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Level 3 National Diploma in Aeronautical Engineering

Course Details

Course Code P00962

Start Date 21/09/2027

Study Hours Full Time

Duration 1 year

Campus Abbey Park Campus

Level 3

Apply Here

Course Overview

Take your interest in aircraft and engineering to the next level with our BTEC Level 3 National Diploma in Aeronautical Engineering.

 This technically challenging programme is designed for students who want to develop more advanced knowledge and skills in aeronautical and aerospace engineering. You will explore the engineering principles behind modern aircraft, including flight and aerodynamics, gas turbine engines, propulsion systems, electronics, engineering design and manufacturing.

 The course combines theoretical study with practical and project-based learning, allowing you to investigate engineering problems and apply your knowledge to realistic engineering situations.

 You will study within Leicester College's specialist Aeronautical Engineering facilities, with access to equipment and technologies that help bring the principles of aircraft engineering to life.

 The programme provides excellent preparation for progression into higher-level study, apprenticeships and employment within aerospace and the wider engineering sector. Successful students can also continue their studies at Leicester College through our Level 4 HNC and Level 5 HND in Aeronautical Engineering, providing a clear progression pathway from further to higher education.

What you will learn

You will develop a broad understanding of engineering before applying this knowledge to specialist aeronautical subjects.

 The programme consists of ten units:

 Engineering Principles – develop your understanding of the mathematical and scientific principles underpinning engineering.
 Delivery of Engineering Processes Safely as a Team – develop practical engineering and teamwork skills while applying appropriate health and safety practices.
 Engineering Product Design and Manufacture – explore how engineering products progress from initial concept through design and manufacture.
 Applied Commercial and Quality Principles in Engineering – investigate quality, commercial considerations and working practices within engineering organisations.
 A Specialist Engineering Project – plan and undertake an extended engineering project, developing research, problem-solving and project-management skills.
 Aircraft Flight Principles and Practice – explore aerodynamics, aircraft performance, stability and the principles governing flight.
 Computer Aided Design in Engineering – use CAD techniques and software to develop engineering designs and technical drawings.
 Electronic Devices and Circuits – investigate electronic components, circuits and their application within engineering systems.
 Aircraft Gas Turbine Engines – examine the construction, operation and engineering principles of gas turbine engines.
 Aircraft Propulsion Systems – explore aircraft propulsion technologies and the engineering principles behind their operation.

 Together, these units develop the technical, analytical, practical and problem-solving skills needed for progression within aeronautical engineering.

Entry Requirements

Direct entry to this course requires GCSEs in English and maths at grade 4 or above (or Functional Skills Level 2). A suitable Level 2 qualification or relevant industry experience is desirable but not essential.

Course Fees

You are expected to obtain personal protective equipment (PPE) to be worn during all practical sessions. During the Induction period, you will be allocated a locker to store your PPE. Basic requirements are steel toe cap safety boots, and plain navy or black overalls (boiler suit style only). You can purchase your PPE from wherever you wish, however during enrolment you will be given details of some local companies who supply many of our students. The cost of the required PPE would be expected to cost between £30 and £45.

 You will require some basic stationery (pens, pencils, ruler, ring binder, page dividers). You will be given a course Equipment List during enrolment, detailing specifics.

Course Progession

Successful completion of this programme can open up a range of progression opportunities within aeronautical, aerospace and wider engineering.

 At Leicester College, you can continue your studies through our Level 4 HNC in Aeronautical Engineering, followed by the Level 5 HND in Aeronautical Engineering, creating a clear pathway into higher-level technical education.

 Depending on your overall qualifications and grades, you may also progress to university degree programmes, higher or degree apprenticeships, or seek employment within the engineering sector.

 Potential career areas include aerospace engineering, aircraft maintenance and support, propulsion, engineering design, manufacturing, CAD, mechanical and electrical engineering, quality and technical engineering roles.

What Happens Next

Please apply online via the College website. You will need details of your qualifications, a reference, and a personal statement to complete your application. Once your application has been successfully processed, you will be sent a conditional offer and be invited to a Welcome Event/Interview at the College to meet your tutors, learn more about your chosen course of study and tour the facilities. You will then need to confirm your acceptance of the course offered to you.