

OSCAR CUTTS-WHITE

MECHANICAL ENGINEERING STUDENT | MOTORSPORT & COMPOSITES DESIGN

Kingston Upon Hull, UK • +44 7301 477417 • oscarcuttswhite@gmail.com • British & Czech Dual National

[My Portfolio - oscarcuttswhite.com](#)

Highly motivated 2nd-year BEng Mechanical Engineering student at the University of Hull with extensive hands-on expertise in CAD design, FEA analysis, and 10+ years of 3D modelling and 3D printing. Passionate about outside of the box design, budget focused design, numerical and predictive analysis, and high-quality engineering design. Applying for a 12/13-month Industrial Placement to put my CAD modeling, FEA testing, and workshop fabrication skills to work on front-line Formula 1 development.

CORE TECHNICAL SKILLS

CAD & 3D Modelling:	SolidWorks, Siemens NX, Fusion 360, Surface Modeling, Technical Drawings
Analysis & FEA:	Finite Element Analysis (Stress/Strain, Load Paths), Stress Analysis, Thermodynamics & Thermofluids
Manufacturing & Materials:	Additive Manufacturing (FDM/SLA 10 yrs), Tooling & Mold Design Concepts, Workshop Fabrication
Computing & Math:	Calculus, Engineering Mathematics, MATLAB, Simulink, Python, C, C++, CODE::BLOCKS

EDUCATION

BEng (Hons) Mechanical Engineering University of Hull | 2025 – 2029 (Expected)

Currently entering 2nd Year | 1st Year Result: 2:1

- **Key Modules:** Stress Analysis & FEA, Engineering Design, Thermodynamics & Thermofluids, Mathematics for Engineers.
- **Practical Expertise:** Technical drawing standards, mechanical failure analysis, lab testing, and computer-aided engineering.

American Academy in Prague | 2021 - 2025

High School Diploma (US STEM Curriculum) American Academy in Prague | Graduated 2025

- **Advanced Coursework:** AP Calculus AB, AP Precalculus, Advanced Physics, STEM Program (4+ Years).
- **Academic Honours & Focus:** Strong foundation in analytical mathematics, Newtonian mechanics, scientific research methodologies, and foundational CAD/prototyping principles & FEA analysis.

ENGINEERING & DESIGN PROJECTS

Mechatronics Line Launcher Project University of Hull | 2025

Lead Mechanical Designer & System Integrator

- **CAD & Structural Design:** Utilised CAD modeling using SolidWorks for a dual fly-wheel based projectile launcher, designing custom fit parts to place two motors at optimal distance from each-other, calculating highest compression of a squash ball for launching at the highest speed.
- **FEA & Stress Optimisation:** Conducted FEA stress analysis to identify peak load distributions, optimising wall thicknesses and accounting for FDM layer printing direction to withstand high rotational and torsional shock while minimising structural weight, production time and price (£50 budget).
- **Embedded Systems & Control:** Wrote code in MATLAB controlling an Arduino unit and dual motors, wiring a switch connected to a servo, producing a functional prototype.
- **Technical Ownership:** Took complete ownership of design, prototyping, and testing under strict delivery deadlines, overcoming limited team participation to achieve a top tier grade.

Engineering Ethics Project University of Hull | 2025

Project Lead

- Evaluated material lifecycle assessments (LCA), sustainable manufacturing techniques, and ethical engineering practices for modern high-performance industries.

Advanced CAD & Additive Prototyping Research

Personal & Academic Projects | 2016 – Present

Independent Engineering Projects | Multiple CAD Courses | 2016 – Present

- **Tooling & Mold Development:** Applied 10+ years of 3D printing expertise to design complex geometries, split lines, draft angles, moving parts, assemblies and custom tooling fixtures applicable to composite layup molds.
- **Multi-CAD Modeling:** Built multi-part designs across SolidWorks, Fusion 360, and learning Siemens NX, designing multi-part assemblies constrained by CNC milling toolpaths, sheet metal bending, and FDM printing limits.
- **Material & Load Evaluation:** Tested physical printed components against simulated FEA load models to evaluate structural failure modes, layer adhesion, and stress behavior.
- **Kinematics & Rendering:** Engineered complex moving parts, hinges, and interchangeable mechanisms using different materials (wood, metals, plastics), and producing photorealistic technical renders.

Two-Stroke Engine Integration & Tuning

Lead Fabricator & Mechanical Tuner | Independent Engineering Project

- **Chassis & Engine Alignment:** Retrofitted a 100cc 1 cylinder 2-stroke IC petrol engine into a modified bicycle frame, adjusting chain tensioning and pitch to eliminate rear-axle torque twist, moving rear wheel into left brake pad.
- **Mechanical Fabrication & Vibration Damping:** Fabricated some structural brackets, spacers, and damping interfaces from home materials to eliminate metal-on-metal wear, maintain structural integrity, and reduce engine vibration.
- **Fuel & Carburetion Tuning:** Calibrated fuel-air delivery through the carburetor, throttle cable pre-load, and idle-speed adjustment. I managed a fuel-to-oil mixture ratio of 32:1 as the break-in baseline to prevent cylinder scuffing and ensure reliable combustion cycles.
- **Starting & Drivetrain Setup:** Adjusted clutch biting point for reliable bump-starts and re-engaging the clutch after stopping. I studied the magneto and verified ignition timing. I tuned the air-fuel mixture by enlarging the air intake cup to maintain steady idle and smooth acceleration.

ADDITIONAL ACADEMIC EXPERIENCE

Robotics & Battle-Bot Design Course

Course by iD-Tech | MIT, Boston

- **Key Modules:** Mechatronics, Gearbox Design & Compound Gear Ratios, Drivetrain Engineering, C# Code For Control Systems.
- **Practical Expertise:** Iterative prototyping, torque calculation and optimisation using 64:1 ratio, purposefully moving centre of balance to rear, multi-material fabrication using metal and electronic components, and using CAD to design and 3D print our own custom parts, team-working and manufacturing final product under a two week competition deadline.

Raspberry Pi Hardware & OS Course (pi-top)

Course by iD Tech | LMU, Los Angeles

- **Key Modules:** Single-Board Computing (Raspberry Pi), Linux/pi-topOS Configuration, GPIO Hardware Interfacing, Python Scripting.
- **Practical Competencies:** Built a modular laptop from base components, wiring hardware components and power-management boards. I wrote Python scripts to control sensors and breadboard circuits via GPIO pins

HOBBIES

- Socialising
- Sim-Racing
- Driving
- DJing / Music
- Sports (Swimming, Cycling, Skiing, Gym)
- Cooking

LANGUAGES & PROFESSIONAL ATTRIBUTES

English: Native

Czech: Native

French: Intermediate (B1)

Russian: Basic (A2)

Driving Licence: Full UK/EU Category B