



PRATHAMESH PATIL  
Metallurgical Engineering and Material Science  
Indian Institute of Technology Bombay

16D110012  
UG Third Year  
DOB : 27/05/1998

Examination	University	Institute	Year
Graduation	IIT Bombay	IIT Bombay	2021
Intermediate/+2	MSBSHSE	SP College, Pune	2016
Matriculation	MSBSHSE	Sinhagad Spring Dale School, Pune	2014

Currently pursuing a **Bachelors degree** in Metallurgical Engineering and Material Science with a **Masters degree** in Ceramics and Composites as part of dual degree program at IIT Bombay

#### ACADEMIC ACHIEVEMENTS

- Secured **AIR 3248** in IIT JEE Advance among 0.2 Million candidates (2016)
- **99.6 percentile** in JEE Mains among 1.2 Million people (2016)
- In **top 1 percentile** in the state wise conducted National Standard Exam in Chemistry (2015)
- **Won** Prof. Brahm Prakash memorial materials quiz organized by IIM, Pune Chapter (2015)
- Represented the Pune chapter and **Semi Finalist** in Prof. Brahm Prakash memorial **materials quiz** conducted by Indian Institute of Metals, Kalpakkam (2015)
- Scored the highest grade **AA** in Transport Phenomenon, Experimental Techniques in Materials Science and Electronics and Machines Laboratory. (2018)

#### COURSES UNDERTAKEN

**Additional Courses** (sit through/out of interest)

- **Thermoelectric Materials**
  - Thermoelectric Effects : **Seebeck** and Peltier Effects
  - **Semiconductor Physics** : Conduction processes, energy spectrum, transport equations, charge carriers and phonon scattering, Drude model, Sommerfeld Model
  - **Band Theory** : Band formation, doping and effects of doping on band structure.
  - Direct and indirect **Measurement** of thermoelectric properties.
  - Choosing and optimizing materials : **Thermoelectric Systems** and applications.
  - **Modeling** of thermoelectric transport using **MATLAB**
  - **Critic review** of a research paper related to a topic covered in the course
- **Experimental Techniques in Materials Science**
  - Learnt about and used various material characterization techniques like **XRD, BET, SEM, EDS, FTIR, Porosimetry, Nano-Indentation etc**
  - Methods to determine structure, size, shape of particles, pore size and its distribution
  - Did a course project in which characterized an egg shell

#### SKILLS

- **Programming Skills**: C++, MATLAB and/or GNU Octave, HTML
- **Software Skills** : MATLAB, Octave, Wolfram Mathematica, Stellarium, AutoCAD, SolidWorks, Origin, MS: Word, Excel, Powerpoint, Access, Adobe Premier Pro.
- **Languages known** : English, German, Hindi, Marathi.

<u>Core Courses</u>	<u>Practical and other courses</u>
<ul style="list-style-type: none"> <li>• Structure of Materials</li> <li>• Thermodynamics of Materials</li> <li>• Data analysis and Interpretation</li> <li>• Materials and Technology</li> <li>• Mechanics of Materials</li> <li>• Transport Phenomena</li> <li>• Colloids and Interfacial Science</li> <li>• Phase Transformations</li> <li>• Mechanical Behavior of materials</li> <li>• Kinetics of Processes</li> </ul>	<ul style="list-style-type: none"> <li>• Experimental and Measurement Lab</li> <li>• Introduction to Electrical and electronic circuits</li> <li>• Computer programming and Utilization</li> <li>• Engineering Drawing and Graphics</li> <li>• Metallography and Structural Characterization</li> <li>• Computation Lab</li> <li>• Electronics and Machines Lab</li> <li>• Economics</li> <li>• Introduction to Sociology</li> </ul>

## PROJECTS

- **Thermoelectric Analysis of Commercially available Mn-Si and Fe-Si powder**
  - Analyzed the commercially available industrial grade Mn-Si and Fe-Si powders
  - Used techniques like XRD, ICP-AES, DSC, Hot pressing etc
  - Measured thermoelectric properties of pellets prepared from powders
- **Characterization of an Eggshell**
  - Used tools like SEM, XRD, FTIR to test an egg shell for certain properties
  - Analyzed the data we got from all instruments and interpreted it to get sensible results
  - Correlated the results we got with physical and chemical properties

## POSITIONS OF RESPONSIBILITY HELD

- **Convener at Materials Club, IIT Bombay**
  - Created awareness about Material Science in the student community
  - Kept posting about a new material or a phenomenon related to material science
  - Circulated projects for undergraduates to get them interested in material science
  - Created a platform for people interested in Material Science to discuss about it
- **Volunteer at Astronomy Club, IIT Bombay**
  - Mentored newcomers to the club and taught them to use various concepts in Astronomy
  - Taught a group of people to use Telescope and basics of sky observation
  - Conducted overnight sky gazing sessions focused on constellations and Messier objects in the night sky which entertained around 100 people every time

## EXTRA CURRICULAR ACTIVITIES

- Playing sports: represented school and college in sports like Football, Volleyball, Hockey
- Doing Astronomical Observations. Have completed a half Messier Marathon
- Reading books on fictional and non fictional topics, reading and writing poetry

## CONTACT DETAILS

Email: [prathameshpatil149@gmail.com](mailto:prathameshpatil149@gmail.com) , 16d110012@iitb.ac.in