

# Ashutosh Jena

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## ACADEMIC QUALIFICATIONS

Year	Degree	Stream	Institute/University	Performance
2018- Present	Ph. D	Mechanical Engineering	Indian Institute of Technology, Kanpur	7.60/10
2016-2018	M. Tech.	Thermal Science & Engg.	NIT Durgapur	8.30/10
2011-2015	B.Tech.	Mechanical Engineering	PMEC, Berhampur, Odisha	8.14/10
2009-2011	Intermediate (10+2)	PCM	Saraswati Vidya Mandir, Berhampur	80.7%
2009	High School	Science	Shrama Shakti Bidyapitha, I.R.E.L.	86.8%

## M. Tech PROJECT

**Thermodynamic Analysis of a SOFC & GT Integrated-Combined Cycle (SG-IGCC) Power Plant Using Biomass as Fuel.**

Project Supervisor: Dr. Sujit Karmakar, Thermal Engg. Lab, Main Building, NIT Durgapur

- To reduce the exergy losses in combustor of conventional steam power cycles.
- To utilise the locally available biomass (Rice Husk, Wheat husk, Mustard straw)
- To develop a Solid Oxide Fuel Cell (SOFC) and Gas Turbine (GT) based Combined Cycle power plant using biomass as fuel for Energy Efficient and Environment friendly power generation.
- Coal consumption decreased by 22% with the SG-IGCC
- Higher efficiency was achieved with the biomass.

## SEMINARS

- Continuously Variable Transmission for automobiles.
- Active Cylinder Management of IC engines for improved performance and efficiency.
- Concept of Dual Fuel Engine with Water Emulsion Technology.

## B. Tech PROJECT

**Development of compact STIRLING ENGINE to reduce the losses in the conventional design.**

- To recover the waste heat from combustors exhaust, condensers etc
- Feasibility of diaphragm type Stirling Engine was analysed.
- Response and stability of the diaphragm needs to be improved for a improved design.

## PUBLICATIONS

- Deep, A.P., Jena, A. and Karmakar, S., 2019. Thermodynamic Analysis of an Integrated Gasification Fuel Cell-Combined Cycle Power Plant Using Indian Coal. In *Advances in Fluid and Thermal Engineering* (pp. 781-792). Springer, Singapore.
- Jena, A., 2020. Optical Diagnostics of Spray Development in Diesel Engines. In *Simulations and Optical Diagnostics for Internal Combustion Engines* (pp. 53-68). Springer, Singapore.
- Presented research paper on "Effect of air temperature on Microscopic and Macroscopic Spray Characteristics of Gasoline-Methanol blends" at 3<sup>rd</sup> Conference of International Society of Energy, Environment and Sustainability held at the IIT Roorkee.

## TECHNICAL SKILLS

Expertise in handling following instruments:

<ul style="list-style-type: none"><li>• EEPS (Exhaust Emission Particular Sizer)</li></ul>	<ul style="list-style-type: none"><li>• Engine Dynamometer</li></ul>
<ul style="list-style-type: none"><li>• Phase Doppler Interferometry</li></ul>	<ul style="list-style-type: none"><li>• MEXA-6000FT-E (FTIR)</li></ul>
<ul style="list-style-type: none"><li>• Shadowgraphy</li></ul>	<ul style="list-style-type: none"><li>• Horiba EXSA-1500 Exhaust Gas Analyser</li></ul>

## SOFTWARE EXPOSURE

<ul style="list-style-type: none"><li>• Arduino Software</li></ul>	<ul style="list-style-type: none"><li>• CONVERGE</li></ul>
<ul style="list-style-type: none"><li>• Graphical Programming Language: Lab View</li></ul>	<ul style="list-style-type: none"><li>• MATLAB</li></ul>
<ul style="list-style-type: none"><li>• Cycle Tempo</li></ul>	