performance of modified VAC hybrid heat pump system using NH ₃ -H ₂ O as the working fluid. Indian Journal of Pure & Applied Physics, 48(3): 212-219 (SCI Journal IF: 0.739)
4	2010	Second law based performance evaluation and parametric study of a sea water source cascade heat pump. International Journal of Exergy, Vol. 7(3) (SCI Journal IF:1.377)
5	2012	Exergy analysis and experimental study of a vapor compression refrigeration cycle' International Journal of Thermal Analysis and calorimetry.110 (2):961-971 (SCI Journal IF: 1.781)
6	2012	Comparative study of different insulating materials for reducing heat losses in steam pipes: a technical study, International Journal of Sustainable Energy 31(2):133-141(EI Journal)
7	2013	Simulation studies of refrigeration cycles: A review. Renewable and Sustainable Energy Reviews 17: 260-277 (SCI Journal IF: 6.79)
8	2013	Fuzzy Neural Network for the Machine Health Diagnosis. International Journal of Mechanical Engineering Research 3 (5):449-455.
9	2014	Renewable energy powered evacuated tube collector refrigerator system. Mitigation and Adaptation Strategies Global Change 19 (7):1077-1089 (SCI Journal IF: 3.085)
10	2014	Critical Analysis of a Biogas powered Absorption System for Climate Change Mitigation. Clean Technology and Environment Policies 16(3):569-578 (SCI Journal IF: 1.934)
11	2014	Exergy Analysis of a LiBr-H ₂ O Vapor Absorption Refrigeration Plant: A Case Study. Paper accepted in International Journal of Air-Conditioning and Refrigeration 22 (2): 1450010(1-9). IF (2.302) (World Scientific)
12	2014	An Absorption Chiller System using Lithium Bromide and Water as Working Fluids: Exergy Analysis. Paper accepted in ASHRAE Journal 120 (2):226-239
13	2014	Comparative Thermodynamic Analysis of a Hybrid Refrigeration system for Promotion of Cleaner Technologies. Journal of Thermal Analysis and calorimetry 117:1453-1468. (SCI Journal IF: 1.781)
14	2014	Exergetic Analysis and Assessment of Hybrid Refrigeration System for Dairy Applications. International Journal of Air conditioning & Refrigeration 22 (4):1450021(1-13). IF (2.302) (World Scientific)
15	2014	An Exergetic based Assessment of Biogas as an Energy Source in a Hybrid Refrigeration System. Journal of Refrigeration, Air-conditioning, Heating and Ventilation 1(2): 31-40.

16	2014	Comparative thermal analysis of different cool roof materials for minimizing building energy consumption. Journal of Engineering Article ID 685640, 9 pages (Emerging Science Citation Index)
17	2015	Solar Cooling Systems for Climate Change Mitigation: A Review. Renewable and Sustainable Energy Reviews 41:143-161. DOI: http://dx.doi.org/10.1016/j.rser.2014.08.042 . (SCI Journal, IF = 6.79)
18	2015	Building envelope performance with different insulating materials – An exergy approach. Journal of Thermal Engineering 1(4):433-439.
19	2015	Thermodynamic optimization and chemical exergy quantification for absorption based refrigeration system. Journal of Thermal Analysis and Calorimetry 122:893-905 DOI: 10.1007/s10973-015-4795-6 . (SCI Journal, IF = 1.781)
20	2015	Building envelope simulation for sustainable built environment. Date Added to IEEE Xplore: 09 July 2015, Print ISBN: 978-1-78561-069-1, INSPEC Accession Number: 15108145, DOI: 10.1049/cp.2014.1487
21	2015	Porcelain versus Polymer Insulator- A Changing Era in Transmission Lines. International Journal of Advance Research and Innovation 3(2):502-506.
22	2015	Economic and thermodynamic study of different cooling options: A Review. Renewable and Sustainable Energy Reviews 62:164-194. DOI: 10.1016/j.rser.2016.04.035 (SCI Journal, IF = 6.79)
23	2016	Use of Process steam in the Vapor Absorption Refrigeration Machine for Cooling & Heating Applications. Cogent Engineering 3: 1160639. (Taylor & Francis) DOI: http://dx.doi.org/10.1080/23311916.2016.1160639
24	2016	Optimization of machining parameters for green manufacturing. Cogent Engineering 3(1):1153292. (Taylor & Francis) DOI: http://dx.doi.org/10.1080/23311916.2016.1153292
25	2016	Thermal energy storage: way of sustainable development, International Journal of Scientific and Technical Advancements, Volume 2, Issue 4, pp.7-12.
26	2016	Role of computer aided engineering in mitigation of automotive chassis failures, Advanced materials manufacturing & characterization, Vol.6, Issue 2
27	2017	Developing a roadmap to overcome barriers to energy efficiency in buildings using best worst method, Sustainable Cities and Society (In Press) SCI Journal IF:1.044

Books/Book Chapter Publications:

S. No.	Year	Publication
1	2013	Thermodynamic analysis of 1TR Biogas based NH ₃ -H ₂ O Vapor Absorption System. Recent Advances in Bio-energy Res Volume II, ISBN 978-81-927097-1-0.
2	2016	Physical and Chemical Exergy Analysis and Assessment of Biogas as an Energy Source in Hybrid Cooling Machine. Emerging Energy Alternatives for Sustainable Environment, Chapter 13, pp. 240-260 ISBN: 9788179934111 (TERI Press)
3	2016	Building Energy Simulation for Improved Thermal Performance: A CFD Approach. Emerging Energy Alternatives for Sustainable Environment, Chapter

		13, pp. 172-192 ISBN: 9788179934111 (TERI Press)
4	2017	Disaster Management of Electrical Systems (Vandana Publications)

Conference Publications:

S. No.	Year	Conference	Publication
1	2009	NaCORE (2009), Jodhpur	Second law analysis of a typical hybrid heat pump system
2	2009	NaCORE2009	Optimum utilization of renewable energy sources to control the visible plume from wet cooling towers
3	2011	7 th JK Science Congress JKSC-11, Jammu	Energy and Exergy analysis of thermal system
4	2011	7 th JK Science Congress JKSC-11, Jammu	Review of vapor absorption-compression refrigeration cycles
5	2012	<i>National Conf on Recent Adv in Bioenergy Res</i> , Sardar Swaran Singh National Institute of Renewable Energy, Kapurthala 144601 (Punjab) India	Thermodynamic analysis of 1TR Biogas based NH ₃ -H ₂ O Vapor Absorption System
6	2015	National Conference on Emerging and Innovative Trends in Engineering Technology organized on 9-10 January,2015 at Government College of Engineering and Technology, Chak Bhalwal, Jammu.	Kinematics and Dynamics analysis of Puma-560 Robotic configuration using MATLAB Software
7	2015	National Conference on Emerging and Innovative Trends in Engineering Technology organized on 9-10 January,2015 at Government College of Engineering and Technology, Chak Bhalwal, Jammu.	Sizing of Solar Collector for 1 TR Single-Effect Ammonia-Water Vapor Absorption Refrigeration System

8	2010	International Congress on Renewable Energy, Chandigarh, 1-3 December,(2010)	Design and experimental study of a 3TR vapor absorption refrigeration system
9	2012	International conference on green technologies for environmental rehabilitation, Haridwar, 11-13 February` 2012.	Experimental study of a vapor compression refrigeration cycle using exergy approach
10	2012	International Conference on Renewable Energy, Eternal University, Baru Sahib, Himachal Pradesh, India, 5-6 May.	Simulation of 5 TR Lithium Bromide-Water Vapopr Absorption Chiller System.
11	2013	International Congress on Renewable Energy (ICORE) organized on 27-29 November, 2013 at KIIT University Bhubneswar, Odisha.	Thermodynamic Analysis of Evacuated Tube (ETC) based Hybrid Ammonia-Water Refrigeration System.
12	2014	International Conference on Environmental Technology and Sustainable Development: Challenges & Remedies organized by Department of Environmental Science, Baba Saheb Bhim Rao Ambedkar University (A Central University), Luckhnow, Uttar Pradesh on 21-23 February, 2014.	An Exergetic Analysis and Assessment of Biogas as an Energy Source in a Hybrid Refrigeration System.
13	2014	International Congress on Renewable Energy (ICORE) organized on 08-09 December 2014 at Manekshaw, New Delhi.	Trnsys-based analysis of heliothermic processes for sustainable buildings,

14	2015	International Workshop on Building Development Divide for Inclusive Growth through Science Technology and Innovation (BRIDGES-2015) by DST-Centre for Policy Research, Baba Saheb Bhim Rao Ambedkar University (A Central University), Luckhnow, Uttar Pradesh on 16-17 January, 2015.	Exergy and Exergoeconomic Performance Evaluation of Options for NH ₃ -H ₂ O Vapor absorption System.
15	2015	International Workshop on Building Development Divide for Inclusive Growth through Science Technology and Innovation (BRIDGES-2015) by DST-Centre for Policy Research, Baba Saheb Bhim Rao Ambedkar University (A Central University), Luckhnow, Uttar Pradesh on 16-17 January, 2015.	Building Energy Simulation for Improved Thermal Performance: A CFD Approach.
16	2015	International Conference on Advances in Power Generation from Renewable Energy Sources (APGRES'2015), held at Rajasthan Technical University, Kota, 15-16 June, 2015. Pages 137-147.	Effect of the Operating Parameters on the Performance of Environmental Friendly NH ₃ -H ₂ O Vapor Absorption System.
17	2015	1 st International Conference on Research & Innovations in Science Engineering and Technology (RISET'2015), held at Yogananda College of Engineering and Technology, Jammu, India, 20 th to 21 st November, 2015. Pages 137-147.	Double-Effect Ammonia-Water Absorption Refrigeration System: An Exergy Analysis.

18	2015	1 st International Conference on Research & Innovations in Science Engineering and Technology (RISET'2015), held at Yogananda College of Engineering and Technology, Jammu, India, 20 th to 21 st November, 2015. Pages 137-147.	Experimental Analysis of Biomass Cook Stoves.
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Research Supervised:

S. No.	Year	Role	Research Topic	Status
1	2016	Supervisor	Simulation And Performance Evaluation Of Renewable Energy Based Refrigeration Systems: Exergy And Exergoeconomic Approach	Awarded
2	2016	Supervisor	Building Energy Simulation: A Comprehensive Moisture Dynamics and Exergy Based Analysis	Submitted
3		Co Supervisor	Waste Water evaluation through solar desalination	OnGoing

Patents:

NIL

S. No.	Name	Status

Award and Honours:

S. No.	Title	Activity/Event	Given by	Year
1	Certified Marine Chief Engineer	Certificate of Competency	Maritime And Coast Guard Agency, United Kingdom (2003)	2003

Professional Affiliation:

S. No.	Designation	Organization
1	Member	Solar Energy Society of India
2	Member	ISHRAE
3	Associate Member	ASHRAE