

ENGINEERING
NVQ Level 1 Performing Engineering
Operations – 1 Year
Course Code: EF33

This course gives you a basic qualification in the field of mechanical or electronic engineering at a hands-on level. You will gain skills in the use of lathes, milling machines, electronic circuit assembly, routine electronic servicing and using computer aided design systems.

Entry Requirements
Minimum of 4 GCSE grades E and above including Maths and preferably English.

Method of assessment
A series of practical assessments and a portfolio of evidence.

Progression
Further study, typically the Level 2 engineering programme.

ENGINEERING
NVQ Level 2 Performing Engineering
Operations – 1 Year
Course Code: EF32

This is a practical course which prepares you for employment or an apprenticeship within the field of mechanical engineering at a hands-on level. You will gain skills in the use of lathes, milling machines and using computer aided design systems.

Entry Requirements
Minimum 4 GCSE grades D and above including Maths and preferably English or an Engineering Level 1 with Functional Skills at the appropriate level.

Method of assessment
A series of practical assessments and a portfolio of evidence.

Progression
Further study, typically a Level 3 in Engineering and Employment.

ELECTRONIC AND COMPUTER MAINTENANCE
NVQ Level 2 Performing Engineering
Operations (Electronics) – 1 Year
Course Code: EF13

If you want a career within an electronics or computer related industry, this course will equip you with skills in electronic circuit building, micro-processors, computer maintenance and fault finding. You will also use a variety of software applications and have the opportunity to experience a range of associated practical activities.

Entry Requirements
4 GCSEs at grade D or above, including Maths and preferably a subject requiring written English or successful completion of an Engineering Level 1 and successful completion of Functional Skills.

Method of assessment
Practically based with the production of a portfolio of evidence.

Progression
Further study, typically onto an Engineering Level 3.

ENGINEERING
BTEC Level 3 Extended Diploma – 2 Years
Course Code: EF29

This advanced level course will take you into the world of mechanical and electronic engineering, engineering and computer aided design with the support of mathematics and science units. Modern manufacturing techniques are covered in our newly refurbished "Centre of Excellence" using the latest equipment and software.

Entry Requirements
5 GCSEs grade A-C, including Maths, Science and English or BTEC Level 2 Diploma in Engineering (Merit) and Functional Skills at the appropriate level.

Method of assessment
Assignments, presentations, projects and course work.

Progression
Further study, typically a BEng, BSc, foundation degree at BCoT in Engineering with the University of Brighton; employment or an apprenticeship.



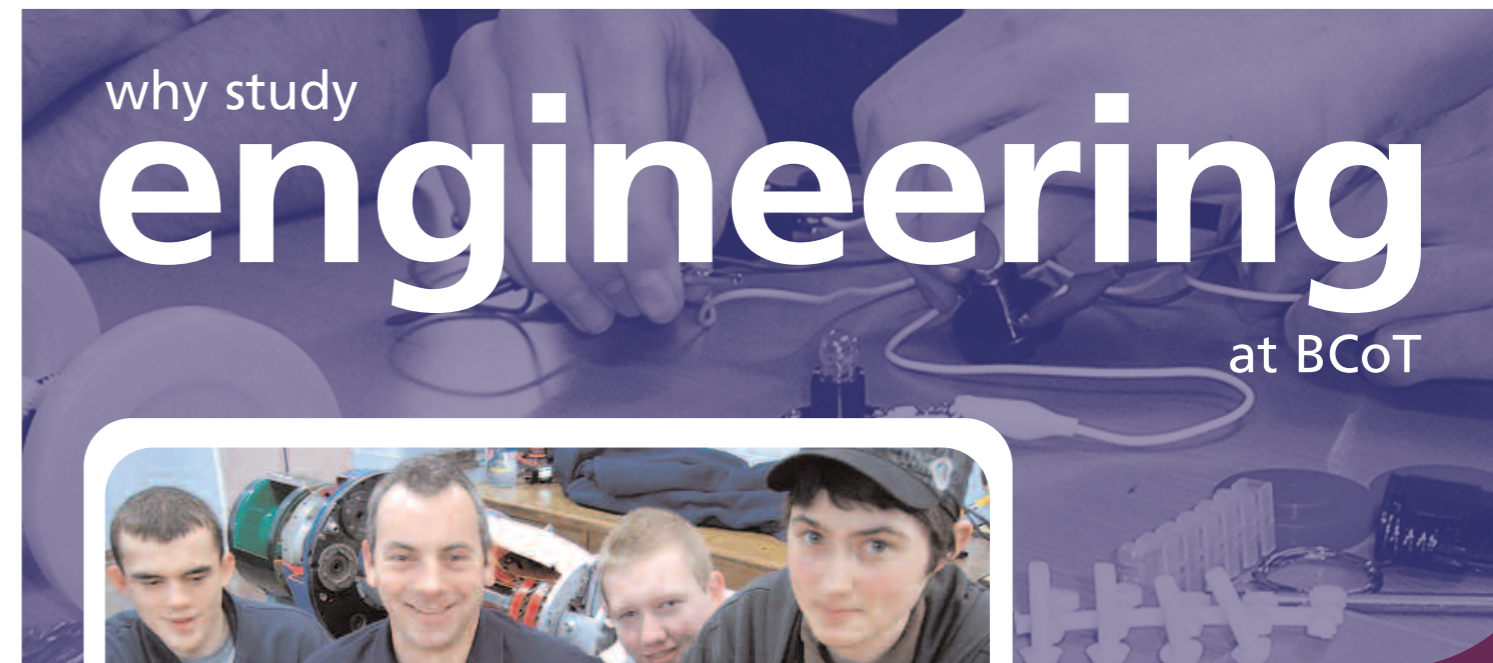
PRODUCT DESIGN FOR MANUFACTURING
BTEC Level 3 Diploma in Manufacturing plus
A Level Design Technology – 2 Years
Course Code: EF36

Equivalent to three A Levels, this course combines the tools of the BTEC Level 3 Diploma in Manufacturing with the flair of the A Level Design Technology. It is ideal for entry to degree programmes or careers in engineering, design, architecture or technology related subjects. You will study topics such as product design, market influences, manufacture, engineering drawing, CAD, CNC and CAM. Students will undertake work experience to build the practical application of learning.

Entry Requirements
5 GCSEs grade A-C (to include English and preferably Maths and Science) or BTEC Level 2 Diploma in Engineering (Merit) and successful completion of Functional Skills at the appropriate level.

Method of assessment
Assignments, presentations, projects, course work and the A Level examination.

Progression
Further study (typically a BEng, BSc, foundation degree or HND in an engineering related subject); employment.



why study
engineering
at BCoT



Students Mat Byrom, Jamie Humphreys and Richard Eastwood with Royal Engineer Sgt Chris Grandshaw

IN A SPIN WITH THE ROYAL ENGINEERS

Engineering students spent a morning with the Royal Engineers recently, gaining an insight into their work and taking a closer look at the variety of career opportunities in the armed forces.

Afterwards they worked in small groups on various projects one of which required them to make a commutator (or 'spin a micro-dot') using a battery, two basic electrical connectors, two paperclips, some copper wire, an IC circuit and a magnet. By the end of the morning everyone had honed their team building and communication skills and most groups had managed to get the copper loop to spin at a required speed.

Nick Bone said he had found the session extremely interesting.

All the students are currently studying manufacturing engineering either on a day release or on the National Diploma programme.



Mechanical Engineering
Electronic Engineering
Engineering Design
Computer Maintenance
Product Design
IT Systems Support
Aeronautical Engineering
IT Networking

WORK EXPERIENCE AT LINDE

Linde Materials Handling (UK) Ltd. is the world's leading lift truck manufacture.

The company offers work experience to students consisting of one day per week for two terms and also provides a bursary to students taking part, subject to application, interview and progress during the course. The students follow a programme where they visit all areas of the manufacturing plant.

Linde Materials Handling (UK) Ltd. will recruit new employees / apprentices from among the students.



YOUNG APPRENTICESHIPS IN ENGINEERING

Young apprentices in engineering follow in the footsteps of one of the great engineers Isambard Kingdom Brunel on a recent visit to the Museum of the Great Western railway at Swindon.

The group also combined the old with the modern with a guided tour of the Honda Engine and Assembly plants.

The Young Apprenticeship in Engineering programme is for budding eager and motivated young engineers from Year 10 in secondary schools from around the area and consists of a two year programme following a PEO and VRQ qualification and is equivalent to five GCSE's.



VISITS



Visits present students with an insight into the latest industrial trends and applications and also provide an opportunity to deliver part of the curriculum content.

Renishaw are the leading manufacture of Probing equipment used on CNC machines. They have supported the college by supplying a spindle and setting probes for the Robodrill machining centre.

The group had an introduction to the company, demonstration of their products, a talk on the company's use of CAM and a tour of the new manufacturing factory at the Stonehouse site.

Assignment work was set based on the visit, providing the opportunity for students to approach their work from an industrial perspective.

Visits to engineering related exhibitions also take place with students regularly attending the Autosports exhibition at the NEC Birmingham.

Other visits include the Machine Tools exhibition, Science and Design Museums.

STUDENTS VISIT MIDDLESEX GROUP

Second year National Diploma students visited the Middlesex Group who produce high quality parts for the aerospace industry. Students and staff were welcomed by the Managing Director who gave an overview of the company and a tour of the factory. Students spent time in the machine shop and viewed the hi-tech equipment and also visited the design office where they had the opportunity to meet the designers and ask questions.



Daniel Girling

School:

St Bartholomew's School, Newbury

Course:

National Diploma in Manufacturing Engineering

What attracted you to BCoT?

'I initially looked at staying on in the sixth form, however, I couldn't study the four A levels I wanted because the timetable didn't fit, so I decided to study the National Diploma at BCoT, which is equivalent to three A levels.

The course is varied and the teachers are really enthusiastic.

One of the projects I have undertaken is to design and make a perpetual motion machine. I am making it out of plastic and have liaised closely with contacts at Costello Technology College who are allowing me to use their laser cutter to cut the plastic.

To those thinking about studying at BCoT I would say:

It is a good place to study and it will get you into university.'

Daniel has recently been offered a conditional place at Brunel University to study either mechanical engineering or aerospace.

EQUIPMENT

Engineering has a full range of equipment software to support courses ranging from conventional machines in the general machine shop to state of art CNC machines in the Computing Aided Manufacturing (CAM) area.

The machine shop has a full range of fully equipped lathes and milling machines, pillar drilling machines and grinders as well as supporting measuring equipment and bench fitting tools.

In the CAM area is a Fanuc CNC Robodrill machining centre, Emco CNC Lathe with live tooling as well as a Micon mill and lathe. Measurement is supported by an Abberlink coordinate measuring machine.

Supporting software includes AutoCad, Solidworks and Pro desktop for computer aided design and EdgeCam for the CAM software. This allows students to go from conceptual design to manufacture.

The department is also looking to invest in rapid prototyping in the near future allowing expansion and enhancement to the design process.

Engineering students have access to additional workshops at BETA, who have the provision to cover electrical, electronic, welding and fabrication, machining and maintenance engineering.



MEET THE STAFF...

Pete Dixon
Programme Manager

Pete's main area of expertise is Computer Aided Manufacture (CAM), Computer Aided Design (CAD) and Computer Numerical Control (CNC).



Ray Harvey
Co-ordinating Lecturer

Ray comes from a Production Engineering background. He is a course tutor for the National Diploma in Engineering and teaches on a range of engineering programmes.



Jim Lynn
Course Co-ordinator

Jim teaches Mathematics on all levels of Engineering courses and also co-ordinates Sound & Music programmes. Jim comes from a telecommunications industrial background.



Steve Paynter
Co-ordinating Lecturer

Steve came from a welding and fabrication background. He is the course co-ordinator for BTEC programmes and teaches across a range of engineering subjects.



ENGINEERING INDUCTION

At the start of the autumn term new Engineering students took part in an engineering challenge in which they had to produce a suspended robotic device. A competition followed which was divided into three categories - the fastest device, the best design and the most appropriate name.

In addition as part of induction students enjoyed a team building activity, ten pin bowling.

WHAT NEXT?

This year Engineering students have gone on to:

- University of Nottingham
- Durham University
- University of Hertfordshire
- University of Plymouth
- Brunel University
- University of Exeter

Apprenticeships with:

- Linde Materials Handling Limited
- Middlesex Group
- AWE
- Trinity Aerospace Company