

## Our Apprenticeship Programme

### Plumbing Studies

<b>Associated qualifications</b>	City & Guilds Level 2 Diploma in Plumbing Studies City & Guilds Level 3 Diploma in Plumbing Studies
<b>Duration</b>	4 years

#### Off-the-job training, assessment and apprentice reviews:

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This details what training the apprentice will receive, principally through qualification unit delivery with the learner outcomes attached. It also includes estimated assessment dates.

#### On-the-job support for learning, competency and behaviour:

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This summarises the broad timetable of tasks that can take place in the workplace, where possible, to support the off-the-job training.

It should focus on duties that include:

- Competencies - activities and practical tasks gained through on-the-job exercises with opportunities to practise
- Behaviours - actions, attitudes and beliefs embedded through the employer's organisational code of conduct

#### Key:

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Training to be delivered

Assessments

Estimated Start date Month	Off-the-job training, assessment and apprentice reviews	On-the-job support for learning, competency and behaviour
<b>Year 1</b>	<b>Level 2 Diploma in Plumbing Studies</b>	
September	<b>College Induction</b> Plumbing area and tools of the trade English and Maths introduction	
September or October	<b>Health and safety in building services engineering (Unit 201/501)</b> <i>Outcomes:</i> Knowledge of: - health and safety legislation - how to handle hazardous situations - electrical safety requirements when working in the building services industry - the safety requirements for working with gases and heat producing equipment - the safety requirements for using access equipment in the building services industry - the safety requirements for working safely in excavations and confined spaces in the building services industry Be able to apply safe working practice	To encourage a culture of safe working practices to include: - Legislation regarding health and safety - Safety signs - Working at height - PPE - Kinetic lifting - Tidy work environments - Working with machinery
<b>Ongoing</b>	<b>Health and safety in building services engineering (Unit 201/501)</b> Practical assignment Portfolio / ILP	
<b>November</b>	<b>Health and safety in building services engineering (Unit 201/501)</b> On-line test	
November	<b>Common plumbing processes (Unit 204/504)</b> <i>Outcomes:</i> Understand: - the procedures for measuring and bending plumbing tubes - how to joint common plumbing materials Knowledge of: - common plumbing hand and power tools - fixings and components used in common plumbing processes - common plumbing preparation techniques - symbols used for identifying plumbing pipework and fittings Be able to:	- Identification and use of tools and materials - Practice pipe bending techniques - Soldering - Pipe work jointing - Measuring - Interpretation of plans and instructions - Clipping and securing pipework

Estimated Start date Month	Off-the-job training, assessment and apprentice reviews	On-the-job support for learning, competency and behaviour
	<ul style="list-style-type: none"> <li>- carry out common plumbing processes</li> <li>- measure and bend plumbing tubes</li> </ul>	
Ongoing	<b>Common plumbing processes (Unit 204/504)</b> Practical assignment	
December	<b>Common plumbing processes (Unit 204/504)</b> On-line test	
January	<b>Scientific principles for domestic, industrial and commercial plumbing (Unit 203/803)</b> <i>Outcomes:</i> Understand: <ul style="list-style-type: none"> <li>- the properties of common plumbing materials</li> <li>- the scientific properties and principles of water</li> <li>- the pressure, force and flow of water</li> <li>- the principles of heat in relation to plumbing systems</li> </ul> <i>Knowledge of:</i> <ul style="list-style-type: none"> <li>- the principles of combustion and heating gases</li> <li>- the basic principles of electricity</li> </ul>	Reinforcement of the unit outcomes
March	<b>Scientific principles for domestic, industrial and commercial plumbing (Unit 203/803)</b> On-line test	
April	<b>Cold water systems (Unit 205/505)</b> <i>Outcomes:</i> <i>Knowledge of:</i> <ul style="list-style-type: none"> <li>- the requirements for water distribution to domestic dwellings</li> <li>- the components used in domestic cold water</li> </ul> <i>Understand:</i> <ul style="list-style-type: none"> <li>- the requirements of the cold water supplies into domestic dwellings</li> <li>- the requirements for pipework installations in domestic cold water systems</li> <li>- the key requirements of testing and decommissioning of domestic cold water systems</li> <li>- the basic maintenance requirements of domestic cold water systems</li> </ul> Be able to install cold water systems and components	<ul style="list-style-type: none"> <li>- Observe and assist in the installation of cold mains direct cold water systems</li> <li>- Use of cold water storage systems and the legislation attached (WRAS)</li> <li>- Types of materials used in cold water systems</li> <li>- How to test and commission, flushing and chlorination</li> </ul> <i>Follow the commissioning process with thorough testing to BS standards and building regulations and water regulations (WRAS)</i>
Ongoing	<b>Cold water systems (Unit 205/505)</b>	

Estimated Start date Month	Off-the-job training, assessment and apprentice reviews	On-the-job support for learning, competency and behaviour
	Practical assignment	
June	<b>Cold water systems (Unit 205/505)</b> On-line test	
<b>Year 2</b>	<b>Level 2 Diploma in Plumbing Studies</b>	
September	<b>Domestic hot water systems (Unit 206/506)</b> <i>Outcomes:</i> Knowledge of: - the types of domestic hot water systems - the components used in domestic hot water systems - the design features of showers Understand: - the installation requirements of domestic hot water plumbing systems - the basic maintenance requirements of hot water systems - the key requirements of testing and decommissioning of domestic hot water systems Be able to install hot water systems and components	- Observe and assist in the installation of hot direct water systems - Use of hot water storage systems and the legislation attached - Familiarity with the types of materials used in hot water systems - How to test and commission, flushing and chlorination - Temperature control  <i>Follow the commissioning process with thorough testing to BS standards and building regulations</i>
Ongoing	<b>Domestic hot water systems (Unit 206/506)</b> Practical assignment	
October	<b>Domestic hot water systems (Unit 206/506)</b> On-line test	
November	<b>Central heating systems (Unit 208/508)</b> <i>Outcomes:</i> Understand: - the types of domestic central heating systems installed in domestic dwellings - heat emitters and their components - mechanical central heating controls Knowledge of the different materials used to install domestic central heating pipework	Observe and assist in the installation of the following: - CH pipework (copper, plastic, low carbon steel) including underfloor heating - Radiators - CH controls such as pumps and diverter valves (as well as maintenance) - Boilers (gas/oil) Flushing and cleaning of CH systems  <i>Follow the commissioning process with thorough testing to BS standards and building regulations</i>
Ongoing	<b>Central heating systems (Unit 208/508)</b> Practical assignment	
December	<b>Central heating systems (Unit 208/508)</b>	

Estimated Start date Month	Off-the-job training, assessment and apprentice reviews	On-the-job support for learning, competency and behaviour
	On-line test	
January	<b>Sanitation (Unit 207)</b> <i>Outcomes:</i> Knowledge of - the appliances and associated components used in sanitary installation - the requirements for installing sanitary appliances Be able to install sanitary appliances	Observe and assist in the installation of sanitary appliances such as: - WCs - Baths - Shower trays - Tap and waste fittings  <i>Follow the commissioning process with thorough testing to BS standards and building regulations</i>
January	<b>Sanitation (Unit 207)</b> Practical assignment	
February	<b>Drainage systems (Unit 209/509)</b> <i>Outcomes:</i> Understand the requirements of drainage systems Knowledge of: - the types of traps and associated requirements - the procedures for soundness testing and commissioning above ground systems - the requirements of rainwater systems and associated guttering Be able to: - install and test above ground systems - to install rainwater systems	- Install soil pipes and waste systems in solvent weld and push fit - Experience in performance testing of waste systems  <i>Follow the commissioning process with thorough testing to BS standards and building regulations</i>
Ongoing	<b>Drainage systems (Unit 209/509)</b> Practical assignment	
March	<b>Drainage systems (Unit 209/509)</b> On-line test	
March	<b>Understand how to communicate with others within building services engineering (Unit 210/810)</b> <i>Outcomes:</i> Knowledge of: - the members of the construction team and their role within the building services industry	- Encourage good communication with other trades and establish good working relationships with clients (Customer care principles) - Practice using appropriate language in the workplace - Understand and practice continuity of tasks within a build project

Estimated Start date Month	Off-the-job training, assessment and apprentice reviews	On-the-job support for learning, competency and behaviour
	<ul style="list-style-type: none"> <li>- how to apply information sources in the building services industry</li> <li>- how to communicate with others in the building services industry</li> </ul>	
<b>April</b>	<b>Understand how to communicate with others within building services engineering (Unit 210/810)</b> On-line test	
April	<b>Electrical principles and processes for building services engineering (Unit 202/502)</b> <i>Outcomes:</i> Understand: <ul style="list-style-type: none"> <li>- electrical supplies used in domestic plumbing systems</li> <li>- the procedures for safely isolating supplies</li> <li>- how to identify safety critical faults on electrical components and systems</li> <li>- how to undertake basic electrical tasks</li> </ul> Be able to: <ul style="list-style-type: none"> <li>- safely isolate electrical supplies</li> <li>- undertake basic electrical tasks</li> </ul> Know the components used in electrical installations	<ul style="list-style-type: none"> <li>- Differentiate between different earthing systems commonly used in the UK</li> <li>- State the common voltages used in the UK supply systems</li> <li>- Identify different electrical components used in a plumbing system</li> <li>- Identify and react to a safety critical faults (safe isolation points)</li> <li>- Identify appropriate points to electrically isolate a component to be worked on in a plumbing system</li> <li>- Identify correct tools to use in electrical tasks (insulated tools)</li> </ul>
<b>Ongoing</b>	<b>Electrical principles and processes for building services engineering (Unit 202/502)</b> Practical assignment	
<b>June</b>	<b>Electrical principles and processes for building services engineering (Unit 202/502)</b> On-line test	
<b>Year 3</b>	<b>Level 3 Diploma in Plumbing Studies</b>	
September	<b>Understand the fundamental principles and requirements of environmental technology systems (301/802)</b> <i>Outcomes:</i> Knowledge of: <ul style="list-style-type: none"> <li>- the fundamental working principles of micro-renewable energy and water conservation technologies</li> <li>- the fundamental requirements of building location/building features for the potential to install micro-renewable energy and water conservation systems to exist</li> <li>- the fundamental regulatory requirements relating to micro-renewable energy and water conservation technologies</li> </ul>	Apprentices should be exposed, where possible, to the following: <ul style="list-style-type: none"> <li>- Solar hot water systems</li> <li>- Photovoltaic technology</li> <li>- Air source heat pumps</li> <li>- Ground source heat pumps</li> <li>- Micro wind technology</li> <li>- Biomass fuel supply (wood pellets)</li> <li>- Hydropower water extraction (rivers)</li> <li>- Rainwater harvesting</li> <li>- Greywater harvesting</li> </ul>

Estimated Start date Month	Off-the-job training, assessment and apprentice reviews	On-the-job support for learning, competency and behaviour
	- the typical advantages and disadvantages associated with micro-renewable energy and water conservation technologies	
<b>October</b>	<b>Understand the fundamental principles and requirements of environmental technology systems (301/802)</b> On-line test	
October	<b>Complex cold water systems (Unit 303/603/811)</b> <i>Outcomes:</i> Knowledge of: - regulations relating to cold water supplied for domestic purposes - types of cold water system layouts used in buildings - requirements for backflow protection in plumbing services - uses of specialist components in cold water systems - fault diagnosis and rectification procedures for cold water systems and components - commissioning requirements of cold water systems and components Be able to carry out commissioning and rectify faults on cold water systems	Apprentices should, where possible, be aware and comply with water regulations (WRAS), such as: - Back flow prevention - Categories of water - Water conservation Fittings and devices that cover all of the above  <i>Follow the commissioning process with thorough testing to BS standards and building regulations</i>
<b>Ongoing</b>	<b>Complex cold water systems (Unit 303/603/811)</b> Practical assignment	
October	<b>Domestic hot water (Unit 304/604/812)</b> <i>Outcomes:</i> Understand the: - types of hot water systems - operating principles of components found in hot water systems Knowledge of the: - fault diagnosis and rectification procedures for hot water systems and components - commissioning requirements of hot water systems and components Be able to install and inspect hot water systems	Apprentices should have exposure to and an understanding of the installation and maintenance of unvented hot water systems in accordance with approved competence schemes such as BPEC.  <i>Follow the commissioning process with thorough testing to BS standards and building regulations</i>
<b>Ongoing</b>	<b>Domestic hot water (Unit 304/604/812)</b> Practical assignment	
December	<b>Plumbing system installation planning (Unit 302)</b> <i>Outcomes:</i> Understand how to:	Develop strong organisational skills and pay good attention to detail and apply these across all the relevant units <i>Relevant units:</i>

Estimated Start date Month	Off-the-job training, assessment and apprentice reviews	On-the-job support for learning, competency and behaviour
	<ul style="list-style-type: none"> <li>- interpret and present design information</li> <li>- size plumbing systems and components</li> <li>- calculate the size of central heating system components</li> <li>- plan work schedules for a system installation</li> </ul>	Complex cold water systems (Unit 303/603/811) Domestic hot water (Unit 304/604/812) Central heating systems (Unit 306/606/813) Sanitation and drainage systems (Unit 305)
<b>February</b>	<b>Complex cold water systems (Unit 303/603/811)</b> On-line test	
<b>February</b>	<b>Domestic hot water (Unit 304/604/812)</b> On-line test	
March	<b>Domestic gas principles (Unit 309)</b> <i>Outcomes:</i> Knowledge of gas safety legislation Understand: <ul style="list-style-type: none"> <li>- the characteristics of combustion</li> <li>- the principles of flues</li> <li>- the principles of ventilation</li> <li>- gas pipework</li> <li>- gas controls</li> <li>- how to calculate gas rates</li> </ul>	Opportunities in Guernsey for apprentices to have exposure to gas work are very limited. However, if there is gas installation or pipework and appliances in the work setting, exposure to this will help their understanding of the unit.  No practical assessment required.
<b>May</b>	<b>Plumbing system installation planning (Unit 302)</b> Written assignments	
<b>June</b>	<b>Domestic gas principles (Unit 309)</b> On-line test	
<b>Year 4</b>	<b>Level 3 Diploma in Plumbing Studies</b>	
September	<b>Central heating systems (Unit 306/606/813)</b> <i>Outcomes:</i> Understand: <ul style="list-style-type: none"> <li>- complex domestic heating systems layouts and controls</li> <li>- the layouts and operating principles of sealed systems</li> <li>- the types of boiler in domestic central heating systems</li> <li>- the types of heat emitters used in underfloor heating systems</li> </ul> Knowledge of how to decommission, commission, and fault find on central heating systems	Installation of the following: <ul style="list-style-type: none"> <li>- CH pipework (copper, plastic, low carbon steel) including underfloor heating</li> <li>- Radiators</li> <li>- CH controls such as pumps and diverter valves (as well as maintenance)</li> <li>- Boilers (gas/oil)</li> </ul> Flushing and cleaning of CH systems Exposure to design and calculation of systems to be installed



Estimated Start date Month	Off-the-job training, assessment and apprentice reviews	On-the-job support for learning, competency and behaviour
	Be able to decommission, install, commission and fault find on sophisticated central heating systems and their components	<i>Follow the commissioning process with thorough testing to BS standards and building regulations</i>
Ongoing	<b>Central heating systems (Unit 306/606/813)</b> Practical assignment	
December	<b>Central heating systems (Unit 306/606/813)</b> On-line test	
January	<b>Sanitation and drainage systems (Unit 305)</b> <i>Outcomes:</i> Understand: - design requirements of above ground drainage systems - commissioning and testing requirements of drainage systems Knowledge of the requirements of installing sanitary appliances and associated drainage Be able to carry out commissioning and fault finding of above ground drainage systems	Install sanitary appliances such as: - WCs - Baths - Shower trays - Tap and waste fittings Identify and rectify faults in drainage and waste systems <i>Follow the commissioning process with thorough testing to BS standards and building regulations</i>
Ongoing	<b>Sanitation and drainage systems (Unit 305)</b> Practical assignment	
February	<b>Sanitation and drainage systems (Unit 305)</b> Written assignment	
March	<b>Career awareness in building services engineering (Unit 308)</b> <i>Outcomes:</i> Understand: - how to plan for careers in building services engineering - the requirements to become a qualified operative in building services engineering Assessment	- Identify members of the building team from client and architect down to site labourer - Discuss the roles and responsibilities of the building team - Support with CV building activities
April	<b>Career awareness in building services engineering (Unit 308)</b> Written assignment	
April	Portfolio building	Apprentices are required to regularly update and review their portfolio of practical work throughout the course
End	<b>Successful completion of the attached qualifications</b>	