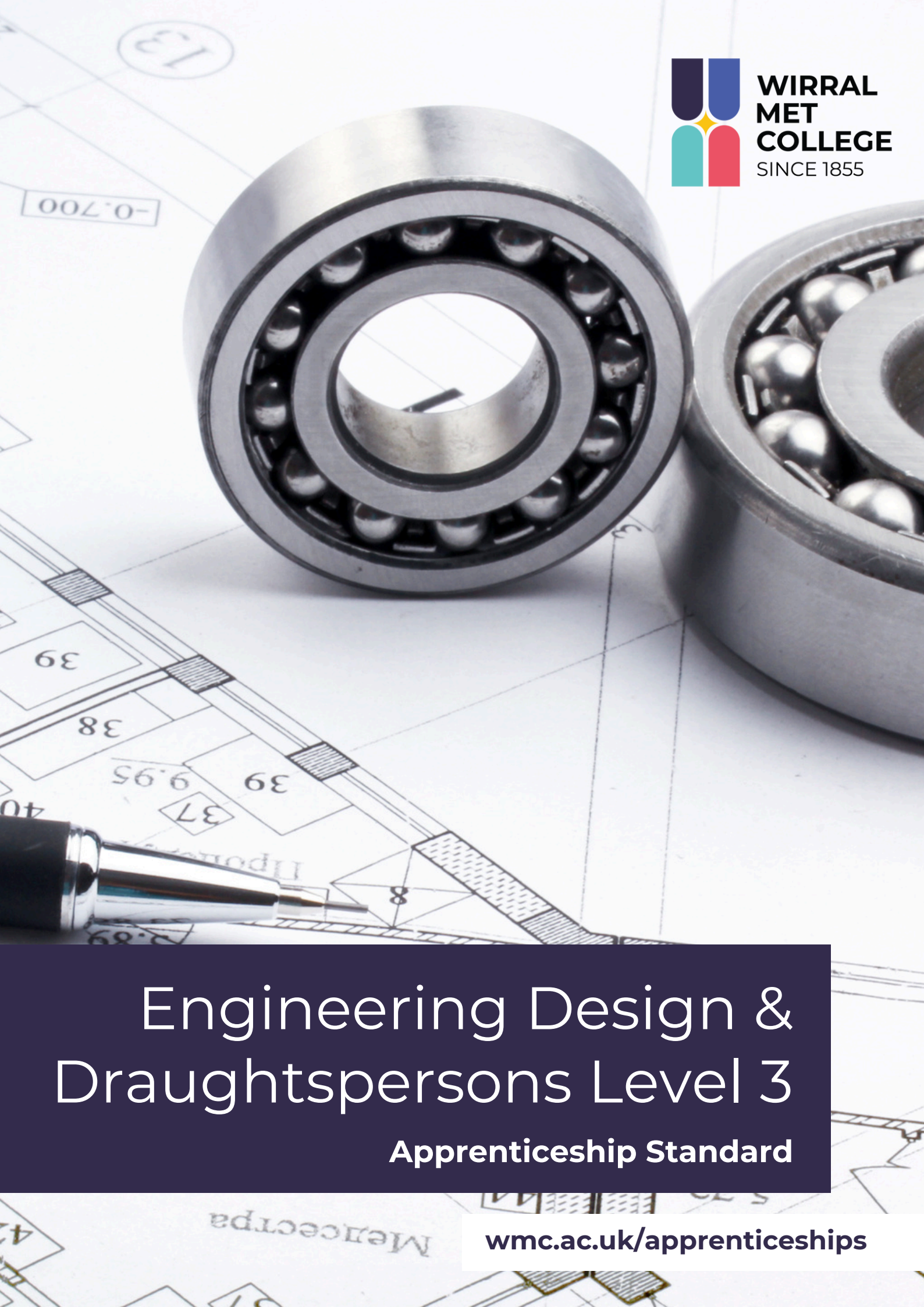


WIRRAL MET COLLEGE
SINCE 1855

Engineering Design & Draughtspersons Level 3

Apprenticeship Standard

wmc.ac.uk/apprenticeships

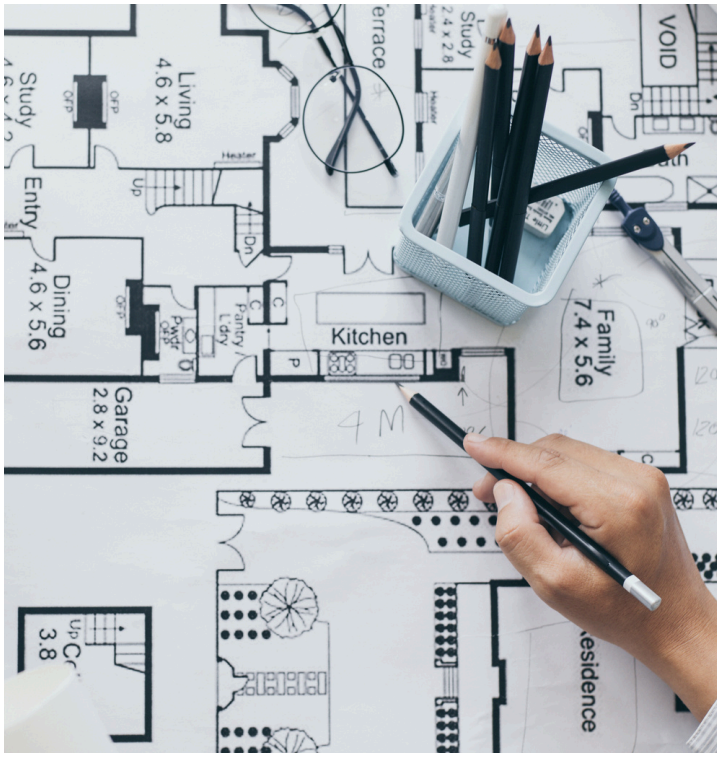
Overview

Engineering design and draughtspersons produce designs and drawings for structures, piping, electrical systems, control and instrumentation systems and mechanical components used in industrial and commercial construction. They work in a wide range of industries including power and water infrastructure, petrochemical, oil and gas, nuclear, food and drink processing.

Engineering design and draughtspersons understand and create technical drawings and specifications and are able to identify factors likely to affect design decisions, produce CAD (computer aided design) models and engineering drawings.

Duration:
42 months + 3 months for the End Point Assessment

Entry Guidelines:
English & maths at GCSE grade A*-C/4-9 or Functional Skills level 2
Minimum 2 other GCSEs at Grade C/4 including Science



Engineering Design & Draughting Level 3

Course Overview

Pre-programme →	On Programme Learning covering Knowledge, Skills and Behviours →	Gateway →	Independent End Point Assessment
Initial assessment English & Maths	Engineering Design & Draughting Level 3 (day release, Twelve Quays Campus)	• e-portfolio of evidence	• Knowledge test
Skills Scan	Portfolio of evidence to be built during on programme learning	• Engineering Design & Draughting Level 3	• Practical test
Induction with Trainer Assessor	On programme Assessments & Reviews: • On-programme learning assessments • 6-8 weekly sessions with Trainer Assessor & 8-10 week Progress Reviews with apprentice and employer	• English level 2 • Maths level 2	• Structured interview

Course Details

This apprenticeship programme is designed to develop the knowledge, skills and behaviours required to be an effective Engineering Design & Draughtsperson.
The ***Skills & Behaviours*** element of the apprenticeship is to be completed with support from a Trainer Assessor making periodic visits to the apprentice in the workplace. The Trainer Assessor will support and guide the apprentice to ensure that they are developing the skills and competency required in accordance with the apprenticeship standard. The apprentice will use the e-portfolio system called OneFile to build a portfolio of work throughout the development stage, which is a key component of End Point Assessment and demonstrates their occupational competency.

The Technical Knowledge element of the course will include:

1. Relevant national and industry health and safety, standards and legislation.
2. Company management systems, policies and procedures.
3. Document management and change control.
4. Engineering codes and standards.
5. Common engineering principles and the application of maths and science to engineering.
6. Fundamentals of engineering drawing and design.
7. Computer Aided Design (CAD) software, its appropriate application including 2D and 3D modelling.
8. Understand the impact of relevant factors that are important to the design e.g. the materials, components, assemblies, cost, quality, safety, security, risk, environmental impact, ergonomics, aesthetics, the end use and purpose of the design.
9. Manufacturing and/or construction methods as appropriate to the specific disciplines.
10. Relevance and application of Building Information Modelling (BIM).

The Occupational Skills element of the course will include:

1. Work safely at all times, complying with relevant national/industry health and safety requirements.
2. Employ the appropriate use of computer-based technology.
3. Review and interpret technical information and requirements from different sources.
4. Identify inaccuracies or discrepancies in engineering drawings and specifications and propose solutions.
5. Identify and assess factors that affect designs e.g. materials, application, location, risk and environment.
6. Design engineering concepts to solve engineering challenges.
7. Develop effective solutions which satisfy the required standards and can be manufactured, proven, operated and maintained in a cost-effective way whilst minimising costs.
8. Evaluate engineering designs to determine the most effective solution.
9. Produce detailed engineering drawings to relevant standards and codes, using paper and computer.
10. Check completed drawings for quality, technical compliance and completeness .
11. Communicate and co-ordinate engineering design options with relevant stakeholders, colleagues and clients using sketches, schemes, models, detailed drawings and reports.

Skills & Behaviours

The **Skills & Behaviours** element of the apprenticeship is to be completed with support from a Trainer Assessor making periodic visits to the apprentice in the workplace. The Trainer Assessor will support and guide the apprentice to ensure that they are developing the skills and competency required in accordance with the apprenticeship standard, including:

- Comply with health and safety requirements
- Have a strong work ethic
- Take personal responsibility for own work
- Apply and uphold principles of ethics and sustainability
- Commitment to advancing own learning
- Use effective communication and interpersonal skills.

The apprentice will use the e-portfolio system called OneFile to build a portfolio of work throughout the development stage, which is a key component of End Point Assessment and demonstrates their occupational competency.

Gateway

To progress through the Gateway to the End Point Assessment, the Metal Fabricator apprentice must have successfully achieved:

- Engineering Design and Draughting Diploma level 3
- English and maths at level 2
- Completion of their portfolio of evidence.

The apprentice's employer must sign-off the portfolio of evidence, that has been completed by the apprentice during their programme, to confirm the apprentice has demonstrated the
knowledge, skills and behaviours assigned to this apprenticeship standard.

End Point Assessment

The End Point Assessment must only start once the employer is satisfied that the apprentice is consistently working at or above the level set out in the occupational standard, that means they have achieved occupational competence.

End Point Assessment (EPA) normally takes 3 months to complete and consists of:

1 Knowledge test
2 Practical test
3 Structured interview

1 Knowledge test

The knowledge test will be made up of multiple choice and scenario based written questions that will test the apprentice's knowledge and application of the following engineering disciplines:

- Electrical
- Control and instrumentation
- Mechanical
- Piping
- Structural

2 Practical test

The practical test will test the apprentice's abilities to apply the following core skills:

- Safety awareness
- Review and interpret technical information and requirements from different sources
- Identify inaccuracies or discrepancies in an engineering brief
- Identify and assess factors that affect designs e.g. materials, application, location and environment
- Design engineering concepts to solve engineering challenges
- Develop effective solutions which satisfy the required standards and constructability principles
- Evaluate engineering designs to determine the most effective solution
- Produce detailed engineering drawings to relevant standards and codes, using paper and computer
- Check completed drawings for quality and completeness
- Communicate engineering design options to relevant stakeholders, colleagues and clients using sketches, schemes, detailed drawings and reports.

3 Structured interview

The structured interview is designed to enable the apprentice to showcase how he/she combines their core skills, technical knowledge and core behaviours in order to carry out his/her occupational role effectively. The apprentice should expect to discuss evidence of work so the interview panel can ascertain the apprentice's role in completing the work, what barriers they overcame etc.

It is a rigorous review and should assess the apprentice's readiness to:

- work as an engineering design and draughtsperson
- submit for Professional Registration at EngTech level.

The structured interview typically lasts about an hour.

Grading & Progression

Apprenticeship grading

The available grades for this apprenticeship programme are **Fail**, **Pass** and **Distinction**.

Where can apprentices progress to?

The apprentice may choose to progress on to a higher level position in Engineering and Manufacturing.

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