

## Advanced Apprenticeship Engineering

13 June 2017

At Mid Kent college the advanced apprenticeship is structured to be delivered over 3 ½ years.

### Advanced Apprenticeship in Engineering

Level 3 NVQ Extended Diploma	This is the competency based qualification assessed in the workplace. Further details below.  The L3 NVQ Extended Diploma includes a number of Performing Engineering Operations (PEO) level two units usually delivered in the workplace; these will be selected to match the work that they apprentice will be doing.
BTEC L3 Diploma	Delivered in the college on a one day per week basis (term time only) for 2 years
L2 Functional Skills English Math ICT	Subject to prior achievement, would be delivered in college whilst on day release
Employment Rights and Responsibilities	Workbook completed within the workplace
Personal learning and thinking skills - comprise six skill areas such as creative thinking, reflective learning, team working.	Workbook completed within the workplace

The Apprentice Training Schedule would be as follows:

Year 1	18 Weeks (Sept 17 to Feb 18) 5 Days a week College	
	<ul style="list-style-type: none"> <li>• PEO Intensive &amp; NVQ 3 Underpinning Knowledge Questions (4 days a week at college)</li> <li>• Yr 1 of BTEC (1 day a week at College)</li> </ul>	
	18 Weeks (Feb 18 to Jul 18) Yr 1 of BTEC (1 day a week at College)	NVQ Level 3 with assessment in the workplace every 10 weeks and completing Monitoring on current progress.
Year 2	Yr 2 of BTEC (1 Day a week at College)	
Year 3	Yr 1 of HNC (1 Day a week at College)	
Year 4	Yr 2 of HNC (1 Day a week at College)	

## Appendices 1

The BTEC Diploma is studied on a day release model, one day a week for two years, currently Thursday for Year 1 and Tuesday for Year 2.

The Level 3 BTEC Diploma offered at Mid Kent College includes the following modules;

### Mechanical

<b>Mechanical Engineering</b>		<b>Synopsis</b>
Unit 1	Health and Safety in the Engineering Workplace.	Knowledge of the key features of health and safety legislation and regulations and how these are applied in engineering to ensure safe working conditions.
Unit 2	Communications for Engineering Technicians.	Knowledge of wide range of communication methods used within engineering. These methods include visual representation, verbal and written skills, obtaining and using information and the use of information and communications technology.
Unit 3	Engineering Project. (Double unit)	Enables learners to specify, plan and implement an engineering project and present its outcome.
Unit 4	Mathematics for Engineering Technicians.	Provides learners a strong foundation in mathematical skills. These skills will help them to successfully complete many of the other units within the qualification.
Unit 5	Mechanical Principles and Applications.	Knowledge of mechanical principles and to apply them when solving engineering problems.
Unit 10	Properties and application of Engineering Materials	Knowledge of engineering materials, their properties and applications.
Unit 11	Further Mechanical Principles and Applications.	Knowledge of mechanical principles and to apply them in the solution of engineering problems.
Unit 12	Application of Mechanical systems in engineering	Knowledge of the components and systems commonly used in lubrication systems, transmissions and plant equipment.
Unit 15	Electro, Pneumatic and Hydraulic Systems and Devices	Knowledge and skills needed to safely inspect, test and maintain pressurised fluid systems that use electrical control devices to make them work.
Unit 17	Computer Aided Drafting in Engineering	Knowledge and skills needed to use computer aided drafting (CAD) techniques in an engineering context.
Unit 28	Further Mathematics for Engineering Technicians.	Knowledge of the mathematical principles used in engineering, enabling them to pursue further study on a higher education qualification in engineering.
Unit 44	Engineering Maintenance Procedures and Techniques	Knowledge and skills needed to plan and carry out maintenance and monitoring techniques on engineering equipment and systems.

## Electrical

<b>Electrical Engineering</b>		<b>Synopsis</b>
Unit 1	Health and Safety in the Engineering Workplace.	Knowledge of the key features of health and safety legislation and regulations and how these are applied in engineering to ensure safe working conditions.
Unit 2	Communications for Engineering Technicians.	Knowledge of wide range of communication methods used within engineering. These methods include visual representation, verbal and written skills, obtaining and using information and the use of information and communications technology.
Unit 3	Engineering Project. (Double unit)	Enables learners to specify, plan and implement an engineering project and present its outcome.
Unit 4	Mathematics for Engineering Technicians.	Provides learners a strong foundation in mathematical skills. These skills will help them to successfully complete many of the other units within the qualification.
Unit 6	Electrical Principles and Applications.	Knowledge of the underlying physical principles on which electrical and electronic devices and circuits depend.
Unit 25	Selecting and Using Programmable Controllers	Knowledge of the use and applications of programmable logic controllers (PLCs), the hardware and software that makes up a PLC and the interaction needed between the component parts.
Unit 28	Further Mathematics for Engineering Technicians.	Knowledge of the mathematical principles used in engineering, enabling them to pursue further study on a higher education qualification in engineering.
Unit 35	Principles and Applications of Electronic Devices and Circuits	Knowledge of electronic devices and the skills needed to simulate, construct and test a variety of electronic circuits.
Unit 51	Electrical Technology	Knowledge of how electricity is produced and its different applications in a variety of sectors.
Unit 53	Electronic Measurement and Testing	Knowledge and skills needed to carry out a range of measurements on electronic circuits and equipment.
Unit 62	Principles and Operation of Three-phase Systems	Knowledge and an understanding of electrical quantities in three-phase circuits, three-phase supply systems, three-phase balanced and unbalanced loads and three-phase power.
Unit 64	Further Electrical Principles	Knowledge to apply practical and theoretical principles of electrical engineering to the development, manufacture and servicing of complex electrical and electronic systems.

## Appendices 2

The City & Guilds Performing Engineering Operations (PEO), Level 2 modules will consist of the following modules over the 4 days at college

Performing Engineering Operations		Synopsis
Unit 205	Producing components using hand fitting techniques	This unit covers the skills and knowledge needed to prove the competences required to cover a broad range of basic hand fitting activities that will prepare the learner for entry into the engineering or manufacturing sectors, creating a progression between education and employment, or will provide a basis for the development of additional skills and occupational competences in the working environment.
Unit 211	Preparing and using lathes for turning operations	This unit covers the skills and knowledge needed to prove the competences required to cover a broad range of basic turning activities that will prepare the learner for entry into the engineering or manufacturing sectors, creating a progression between education and employment, or that will provide a basis for the development of additional skills and occupational competences in the working environment
Unit 212	Preparing and using milling machines	This unit covers the skills and knowledge needed to prove the competences required to cover a broad range of basic milling activities that will prepare the learner for entry into the engineering or manufacturing sectors, creating a progression between education and employment, or that will provide a basis for the development of additional skills and occupational competences in the working environment.
Unit 229	Preparing and using semi-automatic MIG, MAG and flux cored arc welding equipment	This unit covers the skills and knowledge needed to prove the competences required to cover a broad range of basic semi-automatic MIG, MAG or flux cored-wire arc welding equipment activities that will prepare the learner for entry into the engineering or manufacturing sectors, creating a progression between education and employment, or that will provide a basis for the development of additional skills and occupational competences in the working environment.
Unit 236	Assembling and testing electronic circuits	This unit covers the skills and knowledge needed to prove the competences required to assemble and test electronic circuits. It will prepare the learner for entry into the engineering or manufacturing sectors, creating a progression between education and employment, or it will provide a basis for the development of additional skills and occupational competences in the working environment.

Where time and skills allows, we may delivery

Performing Engineering Operations		Synopsis
Unit 228	Preparing and using manual TIG or plasma-arc welding equipment	This unit covers the skills and knowledge needed to prove the competences required to cover a broad range of basic manual tungsten inert gas (TIG) or plasma-arc welding activities that will prepare the learner for entry into the engineering or manufacturing sectors, creating a progression between education and employment, or that will provide a basis for the development of additional skills and occupational competences in the working environment.
Unit 233	Wiring and testing electrical equipment and circuits	This unit covers the skills and knowledge needed to prove the competences required to wire up and test electrical equipment and circuits. It will prepare the learner for entry into the engineering or manufacturing sectors, creating a progression between education and employment, or it will provide a basis for the development of additional skills and occupational competences in the working environment.

