Master’s Handbook
Energy Science & Engineering
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The Department of Energy Science and Engineering (DESE) focuses on research and education for the development of sustainable energy systems for the future. The Department is an unique blend of science and engineering for the Energy sector.

The Department currently has 21 core faculty members and 480 students (including 140 PhD students) and several associated faculty from other departments. DESE is home to the National Centre for Photovoltaic Research and Education (NCPRE) with high end research facilities from characterization, fabrication to device testing for Solar Photovoltaics. DESE faculty have been instrumental in setting up a 1 MW National Solar Thermal Power plant cum Simulator and testing facility.

DESE has several industry interactions including industry sponsored laboratories like the Forbes Marshall Energy Efficiency Laboratory and the Cummins Engine Research Facilities. International collaborations include the SERIIUS, Indo-UK, Indo-Dutch, BIRD, IMASE, etc. to name a few.

The faculty of the department have authored about 10 books and publish about 100 papers in reputed International Journals and Conferences annually. DESE students and faculty have been instrumental in several start-ups companies including kWatt Solutions.
Congratulations on your choice and on being selected as a post-graduate student joining in the Energy Systems Engineering programme in the Department of Energy Science and Engineering. As you well know, energy is a field with immense possibilities. During your two years here you will be exposed to several aspects of energy through your core or compulsory courses conventional fossil fuels, renewable energy, modelling, resources and economics as well as have the option to select electives depending on your interest. You will find an enabling environment, state of the art facilities, brilliant and friendly batch-mates and seniors to help you reach your true potential. You will find the faculty as mentors/guides in your journey we may trouble you with questions, assignments, projects and push you to achieve excellence, but we will all be there for you to help with advice, suggestions and support. Please seize the opportunity and enjoy the journey. I hope that you will learn and discover areas and fields that interest you. In the process I hope you will be able to develop some new product, a new algorithm or some new theory.

Welcome once again on behalf of the Department and I look forward to meeting and interacting with all of you.

-Rangan Banerjee
-Head of Department

Hello IITians!!!

Congratulations for your success. I will assure you the time spent by you in this Campus will be the best time of your life. You will never forget the thrill, joy, excitement and enthusiasm you will get from your IITB life.

But at the end it is your duty to get benefitted by the various facilities, various opportunities and knowledge which will be provided to you. I urge you take part in different technical as well as non-technical activities sincerely and give your best shot in it. Also attend different workshops which will be held throughout the academic year.

I once again congratulate you for making into IITB and welcome you. I wish you best luck for your tenure in IITB. Enjoy your stay here.

-Mridul Kumar, AURAA
-Wasim Shaikh, DC (ISCP)
FACULTY
Balasubramaniam Kavaipatti
Dayadeep Monder
Manaswita Bose
Prakash Chandra Ghosh
Rajesh Gupta
Sagar Mitra
Santanu Bandyopadhyay
Shireesh Kedare
Suneet Singh
Venkatasailanathan Ramadesigan
Lalit Kumar

Chetan Singh Solanki
J. K. Nayak
Manoj Neergat
Pratibha Sharma
Rangan Banerjee
Sankara Sarma V Tatiparti
Shaibal K Sarkar
Srinivas Seethamraju
Suryanarayana Doolla
Zakir Hussain Rather

INSTITUTE STAFF
Keshav Kale
Suraj Singh
Amar Singh Kharte
Arun Raghunath Bhoir
Chetan Karanjkar
Swapnil P. Raut
Hemant Sutar
Leena S. Mungekar

Sharmila Maurya
M. R. Pawar

PROJECT STAFF
Balkrishna Surve
Seema Sarkate
Narayan Patil
Mr. Gajanan V. Dandekar
Vilas Raut .S
Savita Surwade

S. Yughabala

DEPARTMENT COUNCIL
General Secretary...............................................  Saikrishna Vanukuri
M.Tech Representative...........................................  Wasim Shaikh
Sports Secy...........................................................  Rohit Mane
Cult Secy...............................................................  Munendra Jha
THINGS TO KNOW

What is my roll number?

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1 6 3/i 1 7 x x x x
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- 2016 Entrant
- Energy Department Code
- Roll Number
- 3 – M.Tech Code
- i – M.Sc Code

How do I sign up for my courses?

After your department orientation you will be directed to sign up for your courses on the IIT ASC website.

What documents do I need to carry?

**Originals**
1. Transfer Certificate/Leaving Certificate from previous college
2. Relieving letter from employer (in case you were employed)
3. GATE Score Card & Admit Card
4. Joining Certificate (will be given to you during orientation)
5. Final examination mark sheet from previous college

**Self Attested Photocopies**
1. Any certificate as proof of date of birth
2. Any valid ID proof

What is an LDAP id?

You will get an LDAP account which you can use to browse the internet. The default id is your roll number and default password is your birthdate, and you can change it later. You will also get access to a mail id: [your_rollnumber]@iitb.ac.in
### WHAT’S WHERE?

<table>
<thead>
<tr>
<th>CLASS ROOMS</th>
<th>LABS</th>
<th>FACULTY OFFICES</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Mechanical building</td>
<td>• Energy lab</td>
<td>• Mechanical building</td>
</tr>
<tr>
<td>• Main building</td>
<td>• Solar lab</td>
<td>• Transit building</td>
</tr>
<tr>
<td>• Lecture hall complex</td>
<td>• Cummins lab</td>
<td>• Energy office</td>
</tr>
<tr>
<td></td>
<td>• Electrical machines lab</td>
<td></td>
</tr>
</tbody>
</table>

### TA WORK AND STIPEND

TA work will be allotted by the office if available.

Attendance is compulsory and every student (TA category) is expected to mark her/his daily attendance in the Energy office by 17:00 hours.

Stipend: ₹12,400/- as on 15.06.2016.

### LEAVES

Students are entitled for:

i) Winter vacation

ii) Summer break (15 days) for the first year.

In addition, they are entitled for a maximum of 30 days leave in addition to public holidays, during the entire tenure of the programme.

To avail leave students need to fill the leave application form (found in office) and get it signed by their respective Faculty Advisor/Guide and submit it in the office.
About Team Shunya:
Team Shunya was the first ever team from India to get selected in the prestigious competition, the European version of Solar Decathlon which took place in the month of June and July, 2014 in Paris. The team has also been selected for Solar Decathlon China 2017.

Vision:
To sustainably meet the growing demand and need for urban housing in India.

To know more about the team and the competition, please visit the following webpages:
1. Team Shunya Website: http://teamshunya.in/
2. Facebook page: https://www.facebook.com/SDE2014Shunya

ACHIEVEMENTS

- **Jay Dhariwal** was awarded the best individual entry in the student modelling competition of the 14th International Conference of the International Building Performance Simulation Association held at Hyderabad from 07-09 Dec, 2015.

- Best research paper award: **Atharv Patankar(M.Tech)** has won best research paper award at 5th international and 41st national conference on Fluid mechanics and fluid power held at IIT Kanpur.

- Overall 2\(^{nd}\) position in PG Cult.

- 3\(^{rd}\) position in PG Football...... Cheers
International Conference on Advances in Energy Research (ICAER) 15 -17 DEC 2015:
The global energy concerns of depleting fossil fuels and climate change puts forward great challenges for the researchers. The need is to pause, take stock of current status in research and development in energy and have brainstorming sessions to set guidelines for the future path.
Department of Energy Science and Engineering, IIT Bombay organized the 5th International Conference on "Advances in Energy Research" to provide an excellent platform to know, exchange new ideas, discuss new developments and finally look at the challenges ahead.

ENERGY DAY

The day-long event will feature technical presentations and interactive posters on wide variety of topics like Micro grids, Solar Photovoltaics, Solar Thermal Technologies, Battery and Storage, Fuel Cells, Power converters and Transformers and many more by passing out students of Dual Degree, M.Tech and Ph.D. programs. This year Energy Day also had a panel discussion for you on "Entrepreneurship opportunities in the energy sector: Dream or Reality".
Institute Student Companion Program

The Institute Students Companion Programme is specifically designed to cater to the needs of PG community of IIT Bombay. The post graduate students in the institute face various issues which are typically non-academic and coalition of academic in nature. These issues need to be addressed, the ISCP provides a platform for the students to get help at formal as well as informal lines and also aims at overall development of the student.

The ISCP is in effect from the academic year 2011-2012, and is monitored by the Dean AP office. Students are requested to make best use of the resources made available to them by the ISCP.

Our department TEAM

Department Co-ordinator  
Wasim Shaikh  
#9769394458

Student Companions  
Mridul Kumar  
#9990403755

Ajo Antony  
#8879135405

Rohit Mane  
#8976792413

Akriti Masoom

Some necessary Apps

Students may find the following apps handy during their stay in campus

• Insti-Map IITB
• M - Indicator
RESEARCH FACILITIES

- Fixed Bed Reactor for Study of Underground Coal Gasification
- Updraft gasifier with catalytic cracker
- Hot-wire CFD
- SVO fuelled engine
- P C Isotherm: For H2 storage behavior of material
- Fuel cell test station
- Bio diesel Plant
PG Sports Award Ceremony

Teacher's Day Celebration

Department Trek

Panel Discussion on Energy Day

Department of Energy Science & Engineering

for more details visit http://www.ese.iitb.ac.in

Designed by: Himanshu Garg, Mohd. Wasim, Mridul Garg