Soham **De Roy**

M.Tech. • Materials Science Programme • IIT Kanpur

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Education

2018 - Present	M.Tech. (Materials Science Programme)	IIT, Kanpur	CGPA: 8.5/10
2013 - 2017	B.E. (Chemical Engineering)	MSRIT, Bangalore [VTU]	CGPA: **9.44/10**
2013	Class XII (CBSE - AISSCE)	KV, Barrackpore (Army)	Total: 89.8% [PCM: **93.3**%]
2011	Class X (CBSE - AISSE)	KV, Barrackpore (Army)	CGPA: **10/10**

Scholastic Achievements & Awards

2019	**Achieved *A****, grade for excellent result in High Performance Polymers, Composites & Mechanical Properties of Materials	*IIT, Kanpur*
2017	**Received *First Class with Distinction***, from Visvesvaraya Technological University (VTU)	*MSRIT, Bangalore*
2017	**Received *Best Student Award***, for excellent academic performance in BE	*MSRIT, Bangalore*
2014	**Received *Letter of Appreciation***, from Dr. V. Vuppala, for excellent performance in Chemical Process Calculations (CH303)	*MSRIT, Bangalore*
2011	**Received *Certificate of Merit***, from CBSE & K.V. Sangathan (separately), for achieving CGPA 10 in AISSE (CBSE)	*KV, Barrackpore*

Skills

Programming Python • C • C++

Software & Utilities Git • Origin • Bash • LaTeX • ANSYS • Solid Works • Aspen HYSYS • Microsoft Office Suite

Foreign Language Español (Beginner)

Projects, Internship & Term Papers

Artificial Heart Valve Design

IIT, Kanpur

Mentor: Prof. Kamal K. Kar, Department of Mechanical Engineering and Materials Science Programme, IIT Kanpur — *June 2019 - present*

- Main aim is to design a pump which can assist the heart by mimicking its properties and functionalities to the best possible extent.
- The aim is also to make it hemo-compatible and bio-compatible by virtue of which it can be installed inside the chest cavity.

Polystyrene: Structures, Grades and its Composites

IIT, Kanpur

Mentor: Prof. Kamal K. Kar, Department of Mechanical Engineering and Materials Science Programme, IIT Kanpur — *Jan. 2019 - May 2019*

- Did a literature survey to study the different structure, properties and the established methods of PS and EPS production.
- Studied the changes in mechanical, thermal and electrical properties of PS composites with varying the degree of fillers.

Material Selection For Earthquake Resistant Pipes

IIT, Kanpur

Mentor: Prof. Kamal K. Kar, Department of Mechanical Engineering and Materials Science Programme, IIT Kanpur — *Aug. 2018 - Nov. 2018*

- Derived 8 material indexes, and ranked them based on priority to facilitate the process of material selection.
- Did a cost analysis by clubbing the resultant data with relative cost index to finally obtain the desired material.
- Did a literature review of the design aspect which helps to make a pipe earthquake resistant.

Reaction Kinetics of Partial Oxidation of Glucose to Sodium Gluconate in a 3 Phase Slurry Reactor

MSRIT, Bangalore

Mentor: Prof. Brijesh, Department of Chemical Engineering, MSRIT Bangalore — *Jan. 2017 - May 2017*

- Received a **grant** of **Rs. 5000/-** from **Indian Institute of Chemical Engineers (IIChE)**.
- A 3 phase slurry reactor was used where the 3 phases were glucose (L), air (G) & nano Cr/Al catalyst (S) along with other reagents.
- A 5 parameters & 3 levels experiment was designed and the number of trials were reduced from 243 to 18 using Taguchi Method.
- HPLC characterization was done and the final data was optimized using NaCl titration method and MiniTab 17 software.

Manufacture of Phthalic Anhydride from O-Xylene (10K TPA)

MSRIT, Bangalore

Mentor: Prof. Brijesh, Department of Chemical Engineering, MSRIT Bangalore — *Aug. 2016 - Dec. 2016*

- Extensive calculation was done to find out the thermodynamic feasibility of the process and to do a proper mass and energy balance.
- All the equipment such as reactors, pre-heater, distillation column, storage tank etc. were designed from scratch using basic principles.
- Detailed cost estimate including working capital, total manufacturing cost & general cost were calculated to find out payback period.

Slowing down DNA translocation through a Nanopore

RRI, Bangalore

Mentor: Dr. Gautam V. Soni, Nano Biophysics group, Soft Condensed Matter, RRI Bangalore — *June 2016 - Aug. 2016*

- Involved in the initial stages of the project Slowing down DNA translocation through a Nanopore

Position of Responsibilities

Department Placement Coordinator

IIT, Kanpur

Student's Placement Office — *Apr. 2019 - present*

- **Presentation Skill** • Designed a new informative & eye catching departmental placement brochure for the 2019-20 placement session.
- **Collaboration & Planning** • Part of 27 member team with the responsibility of conducting successful placement session for 2020 batch.
- **Persuasion & Negotiation Skill** • Negotiated with & invited many companies to make them recruit students from the department.

Senator (M.Tech., Y18)

IIT, Kanpur

Student's Senate — *Mar. 2019 - Apr. 2020*

- **Decision Making & Time management** • Part of the legislative decision making process of the student's senate.
- **Multi-tasking** • Part of Steering Committee & PG student nominee of the Academic Senate's ad hoc Library furniture subcommittee.

Orientation Team Member & Buddy

IIT, Kanpur

Counselling Service — *Dec. 2019 & Dec. 2020*

- **Team work** • Actively worked with a team of around 22 member for successfully organizing a week long orientation for freshmen.
- **Listening & Communication Skill** • Helped freshmen in adjusting to institute's culture & environment, academically & otherwise.

Conference & Exhibition

- **Presented a poster** titled **"Artificial Heart: An Insight"** at the *4th International Conference on Nanotechnology for Better Living* jointly organised by IIT Kanpur, NIT Srinagar, CSJM University and HBTU Kanpur. *2019*
- **Exhibited the project** entitled *Studies on Reaction Kinetics of Partial Oxidation of Glucose to Sodium Gluconate in a Three Phase Slurry Reactor using Nano Cr/Al catalyst* in a two day project exhibition *Pradarshana-2017* held at MSRIT Bangalore. *2017*