ANUSREE SEN

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ACADEMIC CREDENTIALS

Bachelor of Science (B.Sc.) in Mechanical Engineering,

Bangladesh University of Engineering and Technology (Mar 2018- May 2023)

Cumulative GPA: 3.80/4.00 (3.97 avg. in final two semesters), Among the top 16%

RESEARCH INTERESTS

Renewable Energy | Heat Exchanger Design | Control System Design | Machine Design | Thermodynamic Cycle

RESEARCH EXPERIENCE

Undergraduate Thesis:

Topic: CSP-driven cogeneration cycle

Supervisor: Dr. Md. Zahurul Haq, Professor, Department of Mechanical Engineering, BUET

Summary: Under my undergraduate thesis, I developed and analyzed a CSP-driven cogeneration cycle. The project aimed to generate electric power using Supercritical CO_2 as a working fluid while implementing a low-temperature refrigeration system with an Ejector-Absorption refrigeration cycle. Extensive research and modeling were conducted to optimize system efficiency and performance.

PUBLICATIONS

» MSN Arafin, A Ali, NA Mini, , **A Sen,** S Saha, **"Development of a P, PI, and PID-controlled device for regulating velocity relative to concentration in a T-shaped cavity with cylindrical obstruction.**" (In Review)

DOI: 10.13140/RG.2.2.12519.21924
SUMMARY: This paper analyzes flow regulation in a T-shaped cavity with P, PI, and PID controllers using finite element analysis. It finds P controllers are ineffective in steady-state, PI controllers may oscillate with high ki, and PID controllers are the most effective, eliminating errors and oscillations with proper tuning.

» **A Sen**, AR Rafat, MZ Haq, **"Development and analysis of a CSP plant cogeneration cycle for the simultaneous production of electric power by using Supercritical CO2 as working fluid and low temperature refrigeration by Ejector-Absorption refrigeration cycle."** (In Preparation)

SUMMARY: The sCO_2 Brayton cycle in a CSP plant provides higher efficiency, compactness, and a wider temperature range than traditional cycles. It harnesses solar energy for power and waste heat for refrigeration, outperforming the organic Rankine Cycle. Efficiency and refrigeration improve with higher solar intensity, and properties are computed using COOLPROP.

» MDSH Pulok, **A Sen**, S Das, FF Nishita, MD Mushfiquzzaman, "**MODELING SUSTAINABLE CHALLENGES TO WASTE REDUCTION IN THE FOOD INDUSTRY.**"

SUMMARY*:* This paper uses the Best-Worst Method (BWM) to assess sustainability in food industries, identifying key drivers and barriers to reducing food waste during consumption. It finds that "waste management" is critical for environmental sustainability across food supply chains.
JOURNAL: Supply Chain Insider (Bangladesh's first supply chain research journal).

PROJECTS

- **Auto Temperature Detector & Entrance Monitoring System for COVID-19 Safety**

The project "Auto Temperature Detector & Entrance Monitoring System for COVID-19 Safety" was successfully developed, where I led the design, development, and implementation efforts. This innovative system focused on ensuring safety during the COVID-19 pandemic through temperature detection and entrance monitoring.

- **Shell and Tube Heat Exchanger**

Designed and manufactured a shell and tube heat exchanger, applying theoretical knowledge in heat transfer and thermodynamics. Oversaw the entire manufacturing process.

TECHNICAL SKILLS

Design Software: AutoCAD (2D), SolidWorks (3D modeling)
Graphics Design: Adobe Illustrator
Programming Languages: C, Python
Engineering Tools: CoolProp (thermodynamic property calculations), Techplot (data visualization and analysis)
Productivity Tools: Microsoft Office (Word, Excel, PowerPoint)
Communication: Technical report writing, strong verbal skills

PROFESSIONAL EXPERIENCE

Assistant Engineer | Bangladesh Rural Electrification Board
July 2024 – Present
•Assisting in planning and maintaining rural electrification projects.
•Conducting technical evaluations and ensuring compliance with safety standards.
Industrial Trainee | RPCL
October 2022 – November 2022
•Assisted in engineering tasks and gained hands-on experience in energy production.

HONORS AND AWARDS

- **University Merit Scholarship:** Awarded three times.
- **Dean's List Award:** Received in 3 out of 4 academic years.
- **Board Talent pool Scholarship:** Dhaka Board, awarded for outstanding performance in HSC.
- **Certified Supply Chain Analyst (CSCA™):** ISCEA, 2021 – Present, with 96% marks.

EXTRACURICULAR SKILLS

•Freelancer (Graphics Designer)
Fiverr | May 2020 – Present
- Created visual content and graphics for a range of clients, enhancing their branding and marketing efforts.

•Member | BUET Innovation and Designing Club (BIDC)
- Achieved third place in Innovative Logo Design Competition.

•Art Award
Naripokkho
- Awarded for artwork titled "Women's Dream.“

Portfolio: View my work at Anusree’s Behance

REFERENCES

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