Unit 1: Communicate effectively with others in the workplace D/600/6322

Learning Outcome - The learner will:	Assessment Criteria - The learner can:		Indicative Contents:
1. Understand how to communicate with others in the workplace	1.1	Describe how to respond to different customer needs and attitudes	Customer requirements: Understanding requirements, why works are carried out and what are they trying to achieve. Customer needs and expectations are a priority.
	1.2	Describe positive and negative behaviour in relation to equality and diversity in the workplace	Diversity and equality: Important in the workplace. How this can then affect the productivity and safety of the workforce.
	1.3	State when different forms of communication should be used in the workplace	Communication: Essential to use various methods of communication, overcome educational and environmental issues. Factors that influence this: Forms of communication used, i.e.; language barriers, hearing and or sight impairment, literacy issues, environmental noise, distance or obstructions between communicators etc.
	1.4	Describe how to check that information has been understood	Understanding Information: There are various means of ensuring and checking that information has been understood. 1) Site induction 2) Toolbox talks: Can then be used with a test to ensure the information has been clearly understood.
	1.5	Explain how personal behaviour can contribute to the positive image of the organisation	Personal behaviour and attitude: Representing the organisation in a positive manner at all times.
	1.6	State the importance of communicating all the information necessary to the relevant person	Communication: Clear, Accurate, Imperative to explain the correct requirements and procedures to carry out the work in a safe and efficient manner. Without all of the information being provided and understood the work may not be carried out correctly or safely.
	1.7	State the importance of responding positively to queries from customers and the public	Customer and public queries: A good positive attitude and response to any queries from clients or the public is of utmost importance to ensure they have confidence in you. Even

			the most competent engineers can undermine the client's confidence by portraying a poor attitude to customer queries.
2. Understand how to record and pass on information	2.1	State where to find up-to-date information needed to carry out own job	Information: Work sheets, plans and any other work instructions should contain the information to allow the work to be carried out. Supervisor: The supervisor should convey any other information and ensure you have all the necessary information. Site office: Provide any H&S information relating to the site and site boards will display any risk areas that affect the workplace.
	2.2	Identify the different ways in which information is recorded	Ways in which information is recorded: Written, Drawings, Video, PowerPoint Presentations, Pictorial etc.
	2.3	Describe the procedures for recording, acknowledging and responding to incoming information	Recording: Acknowledging and responding to incoming information, sign to acknowledge receipt of the information and understanding. Question and Answer session: Often conducted to check that the information has been understood. Response sheets: Complete and return to show that the information and instructions have been understood, information required to be able to carry out the works. If anything is not clear then information must be sought from the supervisor.
	2.4	Describe what actions to take when encountering problems passing on information	Passing on information: If information passed on is not understood or clear then a supervisor must be informed. Issues: If there are issues when passing on information try to identify why and report to a supervisor explaining the problem. Without full understanding the works may not be carried out correctly or safely.
	2.5	State how to report faults with communication equipment	Reporting Faults: Always report to the immediate supervisor or site supervisor
3. Be able to communicate with others in the workplace	3.1	Respond to the needs and attitudes of customers appropriately	Needs and attitudes: It is imperative to attend to the needs and attitudes of the customer to ensure the works proceed without any problems.
	3.2	Present a positive image of the organisation	Image: Representing the organisation with a positive image must be maintained at all times this can be attitude, personal cleanliness and appearance.
	3.3	Give customers and others relevant information following organisational requirements	Give customers and others relevant information: If any changes occur then the information must be passed on to all affected persons

	3.4	respond promptly, clearly and politely to questions and comments from customers and others	Communication and organisational representation: A good positive attitude and response to any queries from clients or others is of utmost importance to ensure they have confidence in you. Even the most competent engineers can undermine the client's confidence by portraying a poor attitude to customers' queries. It is important to meet customers' expectations and be confident in your own capability and the organisation's
	3.5	Check that customers and others have understood the information correctly	Communication: Speak clearly and slowly, ensure information conveyed is understood.
4. Be able to record and pass on information	4.1	Use up to date information to carry out the task	Using up to date information to carry out the task: Check all information and work data is up to date. Changes that are not noted may cause issues with coordination and safety.
	4.2	Record information following organisational requirements	Recording Information: Note any changes on work sheets and mark up plans accordingly if changes occur. Supervisor: Check with supervisor before carrying out any changes to original work instructions.
	4.3	Pass on accurate information promptly and take appropriate action when this cannot be done	Communication: Communicate with the supervisor or customer when required and ensure you inform responsible person before you proceed. If this cannot be done on site then ensure the information is passed on to a main office or main contractor's representative.
	4.4	Report faults with communication equipment	Faults: Report any faults immediately with a supervisor. Failure to report a fault could lead to a major safety issue.

Unit 2: Establish Effective Working Relationships J/601/9694

Learning Outcome - The learner will:	Assessment Criteria - The learner can:		Indicative Contents:
1. Be able to communicate effectively	1.1	Keep the relevant person(s) informed about the works	Reporting: Know who you directly report to or who is in charge of this element of work. Be clear on your role.
	1.2	Communicate effectively without causing undue disruption to normal working activities	Communicate: Be clear on how long the work activity should take, how long you have to undertake the activity and frequency of communication. Work Activity: focus on the task and do not be prone to idle communication.
2. Be able to establish and maintain positive working relationship	2.1	Establish and maintain productive working relationships with relevant people	Working Relationships: Understand who else is involved and their roles. Understand how your role impacts on others.
	2.2	Identify the behavioural requirements of the organisation	Behaviour: Review lines of communication and authority, be clear on the organisation's chain of command/hierarchy
	2.3	Respond appropriately to requests for help of information which fall within own job	Procedures: Take time to understand reporting procedures i.e. written forms requiring completion.
	2.4	Identify the appropriate person to speak to when requests for assistance fall outside own area of responsibility	Responsibility: Awareness of job description and reporting procedures. Roles: What is your role and who do you report to.
	2.5	Contribute to effective team working	Team working: When opportunities arise to communicate always contribute. Objectives: Understand team objectives and how you fit into these.
	2.6	Identify potential issues which may cause problems to productivity	Tools: Correct tools, equipment and materials to hand. Work area: Clear, free from obstructions.
3. Be able to understand relevant organisational procedures for communication and behaviour	3.1	Follow organisational standards for appearance and behaviour	Appearance and Behaviour: Organisational policy, Guidance notes. Maintain organisational standards at all times.

	3.2	Communicate in accordance with organisational procedures	Procedures: Follow organisational procedures i.e. grievance procedures, understanding pitfalls of not following procedures.
4. Be able to provide relevant functional and technical information to the relevant person	4.1	Respond effectively to requests for job information from the relevant person(s)	Job Information: Recording job progress i.e. marked up drawings, job lists etc.
	4.2	Identify the relevant person(s) that need to be supplied with technical and functional information	Identify: Be clear on all parties within the team and their roles.
	4.3	Obtain current and relevant information required for the work	Information: Know where to obtain relevant information i.e. verbal written work instructions.
	4.4	Identify any unusual features of the condition of the system, equipment or component	Plan and inspect before carrying out task.
5. Understand how to communicate effectively	5.1	Explain why it is important to communicate effectively and give an example	Communication: Essential for the entire team to enable to carry out tasks and achieve objectives. Issues: Failure to raise an issue about an unusual feature might lead to a bigger problem further down the line.
	5.2	Identify the importance of considering others' opinions	Decisions: Having all the information including other opinions and thoughts will allow a better decision making process and hopefully a better outcome.
6. Know about establishing positive working relationships	6.1	State the principles of good working relationships and why such relationships may break down	Relationship Building: Respect other people's thoughts, views, and principles even when they differ from your own. Breakdowns occur when there is a disregard for the other person or team's views etc. Manner: Assertive, non-aggressive, respectful.
	6.2	State the importance of establishing positive working relationships	Positive working relationships: Maximises the chances of a successful outcome.
	6.3	Give an example of how to deal with issues that could have an adverse effect on working relationships.	Working relationships: Having the confidence to speak up when there is an issue whilst respecting other opinions/points of view. If that doesn't work raise/escalate the issue to a line manager.
7. Know about relevant organisational procedures for communication and behaviour	7.1	Identify organisational procedures for communicating with customers	Organisational procedures: Read and be aware of the company objectives, strategies and mission statement. Staff Induction: Company induction should illustrate the corporate strategy on customers.

	7.2	State own organisation's standards for appearance and behaviour	Organisational standards: Appearance, behaviour both should be in line with Employer's written standards.
	7.3	Identify how to find organisational targets relevant to own job and state own role in meeting them	Targets: Read and be aware of the company objectives, strategies and mission statement.
	7.4	Identify the consequences of not meeting targets	Consequences of not meeting targets: Understand that there could be wide ranging consequences of not meeting targets.
	7.5	Describe the organisational policy in relation to the handover and demonstration of a product or equipment	Handover: Review all method statements for the task being undertaken
8. Know how to provide relevant functional and technical information to the relevant person(s)	8.1	Identify the types of job information that may be required by others in the workplace, including where relevant, the need to keep colleagues informed about own work activities	Job Information: Programme and progress, Health and Safety including Risk Assessment. Non-compliant materials, equipment and plant.
	8.2	Identify technical and functional information sources which may be considered	Information Sources: Standards, guidance notes, site literature, site specific reports
	8.3	Identify the technical and functional information that they are providing	Technical and functional information: References to various management system literature will identify what information should be provided.
	8.4	Give an example of the safety implications and functional consequences of supplying inaccurate or incomplete information.	Safety Issues: Improper COSHH assessments can lead to health issues. Non-compliance to H&S protocols i.e. wearing PPE has clear consequences.

Unit 3: Manage own resources – T/507/3224

Learning Outcome - The learner will:	Assessment Criteria - The learner can:		Indicative Contents:
1. Understand how to manage own resources	1.1	Explain the importance of managing own resources	Effective outcomes are conditional on using your resources correctly (particularly knowledge, understanding, skills and time). Invest your own time in developing the knowledge and understanding. Assists in skill development and execution.
	1.2	Explain how to identify the requirements of a work role	Job Description: Review job descriptions Method Statements: Review and digest method statements for activity. Risk Assessment: Review and digest risk assessments for activity.
	1.3	Explain how to set SMART work objectives	SMART: (Specific, Measurable, Achievable, Realistic and Time-bound) Clear vision of overall objective, break down into manageable chunks. Writing down objectives and strategies crystallises thought.
	1.4	Explain how to measure progress against work objectives	Work Objectives: If objectives are SMART then measuring progress should be straight forward i.e. if a date is set to complete a task that is specific and measurable.
	1.5	Identify how to record the use of time and identify possible improvements	Time Management: Break down your day into hours and minutes and allocate time to specific tasks.
	1.6	State how to identify gaps in current knowledge, understanding and skills	Identify skills gaps: What do you find difficult within your role? Are there elements of work that take longer than they should?
2. Understand how to create and use personal development plans	2.1	Explain how to identify development needs	How to identify development needs: to address gaps between the requirements of a work role and current knowledge, understanding and skills Skills Gaps: Organisational personal development processes. (CPD etc.)

			Objectives: Understand the organisation's objectives and how you contribute to the achievement of these objectives. Identify and discuss when and what skills are required for further personal development.
	2.2	Identify the components of a development plan	Details of training courses: attended, CPD, key competencies required.
	2.3	List types of activities which address development needs	Personal Development: Training courses provided by 3rd party training providers, in house training, reading materials and literature.
	2.4	Explain how to obtain and use performance feedback	Performance feedback: should be provided through regular performance appraisals. Implement: changes or new skills quickly
	2.5	Identify how and when to update work objectives and development plans	Appraisals: Engage in regular appraisals. Take notice of the corporate objectives as they may change from time to time. Update work objectives and development plans in the light of: a) performance feedback received b) development activities undertaken c) wider organisational or work changes
3 Manage own resources	3.1	State the reporting lines in own organisation	Organisational Structure: Review the organisations reporting structures.
	3.2	Identify and agree the requirements of own work role	Requirements of own work role: Review of job description and function. Expectations: Understand what others expect of you and where improvements can be generated.
	3.3	Ensure own performance consistently meets or goes beyond agreed requirements	Performance: Training, learning, maintain consistency, strive to excel within own role. Behaviour and Performance: Positive, 'can do' attitude, strive to excel within own role.
	3.4	Identify possible sources of feedback in own organisation	Feedback: Line Manager, Supervisor, MD, HR, H&S Manager, work colleagues.
	3.5	Obtain regular and constructive feedback on own performance	Constructive Feedback: Don't be afraid to ask for assessments. Challenge yourself to achieve.

	3.6	Identify how own time at work is used and identify areas for improvement	Time Management: Break down your day into hours and minutes and allocate time to specific tasks. Review: If tasks take longer, review what went wrong and implement a strategy of improvement.
4. Create and use a personal development plan	4.1	Identify own organisation's policy and procedures for the development and maintenance of knowledge, understanding and skills	Organisation: Review the organisation's training and skills policy. Policy and Procedures: Development policies should be available during initial inductions and explanations given about opportunities
	4.2	List the available development opportunities and resources in own organisation	Opportunities: Understand and get to know the career prospects in your organisation including career pathways.
	4.3	Agree work objectives and how progress will be measured	Personal Objectives: PPR, identify skills/knowledge gaps, agree action
	4.4	Identify gaps between the requirements of own work role and current knowledge, understanding and skills	Identify skills/knowledge gaps, feel comfortable to express the need for additional training and/or support.
	4.5	Agree a development plan to address identified gaps in current knowledge, understanding and skills	Development Plan: Attend regular appraisals and be confident about your discussion relating to skills development.
	4.6	Undertake the activities identified in development plan	Activities: 3rd party training, reading materials/literature. Work towards personal objectives agreed within development plan,
	4.7	Identify contribution of development activities to own performance	Personal Performance: Keep your personal development plan up to date and regularly review. Assess the impact of any skills learnt and it has made your role easier; identify whether/how development activities have contributed to own performance Discussion: Discuss with Line Manager how this has contributed towards own performance.
	4.8	Agree updates to personal work objectives and development plan	Engage: in regular appraisals, take notice of the corporate objectives as they may change from time to time; changes to personal work objectives and development plan in the light of: a) performance b) feedback received c) development activities undertaken

Unit 4: Health and Safety in the Workplace A/505/1483

Learning Outcome - The learner will:	Assessment Criteria - The learner can:		Indicative Contents:
1. Understand roles and responsibilities for health, safety and welfare in the workplace.	1.1	Outline employers' and employees' duties in relation to health, safety and welfare at work.	Duties relating to health, safety and welfare at work: Employers: Provision of personal protective equipment, organising training sessions, having reporting procedures in place, conducting regular inspections, safeguarding etc. Employees: Responsible behaviour, personal awareness, attending training sessions, engaging in continuous professional development, informing employer of concerns etc. Legislation: Management of Health and Safety at Work Regulations (1999), the Health and Safety at Work Act (1974), the Control of Substances Hazardous to Health Regulations (2002), the Reporting of Injuries, Diseases and Dangerous Occurrences Regulations (1995) etc. and advice as offered by the Health and Safety Executive (HSE).
	1.2	Outline the consequences of non-compliance with health and safety legislation.	Consequences for non-compliance with health and safety legislation: Injuries, loss of life, complaints by staff, public etc. to HSE, visits by a complaint officer, shut-down of sites/ places of work, prosecution, imprisonment, fines (in event of accident or pre-emptively) etc.
	1.3	Outline the requirements for training and competence in the workplace.	Requirements for training/ competence in the workplace: Includinglegal requirements, recruitment of new staff, changes in existing work roles/responsibilities, to operate new equipment and to deal with changing demands placed on the organisation; covering: record maintenance, continuous professional development, training courses, gaining qualifications etc.
	1.4	Outline the ways in which health and safety information can be communicated.	Ways in which health and safety information can be communicated: Including: safety signs, notice boards, manufacturer's instructions/ operating manuals, email, regular/ as required meetings, workshops, training session etc.
2. Understand how risk assessments contribute to health and safety.	2.1	Outline the process for carrying out a risk assessment.	Process for carrying out a risk assessment: As stated by the HSE covering: identifying the hazards, deciding who might be harmed/ how, evaluating the risks, deciding on precautions, recording/ implementing findings, reviewing assessments and updating as required.

	2.2	Explain how risk assessment can be used to reduce accidents and ill health at work.	How risk assessment can be used to reduce accidents/ ill health at work: By identifying hazards/ risks, ensuring all staff/ visitors are aware of them, taking precautionary actions to limit them and thereby reducing the possibility of accidents/ ill health.
3. Understand how to identify and control the risks from common workplace hazards.	3.1	Describe common hazards in the workplace.	Hazards that may be found in a range of workplaces: Including: slips, trips and falls, hazardous substances (e.g. asbestos), machinery/ equipment (e.g. moving parts, faults, electric shocks), activities (e.g. manual handling, working in confined spaces, repetitive strain injuries), sensory hazards (e.g. high noise levels, prolonged use of display screen equipment), gas leaks, fires, flooding, fumes etc.
	3.2	Explain how hazards can cause harm or damage to people, work processes, the workplace and the environment.	How hazards can cause harm/ damage to people, work processes, the workplace and environment: Covering: loss of life, injuries, diseases/ illnesses, air pollution, water contamination, equipment malfunction/ breakdown, costs incurred through repairs/ inspections, reduced productivity, damage to reputation of organisation, fines/ prosecutions, loss of business, closure of sites etc.
	3.3	Describe different approaches to minimise or eliminate workplace hazards.	Different approaches to minimise or eliminate workplace hazards: covering: elimination (redesigning tasks/ materials/ equipment used to remove the hazard), substitution (replacing the tasks/ materials/ equipment with others to minimise exposure to the hazard), engineering controls (keeping to the task as envisaged, but applying the use of equipment to reduce the likelihood of the hazard causing harm e.g. safety harnesses, local exhaust ventilation etc.; these should focus on collective rather than individual safety), administrative controls (identifying/ implementing procedures to work more safely), personal protective equipment (when all previous methods are deemed ineffective at minimising exposure to the hazard, e.g. helmets, goggles, masks, gloves, ear defenders, respirators, chemical suits etc.; these focus on personal safety).
4. Know the procedures for responding to accidents and incidents in the workplace.	4.1	Identify the actions that might need to be taken following an accident or incident in the workplace.	Actions that might need to be taken following an incident in the workplace: In accordance with the Reporting of Injuries, Diseases and Dangerous Occurrences Regulations (1995) (RIDDOR); including: removing all persons from further danger, administering first aid, contacting the emergency services, preventing further damage to equipment/ facilities, informing the HSE, logging the incident and conducting an investigation.
	4.2	Outline the arrangements that should be in place in a workplace for emergencies and first aid.	Arrangements in the workplace for emergencies/ first aid: Including: clear policies and procedures, fire detection/ alarm systems, emergency exits, assembly points, firefighting equipment, first aid facilities, appropriately trained staff (fire marshals, first aiders), log books etc.
	4.3	Explain why it is important to record all incidents, accidents and ill health.	Importance of recording all incidents, accidents and ill health: Legal requirement under RIDDOR; to avoid reoccurrence of accidents/ near misses; up-dating training effectively; ensuring accident books are completed correctly etc.

Unit 5: Awareness of Regulations in the Fire Sprinkler Industry - A/507/3225

Learning Outcome - The learner will:	Assessment Criteria - The learner can:		Indicative Contents:
1. Understand legislation and standards in the Fire Sprinkler Industry	1.1	Identify UK Fire Safety legislation and Building Regulations in relation to the Fire Sprinkler Industry	Statutory controls applied to buildings pre-construction such as: Part B of the Building Regulations (England & Wales); The Building (Scotland) Act, Building Regulations (Northern Ireland), The Domestic Fire Safety (Wales) Measure 2011. In addition the supporting guidance (Regarding Fire Safety): • Approved Document B: Fire Safety Volume 1 Dwelling houses, • Approved Document B: Fire Safety Volume 2 Building other than dwelling houses, • Welsh editions of the above • The Scottish 'Technical Handbooks; and • Technical Handbook E (Northern Ireland) For buildings post-construction and occupation, fire safety legislation applicable in each country within the UK such as: • The Regulatory Reform (Fire Safety) Order 2005 and associated guidance documents. • Building Bulleting BB100 Design for fire safety in Schools which includes extensive guidance on the use of sprinklers and their importance as a weapon against arson. (The Department for Children, Schools and Families have also produced a Standard specifications, layout and dimensions for sprinklers in schools. • British standards BS 9999 and BS9991
	1.2	Explain how the different statutory bodies and legislation interact	The Holroyd Report 1970, roles of Building Control and Fire Authorities. Local Fire and Rescue services have policies to promote the use of sprinklers, in education, commercial, residential and domestic premises or as part of an engineered solution.
	1.3	Give an overview of the standards for Fire Sprinkler systems	There are a number of different nationally recognised standards used throughout the EU countries e.g. EN 12845, Factory Mutual (FM) and NFPA. All have slightly different design criteria which at this level it is only appropriate to have an appreciation of.

	1.4	Explain how the identified standards affect own role	There are currently two British standards: for the design and installation of automatic sprinkler systems installed in the United Kingdom although other standards. e.g. FM/NFPA can be used:- LPC Rules for Automatic Sprinkler Installations: Incorporating BS EN 12845: 2009 (primarily addressing property protection of commercial and industrial premises): This standard specifies requirements and gives recommendations for the design, installation and maintenance of fixed fire sprinkler systems in buildings and industrial plant, and particular requirements for sprinkler systems, which are integral to measures for the protection of life. This standard covers only the types of sprinkler specified in EN 12259-1. The requirements and recommendations of this standard are also applicable to any addition, extension, repair or other modification to a sprinkler system. They are not applicable to water spray or deluge systems. It covers the classification of hazards, provision of water supplies, components to be used, installation and testing of the system, maintenance, and the extension of existing systems, and identifies construction details of buildings which are the minimum necessary for satisfactory performance of sprinkler systems complying with this standard. This standard does not cover water supplies to systems other than sprinklers. Its requirements can be used as guidance for other fixed firefighting extinguishing systems, however, provided that any specific requirements for other firefighting extinguishing supplies are taken into account. The requirements are not valid for automatic sprinkler systems on ships, in aircraft, on vehicles and mobile fire appliances or for below ground systems in the mining industry. Sprinkler system design deviations may be allowed when such deviations have been shown to provide a level of protection at least equivalent to this European Standard, for example by means of full scale fire testing where appropriate, and where the design criteria have been fully documented. Automatic sprinkler system: Designed to detect a fire and extinguish it with water in its early stages or hold the fire in check so that extinguishment can be completed by other means. A sprinkler system: Consists of a water supply (or supplies) and one or more sprinkler installations; each installation consists of a set of installation main control valves and a pipe array fitted with sprinkler heads. The sprinkler heads are fitted at specified locations at the roof or ceiling, and where necessary between racks, below shelves, and in ovens or stoves. BS9251: 2014 (specific to domestic and residential occupancies): This British Standard gives recommendations for the design, installation, components, water supplies and backflow protection, commissioning, maintenance and testing of fire sprinkler systems in domestic and residential occupancies. These systems are primarily intended for the protection of life in case of fire and have additional benefits for property protection, environmental protection, sustainability of buildings and continuity of use, and firefighter safety.

			The recommendations of this British Standard are also applicable to any addition, extension, repair or other modification to a residential sprinkler system. Both sprinkler system design standards, strongly recommend the use of third party "listed" or "approved" contractors for the design and installation of sprinkler systems. The third party certification schemes should be accredited by The United Kingdom Accreditation Service (UKAS).
	1.5	Explain awareness of fundamental differences between standards	BS EN 12845: Covers the installation of fixed firefighting systems automatic sprinkler systems sets out how sprinklers should be designed and installed for the protection of commercial and industrial premises. BS EN 12845 also forms part of the LPC Rules for Automatic Sprinkler Installations. The latter, known widely as the LPC Rules, are now extensively used in the UK and elsewhere and tend to be imposed for all sprinkler installations which are either mandated by an insurer or where a property owner wishes to avoid higher insurance premiums if a sprinkler system is not provided. These LPC rules include additional Technical Bulletins where they are mandated as noted above. BS 9251: Provides recommendations for the design, installation, components, water supplies, commissioning and maintenance of fire sprinkler systems for use specifically in residential and domestic occupancies. Both Standards work on the same principles but differ in the requirements i.e. the water supply, the area of operations, Pump capacities.
2. Be able to apply organisational compliance, policies and procedures with the Fire Sprinkler Industry	2.1	Act in an ethical manner in the Fire Sprinkler Industry	Quality Management System: Companies working in the sprinkler industry should work to a quality to a QMS ISO9001, this will involve following set procedures on how to carry out operations of work. Every employee should ensure that they follow these procedures and that the design, installation and maintenance is carried out to the required specification, standard and requirements. Discrepancies: These should be reported to the appropriate authority and action taken to ensure the system will operate as intended. The correct guidance should be given to Clients and end users on the systems being installed.
	2.2	Contribute to organisational compliance in the Fire Sprinkler Industry through own actions	Company policy: By not following the company's policies and procedures can lead to the company losing its accreditations and reputation with Clients and potential Clients. Standards: Systems not installed to the correct standards can endanger life and property, the main purpose of correct sprinkler installation is to prevent danger to life and property. Disadvantages: Having to return to a site to modify, alter or extend a system can lead to additional cost which cannot be recouped. Therefore it is important that actions follow the required procedures.
	2.3	Apply organisational policies and procedures within the Fire Sprinkler Industry	Policies/Procedures: By not installing the system as required - drawings, specification and standards, this can lead to the system being non-compliant and not operational in the event of a fire. Company policies and procedures should advise how to carry out methods of design, installation and

			maintenance. These tend to be in the form of flowcharts so you can follow through and tick off when an action has been carried out so the next one will follow or see the consequences of an action not being done correctly.
	2.4	Explain how organisational policies and procedures remain effective and sustainable	Policies and Procedures: To ensure these remain effective and sustainable the company carries out internal audits on projects to ensure the correct actions have been taken and any documentation is completed. Audits: Carried out by external bodies on a regular basis to ensure the standard of workmanship remains. There are also regular project reviews undertaken by the Contracts manager with the project managers to assess any enormities in the scheme at an early stage and rectify them.
3. Understand organisational procedures for dealing with non-compliance within the Fire Sprinkler Industry	3.1	Explain the organisational procedures for reporting non-compliance in the Fire Sprinkler Industry	Non compliances: Should be provided at the preliminary or estimating stage of the contract to the client and if possible removed or assurance obtained that they are acceptable to all parties. Certificate of Conformity: Any non-compliances should be recorded on a certificate of conformity or completion certificate issued. Materials: That are not compliant should not be used in the works and action taken to find the source of the problem and carry out corrective action to eliminate any reoccurrence.
	3.2	Explain the organisational procedures for dealing with individuals who contribute to non-compliance	Non-Compliance: If organisational procedures are not followed and individuals are found not to comply with requirements or contribute to non-compliances appropriate action will be taken. Action: Retraining, suspension or dismissal depending on the nature of the action.
	3.3	Explain how individuals may not comply with organisational requirements	Individuals may not comply with organisational requirements by taking it upon themselves to adjust systems to make an operation easier for themselves. i.e. moving the location of heads within a ceiling, but by doing so putting the head spacing out of rule and not allow the system to operate as intended. This could also include: Health and Safety breaches such as using inappropriate means to gain access to carry out the work or endangering others.
	3.4	Explain how to carry out a risk assessment on non-compliance in the Fire Sprinkler Industry	Risk Assessment: You need to understand what might cause harm to people and decide whether you are doing enough to prevent that harm. Once you have decided that, you need to identify and prioritise putting in place, appropriate and sensible control measures. Start by: Identifying what can harm people in your workplace, identifying who might be harmed and how, evaluating the risks and deciding on the appropriate controls, taking into account the controls you already have in place, recording the risk assessment, reviewing and updating the assessment. The risk assessment should include consideration of what in your business might cause harm and how and, the people who might be affected. It should take into account any controls which are already in place and identify what, if any, further controls are required.

			Assessment Checks: A proper check was made, all people who might be affected were considered, all significant risks have been assessed, the precautions are reasonable, the remaining risk is low. Insignificant risks need not be included and risks from everyday life unless work activities increase the risk. The risk assessment: should cover all groups of people who might be harmed by your actions: Including members of the public, employees on the site outside of your organisation. 'Reasonably Practicable': Means balancing the level of risk against the measures needed to control the real risk in terms of money, time or trouble. However, action need not be taken if it would be grossly disproportionate to the level of risk. Risks should be reduced to the lowest reasonably practicable level by taking preventative measures, in order of priority. This is what is meant by a hierarchy of control. The list below sets out the order to follow when planning to reduce risks you have identified in your workplace. Consider the headings in the order shown, do not simply jump to the easiest control measure to implement: 1) Elimination - Redesign the job or substitute a substance so that the hazard is removed or eliminated. 2) Substitution - Replace the material or process with a less hazardous one. 3) Engineering controls - for example use work equipment or other measures to prevent falls where you cannot avoid working at height, install or use additional machinery to control risks from dust or fume or separate the hazard from operators by methods such as enclosing or guarding dangerous items of machinery/equipment. Give priority to measures which protect collectively over individual measures. 4) Administrative Controls - These are all about identifying and implementing the procedures you need to work safely. For example: reducing the time workers are exposed to hazards (e.g. by job rotation); prohibiting use of mobile phones in hazardous areas; increasing safety signage, and performing risk assessments. 5) Personal protective clothes and equipment - Only after all the previous measures have been tried and found ineffective in controlling risks to a reasonably practicable level, must personal protective equipment (PPE) be used. E.g., where you cannot eliminate the risk of a fall, use work equipment or other measures to minimise the distance and consequences of a fall (should one occur). If chosen, PPE should be selected and fitted by the person who uses it. Workers must be trained in the function and limitation of each item of PPE. It is a legal requirement for every employer and self-employed person to make an assessment of the health and safety risks arising out of their work. The purpose of the assessment is to identify what needs to be done to control health and safety risks. You do not necessarily need specific training or qualifications to carry out a risk assessment,

			However someone competent should be employed to help with health and safety duties and be available to consult. A competent person is someone with the necessary skills, knowledge and experience to manage health and safety.

Unit 6: Fire sprinkler installation and handover - F/507/3226

Learning Outcome - The learner will:	Assessment Criteria - The learner can:		Indicative Contents:
1. Be able to conduct pre installation checks	1.1	Identify checks required to ensure sprinkler system can be installed	Environment: Check the environment is safe to work in. Work space, Safe work zone Risk: Potential dangers i.e. Holes in the floor, People working at heights etc. Review of RAM's (Risk Assessment Method statement) Communication: Be aware who else is on site and who to report, coordination clashes etc. Awareness of site: Familiarise yourself with the site, code of conduct Drawing: The Building should reflect the drawing Building location: Ensuring the address details are correct Tools: Tools should be fit for purpose PPE: PPE should be suitable for the job, Appropriate PPE for material, i.e. Plastic, Steel etc.
	1.2	Comply with health and safety requirements, relevant statutory regulations and industry standards/codes of practice at all times	Health and Safety: CSCS Scheme (skill card) A CSCS skill card is required to enable access to the site Site procedure: Registering on and off site Fit for duty: In good health to be able to work on site
	1.3	Carry out checks to ensure the sprinkler system can be installed	Visual Inspection: A visual inspection of the site/work area should always be carried out before installation
2. Be able to prepare work environment for installation of sprinkler system	2.1	Identify Personal Protective equipment	PPE: Fit for purpose, Appropriate PPE for environment RAMS (Risk Assessment Method statement): PPE should be listed, PPE awareness, hard hat, steel toe cap boots etc.
	2.2	Explain how to prepare work environment in preparation for installation of sprinkler system	Work area: Use suitable cover to protect any surfaces from potential damage Materials: Storing materials, Suitable space to do so Access platforms: If required Good housekeeping: Where possible disposing of rubbish in an environmentally friendly manner as instructed

			Emergency Exit: Familiarise the emergency exit procedure in the event of an emergency.
	2.3	Prepare work environment ready for installation of sprinkler system	Visual Inspection: A visual inspection of the site/work area should always be carried out before installation
3. Be able to install pipework and associated components	3.1	Select equipment for the task	Tools: Dependant on material, plastic/steel, copper, hand tools Access: Lifts, steps (MEWPS) Mobile elevated working platforms. Etc.
	3.2	Carry out checks on installation materials	Materials: Materials must comply with the drawing and work instructions Types of sprinkler heads: Conventional, Upright, Pendant, Side wall, Concealed etc. Temperature ratings
	3.3	Use equipment in line with manufacturer's or organisational instructions	Tools: Cutter, Reemer, Measuring equipment – predominantly for plastic(dependant on task and material), Spirit level Threading machine: for steel Roll grooving machine: for steel Drills and fixing devices: All materials Hand tools (e.g. sprinkler spanner): Steel/Plastic Integrity of tools: Should be fit for purpose
	3.4	Carry out installation under supervision	Drawing: Reading the drawing, Understanding the symbols Setting out: Measuring and setting out of the pipework/brackets Brackets: Selecting correct brackets for the site Bench work: Self-assembly, Fabrication Fixing pipework Jointing process and techniques: Including ongoing inspections Sprinkler head installation: Different types of sprinkler heads, e.g. conventional, upright, pendant, side wall, concealed etc.
	3.5	Describe problems that can occur during installation	Materials: Plastic - Dry joint, Expansion and contraction issues, Over tightening of hangers, Curing times, Chemical compatibility Steel: Trapped gaskets, Poor/cross threads
4. Be able to identify faults after installation	4.1	Describe how to identify faults after installation	How to identify faults after installation :Visual inspection of sprinkler heads/joints; Comply with Manufacturer's instructions; Codes of Practice; Drawing: Installation as per the drawing
	4.2	Rectify identified faults	Faults: Take steps to alert supervisor, Establish cause of the fault, Undertake rectification of faults under supervision as appropriate

	4.3	Explain the importance of conducting a system integrity test	System integrity test procedure: Codes of practice, Quality Management Benefits of carrying out test by codes of practice: Financial impact, Cost effective, Reputation
5. Be able to understand limits of responsibility and authority to deal with problems within own role	5.1	Explain limits of responsibility within own role	Job description/Course Details: Contains details of own responsibility
	5.2	Explain limits of authority within own role when dealing with problems	Job description/Course Details: Contains details of own responsibility
	5.3	Explain who to report to when problems are beyond limits of own authority	Job description/Course Details: Contains details of own responsibility
6. Be able to complete handover procedure for completion of work	6.1	Identify handover procedure for completion of work	Site procedures: Work instructions, Company protocol Verbal communication: Accountability Review of work done: Reflection on what has been achieved
	6.2	Complete handover procedure to confirm completion of work	Site procedures: Work instructions, Company protocol Verbal communication: Accountability Review of work done: Reflection on what has been achieved Handover: Carry out handover to responsible supervisor/person

Unit 7: Understanding the Fire Sprinkler Industry - J/507/3227

Learning Outcome - The learner will:	Assessment Criteria - The learner can:		Indicative Contents:
1. Understand the aims and purposes of the Fire Sprinkler Industry	1.1	State the key purposes of the Fire Sprinkler Industry	Promote fire safety in the build environment, protection of life and property, control fire size, prevent spread of fire, part of a fire engineered solution. Design, install, commission and maintain systems to approved standards.
	1.2	State the purpose of organisations in the Fire Sprinkler Industry	BAFSA: British Automatic Fire Sprinkler Association, trade association for sprinkler industry. Members include: designers, installers, component suppliers, fire services, local authorities, insurance companies, consultants. Promotes use of sprinkler systems in UK. Promotes improvements to legislation, technical standards, codes of practice and best practice. RSA: Residential Sprinkler Association, trade association for residential and domestic sprinkler system installers and designers. Promotes use of sprinklers in residential and domestic sprinkler systems in UK. Promotion of improvements to technical standards and codes of practice. LPCB: BRE third party certification scheme for design and installation of sprinkler systems. LPS1048 for BS 12845 systems, LPS 1301 for BS 9251 systems. FIRAS: Technically equivalent alternative Third party certification scheme for design and installation of BS 12845 systems and BS 9251 systems. IFCC (IFC Certification) Technically equivalent alternativeThird party certification scheme for design and installation of BS 12845 systems and BS 9251 systems. LPCB Red Book on line: Third party approved list of approved products and services for use in sprinkler systems, tested by BRE (Building Research Establishment). FM Global (Factory Mutual): Insurance company, reduce property loss by prevention, standards and codes of practices, third party fire testing of sprinkler systems. Approval Standards: Approval Standards, third approval for sprinkler system components. UL (Underwriters Laboratories): Third party testing for sprinkler system components. FPA (The Fire Protection Association): Publishing body for LPC Sprinkler Rules and Technical Bulletins.

	1.3	Give an overview of other building services within the Fire Sprinkler Industry	Building Services: HVAC, lighting and racking installers, building construction operations, gas and water providers etc.
2. Understand the importance of development in Fire Sprinkler Industry	2.1	Give an overview of the history of the Fire Sprinkler Industry	Fire was a serious risk in man-made buildings in the early 1800s. Risk factors included: Candles and fireplaces as the main sources of light and heat; flammable materials and lack of education about on fire safety issues. Theatres among other public buildings, presented huge fire risks and the first fire sprinkler system was at Theatre Royal, Drury Lane in London in 1812. The manually activated system featured an airtight reservoir of 95,000 litres of water with connection to a 10-inch water pipe joined to a series of smaller pipes with half inch wide holes to release water in the case of fire. Similar systems were commonly used up to 1885 in textile mills throughout New England, North America. Experiments had started into automatic fire sprinkler systems by 1860 with the first official patent given in 1872. Henry S. Parmelee, of New Haven, Connecticut, developed the existing patent at his piano factory designing a fully automatic fire sprinkler system patented in 1881. The automatic sprinkler system, he invented a year earlier, was activated by a glass bulb containing heat-sensitive substances that expanded and shattered the glass in the presence of fire. It was the fore-runner of many systems in use today. Fire sprinkler systems were in wide use in commercial buildings by the 1940s. Insurance companies encouraged manufacturers, retail establishments and other businesses to install them with discounts in premiums. They spread to hospitals, schools and other public buildings in the US but it was rare to find statutes requiring their installation in other countries then.
	2.2	Explain misconceptions about fire sprinklers	Only heads in immediate vicinity of fire operate, not entire system as depicted in media. Water supply for systems tanks and pumps not required if mains supply provides adequate flow and pressure Modern systems can provide specialized solutions for specific risks, unobtrusive designs, concealed options. Heads not actuated by smoke, dust, fumes, aerosol spray e.g. burnt toast, smoking. Legionella Pestis: Research, No realistic chance of contracting from a sprinkler system operation.
	2.3	Explain the importance of fire sprinklers in saving life and property from fire	Statistics (2014): 99% of fires controlled by sprinklers alone. Death rate (2014): No UK fire deaths as a result of a fire in a building with a fully functioning sprinkler system. Proactive: Automatically operate, no human intervention required. Automatic actuates alarm/fire alarm, notify fire service. Benefits: Reduced spread of fire and damage due to smoke and heat. Less environmental impact. Reduction in insurance premiums.

			Reduction in fire development and size, extended travel time to evacuate building, improved safety for occupants. Used to compensate for reduced fire safety measures e.g. poor compartmentation, extended travel distance, poor water supplies. Reliable: Accidental operation of system extremely unlikely. Products produced to high standards with safety margins.
	2.4	Explain the implications of British standards and other standards	BSi (British Standards Institution): Provide a range of codes of practice for design and installation of sprinkler systems and related components, standards drawn up by industry stakeholders. Systems would normally comply with these standards. American NFPA (National Fire Protection Association), standards are similar to BS, also used in UK. Sprinkler standards and codes of practice: Specify system design, performance criteria, installation requirements, workmanship, specify system component standards, commissioning and maintenance requirements. Fire safety standards and codes of practice: Identify when sprinkler systems are required and to what standard. Can be used as compensatory feature.
3. Understand the elements of the Fire Sprinkler Industry	3.1	Explain the differences between the Commercial Fire Sprinkler Industry and the Domestic Fire Sprinkler Industry	Design and installation: Commercial systems designed and installed to BS 12845, Residential systems designed and installed to BS 9251. Commercial systems: Primarily for property protection, uses large quantities of water with larger pipework often in steel with mechanical joints. May be installed for insurance requirements. Life safety systems e.g. shopping malls have additional features e.g. zoned areas of operation, dual water supplies. Commercial system tanks and pumps are larger than residential systems. Pumps may be diesel powered with large steel tanks. Residential systems: For protection of life. Often installed in smaller CPVC pipe with glued joints.
	3.2	Identify key stakeholders in the Fire Sprinkler Industry	Key stakeholders: DCLG (*Department for Communities and Local Government),* Fire and Rescue Services, Building Control, British Standard Institution, Insurance Companies, Certification Bodies.
	3.3	Describe the roles of key stakeholders within the Fire Sprinkler Industry	DCLG: Secretary of State responsible for strategic direction of the Department for Communities and Local Government (DCLG). Standards for planning permission and building regulation approval e.g. Approved Document B in the construction of new and alterations to existing buildings. Fire and Rescue Services: Promote and regulate fire safety in the area it operates, Regulatory Reform (Fire Safety) Order 2005, Fire and Rescue Services Act 2004.

			Provide information and encourage improvement in prevention of fires and reduction of death or injury by fire. Give advice on reducing fire spread, improving means of escape. Extinguish fires and protect life and property. Regulate standards of fire safety in buildings. Provide guidance to building control. Building Control: Local authority building control and approved inspectors regulate the standard of construction in new and alterations to existing buildings. British Standard Institution: Provide a range of codes of practice for design and installation of sprinkler systems and related components, standards drawn up by industry stakeholders. Insurance Companies: Provide requirements for sprinkler system that they provide insurance cover. Certification Bodies: Third party approval for system components, fire testing of systems, system design and installation, check conformity to a standard or code of practice.