

**A
Report
of
National Conference
on
Renewable Energy Sources and Sustainable
Development: Opportunities and Challenges
[RESSD-2016]**

October 7-8, 2016



**JAIPUR ENGINEERING COLLEGE
AND RESEARCH CENTRE**

**Conference Chair
Dr. V.K. Chandna**

**Conveners
Mr. Manish Jain
Prof. S. K. Sur**

**Organizing Secretaries
Dr. Bhuvnesh Bhardwaj
Mr. Lalit Kumar Sharma
Ms. Monika Sharma
Ms. Shikha Pandey**

**Organized by:
Department of Mechanical Engineering and Department of Civil
Engineering
Jaipur Engineering College and Research Centre,
Shri Ram Ki Nangal, Via Sitapura RIICO,
Opp. EPIP Gate, Tonk Road, Jaipur-302022, Rajasthan, India**

In Association with



**Intellectuals Society
for Socio-Techno Welfare**



Baba Automobile Training Workshop

PROGRAMME SCHEDULE

Friday, October 7, 2016

08:30-09:30	Registration	
09:30-11:00	Inaugural Session (Auditorium)	
	Chief Guest: Prof. S. K. Ghosh, IIT Roorkee	
11:00-11:30	High Tea	
11:30-14:00	Technical Session-I	Technical Session-II
	Auditorium	Seminar Hall [CS-01]
	Chair: Shri M.K. Bohara	Chair: Dr. P.N. Darde
14:00-14:30	Lunch	
14:30-17:00	Technical Session-III	
	Auditorium	
	Chair: Dr. Anand Pandey	
17:00-17:30	Tea	

Saturday, October 8, 2016

08:30-11:00	Technical Session –IV	Technical Session –V
	Auditorium	Conference Hall
	Chair: Dr. M.L. Meena	Chair: Dr. Jinesh Kumar Jain
11:00-11:30	High Tea	
11:30-14:00	Technical Session-VI	
	Auditorium	
	Chair: Dr. K.B. Rana	
14:00-14:30	Lunch	
14:30-16:00	Valedictory Session	
	Guest: Prof. Dilip Sharma, MNIT, Jaipur	

PROGRAMME AT A GLANCE

Technical Schedule for Session–I (Mechanical Engineering)

Day and Date: Friday 07/10/2016

Venue: Auditorium

Timings: 11:30-14:00

S. No.	AUTHOR NAME	TITLE OF PAPER	PAPER ID
1	¹ Meeta Sharma, ² Onkar Singh	THERMODYNAMIC IMPACT ANALYSIS OF PARAMETRIC VARIATIONS IN DUAL PRESSURE HRSG FOR GAS/STEAM COMBINED CYCLE POWER PLANTS	RESSD-002
2	¹ Swaraj Das, ² Chandrapal Singh Inda, ³ Dilip Sharma	WASTE HEAT RECOVERY FROM THE EXHAUST OF INTERNAL COMBUSTION ENGINES FOR THE PURPOSE OF REFRIGERATION AND AIR CONDITIONING: A REVIEW	RESSD-003
3	¹ Shantanu Sinha, ² Ravi kumar, ³ Shivani Vyas, ⁴ Rajesh Purohit	AUTOMATION OF ELECTRO-MECHANICAL SYSTEM USING PLC	RESSD-004
4	¹ Shobhit Gusain, ² Om Prakash, ³ Gaurav Jain	EXPERIMENTAL INVESTIGATION OF SINGLE SLOPE SOLAR STILL WITH AND WITHOUT PHASE CHANGE MATERIAL (PCM)	RESSD-005
5	¹ Ankit Goyal, ² Mitesh Varshney, ³ G.D. Agrawal	AN OVERVIEW OF THERMAL ENERGY STORAGE MATERIAL: A REVIEW	RESSD-006
6	¹ Mitesh Varshney, ² Ankit Goyal, ³ G.D. Agrawal	CFD SIMULATION AND ANALYSIS OF CHAMFERED RIBS ROUGHENED SOLAR AIR HEATER	RESSD-007
7	¹ Dr. Deepak Sharma, ² Er. Kapil K Samar	PRESENT AND FUTURE ASPECTS OF MUNICIPAL SOLID WASTE MANAGEMENT IN UDAIPUR	RESSD-008
8	¹ Tejendra Singh, ² Shailendra Sharma, ³ Shashank Bhandari	CARBON CREDIT: A HELPING HAND TOWARDS GREEN MANUFACTURING	RESSD-009
9	¹ Hukam Chand Nagar, ² Dr. M.P Singh	BIO-DIESEL PRODUCTION AND ITS TESTING ON C.I ENGINE PERFORMANCE CHARACTERSTICS	RESSD-010
10	¹ Md. Inzamam-ul-haque, ² Aditya Kumar Jha	THERMAL STABILITY OF LUBRICATING OIL: A REVIEW	RESSD-011
11	¹ Mihir Chaudhary, ² I.N. Trivedi	SOLAR PHOTOVOLTAIC ARRAYS UNDER PARTIALLY SHADED CONDITION: A REVIEW	RESSD-012

12	¹ Pavan Gupta, ² Arun Shringi, ³ Jayesh Garg	DESIGN OF GREEN BUILDING BY SUSTAINABLE TECHNOLOGY	RESSD-013
13	¹ Rajesh Sharma, ² Rakesh Chandra Sharma	EMISSION CHARACTERISTICS OF A DIESEL ENGINE OPERATING ON PERCENTAGE OF BLENDING OF CASTOR OIL BIODIESEL-DIESEL	RESSD-014
14	¹ Abhishek Kumar	A REVIEW ON GREEN MANUFACTURING: ITS IMPORTANCE, METHODOLOGY AND APPLICATION	RESSD-016

Technical Schedule for Session-II (Civil Engineering)

Day and Date: Friday 07/10/2016

Venue: CS-01

Timings: 11:30-14:00

S. No.	AUTHOR NAME	TITLE OF PAPER	PAPER ID
1	¹ P. N. Darde	HARNESSING RENEWABLE SOURCES OF ENERGY TO OVERCOME THE GLOBAL WARMING	RESSD-071
2	¹ Shikha Pandey, ² Vaibhav Singh	PROPERTIES OF CONCRETE WITH BAGASSE ASH AS A PARTIAL REPLACEMENT OF CEMENT	RESSD-072
3	¹ Monika Sharma	MANAGEMENT OF AMMONICAL WASTE GENERATED FROM COLD STORAGES	RESSD-073
4	¹ Brijlata Sharma	NOISE CONTROL FOR BUILDINGS: THE PROBLEM OF NOISE IN THE BUILT UP ENVIRONMENT	RESSD-074
5	¹ Suchintya Kumar Sur	HYDRO ENERGY: A GOLDEN THREAD	RESSD-075
6	¹ Kamlesh Kumar Choudhary, ² Amit Mittal, ³ G. Samrat	MOISTURE INDUCED DAMAGE OF DENSE BITUMINOUS MIXTURE AND ITS PREVENTIVE MEASURE	RESSD-076
7	¹ Anjana Poonia, ² Shilpa Thakur	STUDIES ON CONSTRUCTION AND DEMOLITION WASTE REUSE AND RECYCLING	RESSD-077
8	¹ Sarvesh Kumar Saxena, ² Anjana Poonia	STUDIES ON RAINWATER HARVESTING, JAIPUR, RAJASTHAN: A TECHNIQUE TOWARDS SUSTAINABLE DEVELOPMENT	RESSD-078
9	¹ G.Samrat	STRAW BALE BUILDING: AN IDEAL CONSTRUCTION AND ITS FUTURE	RESSD-079
10	¹ Nida Khanam	CATHODIC PROTECTION TO CONTROL CORROSION OF REINFORCED CONCRETE STRUCTURE	RESSD-080
11	¹ Rohit Singhal, ² Manish Kumar Meena	AAC BLOCK: A NEW ECO-FRIENDLY MATERIAL FOR CONSTRUCTION	RESSD-081

12	¹ Sumit saini, ² Kedar Bairwa	PERFORMANCE & EMISSION ANALYSIS OF VARIOUS BIO-DIESEL BLENDS IN A COMPRESSION IGNITION ENGINE	RESSD-082
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Technical Schedule for Session–III (Mechanical Engineering)

Day and Date: Friday 07/10/2016

Venue: Auditorium

Timings: 14:30-17:00

S. No.	AUTHOR NAME	TITLE OF PAPER	PAPER ID
1	¹ Lalit Kumar Sharma, ² Sumit Khurana	ADDITIVE MANUFACTURING: AN EMERGING RAPID MANUFACTURING TECHNOLOGY	RESSD-017
2	¹ Dr. Manish Shrivastava, ² Shahjade Alam	SOLID WASTE MANAGEMENT- A VIEW OF JAIPUR CITY	RESSD-019
3	¹ Sandeep Yadav, ² Saurabh Mangal	PERFORMANCE, COMBUSTION AND EMISSION CHARACTERISTICS OF KARANJA OIL BLENDS FUELLED DIESEL ENGINE: A REVIEW	RESSD-020
4	¹ Pavan Gupta, ² Jayesh Garg, ³ Arun Shringi, ⁴ Ravindra Dhaka	HYDROGEN FUEL CELL: AN ALTERNATE FUEL APPROACH	RESSD-022
5	¹ Pawan Sharma, ² Pramod Faujdar, ³ Shubham Faujdar	COMPARATIVE REVIEW OF PERFORMANCE OF CI ENGINE USING DIESEL FUEL AND PLASTIC FUEL	RESSD-024
6	¹ Ravi Yadav, ² Shikhar Saraswat, ³ Ananya Chattree, ⁴ Satya Prakash Saini	ROLE OF NANOTECHNOLOGY TO CONTROL ARSENIC CONTAMINATION: A REVIEW	RESSD-025
7	¹ Vipin Goyal, ² Manax Dixit and ³ B.V. Manoj Kumar	STUDY OF DIFFERENT MICROSTRUCTURE OF PLAIN CARBON STEEL IN SLURRY EROSION	RESSD-026
8	¹ Dr. B.K. Sharma, ² Buddhi Prakash Panwar	ROLE OF ALLOYING ELEMENTS ON MECHANICAL PROPERTIES OF ALUMINIUM ALLOY	RESSD-031
9	¹ Prashant Kumar, ² Milind Vyas, ³ Kunika Verma, ⁴ Deepak Sirvi, ⁵ Pushpendra Singh	CONCEPT OF ENERGY HIGHWAY	RESSD-042
10	¹ Yatendra Kumar Sharma, ² Kedar Narayan Bairwa, ³ Raj Kumar Goswami	A CRITICAL REVIEW: DUCTILE IRON - THE MOST DEMANDING AND ATTRACTIVE CHOICE OF CAST IRON MATERIAL IN TODAY'S GROWING AND COMPETITIVE	RESSD-050

		MARKET	
11	¹ Yogesh Jangid, ² Kedar Narayan Bairwa, ³ Raj Kumar Goswami	INFLUENCE OF EDM PARAMETERS ON SURFACE ROUGHNESS, TOOL WEAR AND METAL REMOVAL RATE: A STUDY	RESSD-054
12	¹ Manish Sain, ² Pratyush bhardwaj	A REVIEW PAPER ON FUEL CELL OPERATED VEHICLE	RESSD-061
13	¹ Naveen kumar Sharma, ² Kedar Narayan Bairwa, ³ Raj Kumar Goswami	DEVELOPMENT OF PREDICTION MODEL FOR MAXIMUM BEAD WIDTH DURING THE SURFACING OF MILD STEEL PLATE	RESSD-062
14	¹ Lalit Kumar Sharma, ² Shubham Garg, ³ Pankaj Agarwal	GREEN MANUFACTURING: A NEW MANUFACTURING PARADIGM	RESSD-029

Technical Schedule for Session–IV (Mechanical Engineering)

Day and Date: Friday 08/10/2016

Venue: Auditorium

Timings: 08:30-11:00

S. No.	AUTHOR NAME	TITLE OF PAPER	PAPER ID
1	¹ Nakul Bansod, ² Deepak Choudhary, ³ Vinay Dubey	EVOLUTION OF NO _x FROM AUTOMOBILES AND ITS CONTROL TECHNOLOGIES	RESSD-001
2	¹ Dilip Johari, ² Aakash Gupta, ³ Ashutosh Sharma, ⁴ Govind Singh, ⁵ Mayank Yadav	CONCEPT OF POWER GENERATION THROUGH THE VELOCITY OF MOVING VEHICLES ON INDIAN HIGHWAYS	RESSD-015
3	¹ Gagan Mathur, ² Aakash Sharma	SUSTAINABLE APPORACH FOR ELECTRICAL POWER GENERATION	RESSD-018
4	¹ Aakash Sharma, ² Gagan Mathur	FUEL CELL AND HYDROGEN TECHNOLOGY	RESSD-021
5	¹ R.O. Rustagi, ² Vivek Kumar, ³ Prabhat Kumar Ranjan	IMPROVEMENT IN QUALITY BY KAIZEN GEMBA	RESSD-030
6	¹ Md. Inzamam-ul-haque, ² Ravindra Singh Yadav	CORROSION RESISTANT DELHI IRON PILLAR- A REVIEW	RESSD-032
7	¹ Manish Jain, ² Dr. M.P. Singh	OPTIMIZATION OF POWER THROUGH WASTE HEAT IN CEMENT PLANT	RESSD-033
8	¹ Daljeet Singh, ² M. L. Meena	APPLICATION OF LEAN SIX SIGMA IN PROCESS AND SERVICE INDUSTRIES	RESSD-034
9	¹ Satya prakash Saini, ² Ananya Chattree, ³ Gaurav Lodha, ⁴ Harshul Khandelwal	ELECTRICITY FOR FITNESS: A REVIEW ON PIEZO-CRYSTALS	RESSD-035
10	¹ Abhishek, ² Abhinav, ³ Brajendra	A REVIEW ON FUTURE FUEL: SOLAR HYDROGEN	RESSD-037
11	¹ Dayal Singh Rathore, ² Tejendra Singh	A MODEL ON GREEN MANUFACTURING SYSTEM	RESSD-039

12	¹ Ravi Kumar Jangid, ² Tejendra Singh	E-MANUFACTURING: CHARACTERISTICS, POTENTIALS AND APPLICATIONS.	RESSD- 040
13	¹ Ananya Chattree, ² Navneet Kumar, ³ Shashank Shekhar Singh, ⁴ Nayan Singh	A REVIEW ON ROLE OF GRAPHENE IN SOLAR CELLS	RESSD- 041
14	¹ Akhil Vijay, ² Mudit Garg, ³ Ravi Yadav	BIOPOLYMERS: SOLVING PROBLEMS WITH NATURE: A REVIEW	RESSD- 043

Technical Schedule for Session–V (Mechanical Engineering)

Day and Date: Friday 08/10/2016

Venue: Conference Hall

Timings: 08:30-11:00

S. No.	AUTHOR NAME	TITLE OF PAPER	PAPER ID
1	¹ Dr. M.P. Singh, ² Manish Jain, ³ Anshul Khandelwal	DEVELOPMENT OF REFRIGERATE & AIR CONDITIONING SYSTEM BY RENEWABLE ENERGY SOURCES	RESSD-028
2	¹ Mukesh Jha, ² Devendra Pathak	POWER ELECTRONICS IN WIND AND SOLAR ENERGY SOURCE: AN OVERVIEW	RESSD-038
3	¹ Manish Jain	RAINWATER HARVESTING IN INDIA: SOME CRITICAL PROBLEMS FOR ITS PLANNING AND RESEARCH	RESSD-044
4	¹ Rajendra Kumar Gupta, ² Hitesh Arora	GEOTHERMAL ENERGY UTILISATION AND MANAGEMENT	RESSD-045
5	¹ Kirti Kalra, ² Dr. Manish Shrivastava	GREEN MANUFACTURING: SUSTAINABLE GREEN MARKETING- OPPORTUNITIES AND CHALLENGES	RESSD-046
6	¹ Veerendra kumar, ² Rishi kumar	EFFECT OF ANTIOXIDANTS ON OXIDATION STABILITY OF BIODIESEL- A REVIEW	RESSD-047
7	¹ Bhuvnesh Bhardwaj, ² Varun Sharma	A REVIEW ON THE INFLUENCE OF HEAT INPUT ON THE WELDABILITY OF QUENCHED AND TEMPERED STEELS	RESSD-048
8	¹ Jaydev Varma, ² Bhuvnesh Bhardwaj, ³ Pawan Kumar Sharma	GREY–TAGUCHI METHOD TO MULTI RESPONSE OPTIMIZATION OF DRILLING PARAMETERS	RESSD-049
9	¹ Kuldeep Sharma, ² Dr. M.P. Singh	ENHANCEMENT OF PRODUCTIVITY THROUGH LEAN MANUFACTURING: A CASE STUDY	RESSD-051
10	¹ Jyoti Verma	PERFORMANCE ANALYSIS OF PARABOLIC TROUGH COLLECTOR AND SIMULATION OF ABSORBER TUBE USING ANSYS	RESSD-052
11	¹ Nikita Agarwal, ² Md. Inzamam-ul-Haque	STUDY ON STRESS INTENSITY FACTOR OF A CRACK	RESSD-053

12	¹ Pratyush Bhardwaj, ² Manish Sain	A REVIEW ON TOTAL QUALITY MANAGEMENT IN EDUCATIONAL INSTITUTIONS	RESSD- 056
13	¹ Dr. Jinesh Kumar Jain, ² M.L. Meena, ³ Faishal Pathan	SWITCHING TO GREEN MANUFACTURING FOR ATTAINING SUSTAINABLE PRODUCTION AND REAPING ENVIRONMENTAL BENEFITS	RESSD- 057
14	¹ Dr. Jinesh Kumar Jain, ² Harsh Sharma, ³ Faishal Pathan	UTILIZATION OF HYDROGEN PRODUCTION AND FUEL CELL IN COMBINED ENERGY PRODUCTION AND WASTE MANAGEMENT	RESSD- 067

Technical Schedule for Session–VI (Mechanical Engineering)

Day and Date: Friday 08/10/2016

Venue: Auditorium

Timings: 11:30-14:00

S. No.	AUTHOR NAME	TITLE OF PAPER	PAPER ID
1	¹ A.K. Mandal, ² K.B. Rana, ³ B. Tripathi	MICRO- WIND TURBINES: A REVIEW	RESSD-023
2	¹ Chandan Kumar, ² K.B. Rana, ³ B. Tripathi, ⁴ A. Nayyar	PERFORMANCE AND EMISSION CHARACTERISTICS OF VCR DIESEL ENGINE FUELLED BY DIESEL-ADDITIVES BLEND	RESSD-027
3	¹ Nitin Mukesh Mathur, ² Kedar N. Bairwa, ³ Rajkumar Goswami	SUGARCANE BAGASSE AS A FUTURE COMPOSITE MATERIAL: A REVIEW	RESSD-036
4	¹ Kuldeep Sharma, ² Ashok Sharma, ³ Divyansh Bhatnagar	A REVIEW ON IMPLEMENTATION OF TPM IN SMALL SCALE INDUSTRY: A CASE STUDY	RESSD-055
5	¹ Nikita Agarwal, ² Md. Inzamam-ul-Haque	A REVIEW ON HYBRID COMPOSITES	RESSD-058
6	¹ Nikhil Jain, ² Aashish Nagpal, ³ Shwekita Solanki	REVIEW ON PROCESS PARAMETER OF EDM THROUGH MACHINING ON COMPOSITE MATERIAL	RESSD-059
7	¹ R.O. Rustagi, ² Vivek Kumar, ³ Prabhat Kumar Ranjan	LEAN PRODUCTION	RESSD-060
8	¹ Shobhit Gusain, ² Dr. G.D. Agrawal,	THERMAL PERFORMANCE ENHANCEMENT TECHNIQUES IN SOLAR AIR HEATER	RESSD-063
9	¹ Pawan Kumar Pareek, ² Kedar Narayan Bairwa, ³ Raj Kumar Goswami	A REVIEW ON THE APPLICATION OF SOFT COMPUTING TECHNIQUES FOR THE PREDICTION OF SURFACE ROUGHNESS DURING MACHINING	RESSD-064
10	¹ Vishwas Kumar Sharma, ² Kedar Narayan Bairwa, ³ Raj Kumar Goswami	NEED FOR OPTIMIZATION OF MACHINING PARAMETERS USING DOE: A REVIEW	RESSD-065
11	¹ Rajendra Prasad Bairwa, ² Kedar Narayan Bairwa,	OPTIMIZATION OF CO ₂ LASER CUTTING PROCESS PARAMETERS FOR MINIMUM SURFACE ROUGHNESS DURING THE CUTTING	RESSD-066

	³ Bhuvnesh Bhardwaj	OF AISI304L STAINLESS STEEL	
12	¹ Prashant Kumar, ² Swaroop Paliwal, ³ Soumya Rani, ⁴ Bhawna Malinda, ⁵ Vishal Soni, ⁶ Abhijeet Sharma	SOLAR PV WITH INBUILT HEATING SYSTEM ARRANGEMENT FOR COOLING OF BUILDING AND ELECTRICITY GENERATION	RESSD- 068
13	¹ Satyendra Kumar	MODLING AND SIMULATION OF FEMORE BONE REPLACEMENT USING FUNCTIONALLY GREADED MATERIAL (AL_2O_3/AL) UNDER BENDING AND COMPRESSION LOADING	RESSD- 069
14	¹ Shiv Om Meena, ² Manish Vashishtha	TO INCREASE EFFICIENCY OF FERTILIZER USING COATED UREA	RESSD- 070

**National Conference on Renewable Energy Sources and Sustainable
Development: Opportunities and Challenges [RESSD-2016]**

For a society to develop, it is necessary to have a vision, the ability to see what lies ahead, as well as the knowledge of various impediments in the present and of the means to arrive at a better future. The world around us is dramatically changing. It is becoming more and more interconnected through technology. Changing global conditions demand that we rethink the strategies of growth, and research is a tool to understand reality in order to make it a better living experience. Every walk of life is enriched due to research. It was scientific innovation that brought about the invention of a steam engine at a primitive level, thereby, making life easy at a click in the digital world. Research in its manifold pattern lays its foundation in diverse fields of Mechanical and Civil Engineering.



OBJECTIVES:

- To provide an exceptional platform to the academicians, researchers and students.
- To meet and discuss the practical solutions, scientific results and methods in solving various problems with people who are actively involved in emerging research fields.
- To focus on the recent technological developments in all the areas of Renewable Energy Sources and Sustainable Development.

About RESSD-2016:

The inaugural function was graced by the presence of Chief Guest **Prof. S.K. Ghosh, IIT Roorkee**. He motivated the faculty members and participants to contribute for upgrading the level of technical education with the help of research in their field.



RESSD-2016 provided a unique opportunity of presenting and discussing recent advancement in renewable energy and sustainable development and made the bridge between academia and industries. The conference was consisting of scientific session, symposia on specific topics and paper presentation. A Group of experts shared information and got in touch with other groups. A special attention was also given to Green Manufacturing, Renewable Energy Sources for Sustainable Development, Green & Smart Construction and Future Fuels. Nowadays these aspects are becoming more and more important both in respects of human life and environment.



Session	Chair Person	Designation	Number of Papers Presented
I	Mr. M.K. Bohara	Retired Chief Engineer, NHPC	14
II	Dr. P.N Dardey	HOD(CE), JNU, Jaipur	12
III	Dr. Anand Pandey	HOD(ME), MU, Jaipur	14
IV	Dr. M.L. Meena	Asst. Prof.(ME), MNIT, Jaipur	14
V	Dr. Jinesh Kumar Jain	HOD(ME), GCA, Ajmer	14
VI	Dr. K.B. Rana	Asst. Prof.(ME), RTU, Kota	14



This conference was successfully conducted in association with IEEE Education Society, New Delhi and ISST Journal. **Prof. Dilip Sharma, MNIT**, expert in the field of Renewable Energy concluded the session with his words. He talked about the current status and ongoing research in the field of Renewable Energy.





HIGHLIGHTS:

Total Number of papers received	103
Total papers shortlisted	82 (out of 103)
Outside Rajasthan	06 (out of 82)
Selected for Publication in IJME [ISSN: 0976-7371]	39 (out of 82)

OUTCOME:

- Students and research scholars were made aware about the recent trends in the field of renewable energy.
- Students knew about the benefits of such conferences so that they may get an insight into the field of research which is an essential factor for the advancement of their career.

JAIPUR ENGINEERING COLLEGE AND RESEARCH CENTRE

Approved by The All India Council for Technical Education (AICTE)
and
Affiliated to Rajasthan Technical University (RTU)



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