

SHABAA ALAM

Aeronautical Engineering Student | Imperial College London

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EDUCATION

Imperial College London — **MEng Aeronautical Engineering (year 3 of 4)**

Expected May 2028

- Relevant Coursework: Aerodynamics, Flight Dynamics, Structural Analysis, Control Systems, Advanced Manufacturing Processes.

TECHNICAL PROJECTS

ICLR Ember Rocket Team (EuRoC) | **Design & Manufacturing Engineer**

2025 – Present

- Designed full **CAD** assemblies for a custom filament winder in **Fusion 360**, adhering strictly to **ISO tolerances**.
- Precision-machined drive shaft components using **manual lathes** to achieve bearing tolerances within **5 microns**.

Duocopter Flight Controller | **2nd Year Systems & Control Project**

2026

- Modelled and simulated a discrete **PID controller** using **MATLAB & Simulink** to stabilize a dual-rotor **UAV**.
- Optimized control parameters to reduce response settling time and minimize total energy consumption during hovering operation.

Imperial Formula Racing (Formula Student) | **Composites Engineer**

2024 – 2025

- Engineered an ergonomic **carbon fibre** driver seat inlay using expanding foam, ensuring compliance with competition safety regulations.
- Conducted **risk assessments** and structural safety checks prior to vehicle component manufacturing.

WORK EXPERIENCE & LEADERSHIP

Private & Academy Tutor (A-Level STEM) | **Westcliff Academy for Learning**

2023 – Present

- Communicate complex mathematical and physical concepts in A-Level Maths, Further Maths, and Physics to over 10 students weekly.
- Manage scheduling, client progress reporting, and customized lesson planning alongside a demanding full-time engineering degree.

Teaching Intern | **Westcliff High School for Boys**

Jun 2025 – Jul 2025

- Supported delivery of the secondary STEM curriculum and mentored students in structured, analytical problem-solving techniques.

TECHNICAL SKILLS & COMPETENCIES

Coding & Languages:	C++, Python, MATLAB
Analysis & CFD/FEA:	Abaqus (FEA), STAR-CCM+ (CFD), Simulink
CAD & Design:	SolidWorks, Fusion 360, Dassault 3DEXPERIENCE
Manufacturing:	Manual Lathes & Milling, Aluminium Casting, 3D Printing, Laser Cutting
Spoken Languages:	English (Native), Bengali (Fluent)