

# **Health and Science: Healthcare Science**

**T Level outline content: Final version for  
inclusion in ITT**

**March 2019**

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## Introduction

T Levels are new, two-year, technical study programmes, designed with employers to give young people the skills that industry needs. T Levels will provide a mixture of:

- technical knowledge and skills specific to their chosen industry or occupation
- an industry placement of at least 45 days in their chosen industry or occupation
- relevant maths, English and digital skills
- common workplace skills.

T Levels will become one of three major options for students to study level 3, alongside apprenticeships for those who wish to study and train for a specific occupation 'on the job', and A levels for students who wish to continue academic education.

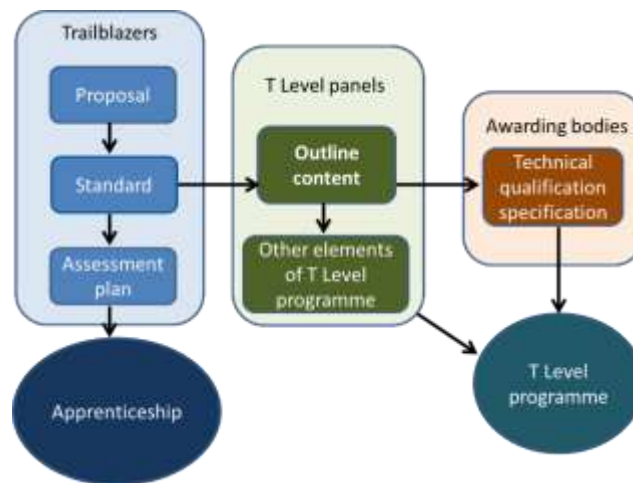
When they complete a T Level study programme, students will be able to choose between moving into a skilled occupation or further study, for example, a higher or degree level apprenticeship, or higher level technical study, including higher education.

Technical education has been categorised into fifteen different technical routes, according to occupational specialism. T Levels will be available across eleven of those routes, with occupations in the remaining four routes accessible through an apprenticeship only. Most routes have been split into a number of pathways; the T Level will broadly sit at pathway level. The occupations within scope for each T Level are set out in the Institute for Apprenticeships and Technical Education's occupational maps.

### Outline content

This outline content has been produced by [T Level panels](#) of employers, professional bodies and providers, and is based on the same standards as those used for apprenticeships. The outline content will form the basis of the specifications for T Level Technical Qualifications, which will be developed by awarding organisations for approval by the Institute for Apprenticeships and Technical Education. One awarding organisation will be appointed to develop and deliver each Technical Qualification following a procurement process.

The diagram below demonstrates how the same standard created by employer-led Trailblazer groups is used for both Apprenticeships, and as the basis for this outline content. It also shows that this outline content will be used by awarding organisations to develop the full Technical Qualification (TQ) specification.



Colleges and other education and training providers will decide how to structure the T Level courses they offer, based on the qualification specifications. This will enable them to deliver the study programme’s mandatory components in the most effective way for students.

T Level study programmes will include the following mandatory elements:

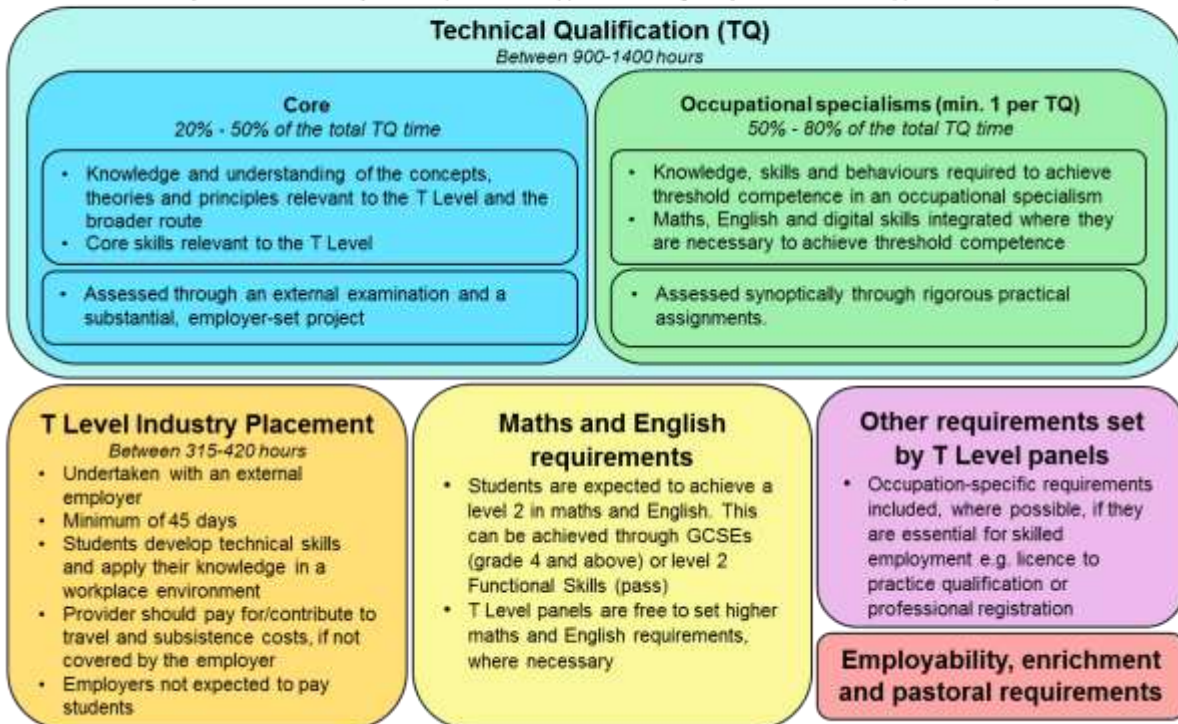
- a ‘core’ set of underpinning knowledge, concepts and skills, tailored for their chosen industry and occupation: ‘core content’
- specialist content covering occupational or industry-specific skills: ‘occupational specialist content’
- an industry placement with an employer, which will last for a minimum of 45 working days.

The diagram below demonstrates the different elements of a T Level programme. This outline content relates solely to the Technical Qualification part of a T Level programme.

# T Level programme

1800 hours over two years (with flexibility)

Subject content is set by T Level panels and approved/managed by the Institute for Apprenticeships



# Purpose Statement

## Qualification Purpose

The purpose of the level 3 Technical Qualification (TQ) is to ensure students have the knowledge and skills needed to progress into skilled employment or higher level technical training relevant to the T Level.<sup>1</sup>

To achieve this, each level 3 Technical Qualification must:

- provide reliable evidence of students' attainment in relation to:
  - the core knowledge and skills relevant to the route and occupational specialisms covered by the qualification
  - the knowledge and skills required for at least one occupational specialism relevant to the qualification.
- be up-to-date, providing the knowledge and skills needed for the occupations have continued currency among employers and others.
- ensure that maths, English and digital skills are developed and applied where they are essential to achieve occupationally relevant outcomes.
- ensure that the minimum pass grade standard for occupational specialisms attests to competence, meets employer expectations, and is as close to full occupational competence as possible.
- allow the accurate identification of students' level of attainment and the effective differentiation of their performance.
- provide a clear and coherent basis for development of suitably demanding high-quality level 3 courses, which enable students to realise their potential.
- provide students with the opportunity to manage and improve their own performance.
- support fair access to attainment for all students who take the qualification, including those with special educational needs and disabilities (SEND).

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<sup>1</sup> The Institute for Apprenticeships and Technical Education may only approve the qualification "if satisfied that by obtaining the qualification a person demonstrates that he or she has attained as many of the outcomes set out in the standards as may reasonably be expected to be attained by undertaking a course of education" (Technical and Further Education Act 2017).

## Technical Qualification Design

T Level programmes will differ in length to reflect the requirements of different occupations, but are expected to last 1800 hours over two years (on average).

To accommodate legitimate differences in content across T Levels, we propose that the total time for the Technical Qualification:

- will fall within a defined range of between 900 and 1400 hours
- is no less than 50% of the time for the T Level programme as a whole and
- is no more than 75% of the total time for the programme as a whole.

| Component   | Content  | Assessment  | Grading  | Planned Hours                                 |
|---|--|---|--|---|
| <b>Core</b><br>Students complete one component which covers all the core content  | Knowledge and understanding of contexts, concepts, theories and principles relevant to the T Level<br><br>Ability to apply core knowledge and skills, through a project, to meet employer-set requirements | Assessed through an externally set test and an employer-set project   | Six point scale plus ungraded (U)<br><br>A* – E and U                            | Between 20% and 50% of the qualification time |
| <b>Occupational specialisms</b><br>Students must complete at least one, or more depending on the minimum requirements specific to the qualification | Knowledge and skills required to achieve a level of competence needed to enter employment  | Synoptic assessment of performance outcomes, to determine whether a student meets the minimum competence requirements | Three point scale plus ungraded (U)<br><br>Distinction, Merit, Pass and Ungraded | Between 50% and 80% of qualification time     |

## Health and Science: Healthcare Science

Awarding organisations will need to ensure that students have an up-to-date knowledge of the legal and regulatory obligations relating to employment in the occupations relevant to the T Level, and understand the practical implication of these on their work.

Maths, English and digital skills are set out in the final section of this document. Awarding organisations should integrate these within the qualification so that they are applied in occupationally relevant contexts. Other core skills and behaviours important for employability are already integrated within the content and must be clearly specified in the qualification specification.

### Core content

The core content relates to the whole route, and the pathway that the Technical Qualification covers. This breadth of content will help to ensure students are able to apply their skills in a variety of contexts and for a variety of different purposes. The content will vary depending on the requirements of the route and the pathway or occupations covered by the scope of the qualification.

The core knowledge and understanding is assessed through an examination and core skills through a practical employer-set project.

The core knowledge and understanding focuses on students' knowledge and understanding of contexts, concepts, theories and principles relevant to the T Level. This could include, where appropriate, assessment of knowledge and understanding relevant to the route and the pathway.

The employer-set project provides the opportunity to develop and apply a minimum range of core skills important for employability.

Awarding organisations can integrate knowledge in the employer-set project, to contextualise core skills. The allocation of content to each type of assessment will need to be approved by the Institute for Apprenticeships and Technical Education.

### Core knowledge and understanding across Health and Science Route

| Element   | Content  |
|---|--|
| <b>Working within the Health and Science sector</b> | <ul style="list-style-type: none"><li>• Purpose and importance of adhering to organisational policies and methods of working, including policies related to employment such as equality, diversity and inclusion, employment contracts, performance reviews, disciplinary procedures and grievance procedures</li><li>• Purpose and importance of quality standards, quality management and audit processes</li><li>• Introduction to the importance of ethics and Codes of Conduct</li><li>• Awareness of employment and progression opportunities which exist within the sector, and opportunities which exist for membership and/or</li></ul> |



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|   | <p>professional registration at a later stage in an individual's career</p>   |
| <p><b>Health, Safety and Environmental regulations in the Health and Science sector</b></p> | <p>Regulations, legislation and procedures including:</p> <ul style="list-style-type: none"> <li>• Health and Safety at Work Act 1974</li> <li>• Management of Health and Safety at Work Regulations 1999 including assessing potential hazards and risks, including specific levels of risk, minimising these risks through the use of relevant risk assessment strategies. Completing risk assessment documentation</li> <li>• Control of Substances Hazardous to Health (COSHH) Regulations 1994 and subsequent amendments 2002</li> <li>• Mandatory use of appropriate Personal Protective Equipment (PPE), Personal Protective Equipment at Work Regulations 1992</li> <li>• Reporting of Injuries, Diseases and Dangerous Occurrences Regulations 2013 (RIDDOR)</li> <li>• Accident or "near miss" reporting</li> <li>• Environmental Protection Act 1990</li> <li>• Waste management and waste streams taking into consideration special waste and hazardous waste. The Special Waste Regulations 1996 &amp; The Hazardous Waste Regulations 2005 &amp; The Waste Electrical and Electronic Equipment Regulations (WEEE) 2012/19/EU</li> <li>• Fire precaution (workplace regulations) 1999 and organisational procedures for carrying out evacuations</li> <li>• Manual handling, including moving and positioning of equipment, and workplace ergonomics: Manual Handling Operations Regulations 1992</li> <li>• Workplace ergonomics including the use of display screen equipment. Health and Safety (Display Screen Equipment) Regulations 1992</li> </ul> <p>How to promote health and safety at work</p> <p>How to deal with situations that can occur in a health or science environment that could cause harm to self or others e.g. spillage of hazardous material</p> |
| <p><b>Managing information and data within the Health and Science sector</b></p>            | <p>Recording and reporting information and data</p> <ul style="list-style-type: none"> <li>• How to collect and record information and data</li> <li>• Importance of accuracy, attention to detail and legibility of any written information or data</li> <li>• Sources of information and data: how to apply relevant data and information in a range of health and science working environments</li> <li>• Application of new technology in the recording and reporting of information and data</li> </ul> <p>Protection of information and data</p>  |

|   |   |
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|   | <ul style="list-style-type: none"> <li>• Data protection legislation, regulations and local ways of working, including the importance of confidentiality and the General Data Protection Regulation (GDPR) 2018</li> <li>• Ensuring confidentiality when using screen to input or retrieve information or data</li> <li>• Positive use of and restrictions on the use of social media in the Health and Science sector</li> </ul> <p>Data storage</p> <ul style="list-style-type: none"> <li>• How and why IT systems are used to record, retrieve and store information and data</li> <li>• Security in relation to IT systems, including the need for back-up systems and required cyber security measures</li> <li>• What to do if information is not stored securely</li> </ul>   |
| <p><b>Good Scientific and Clinical Practice</b></p> | <p>Knowledge and understanding of the principles of good scientific and clinical practice, including an understanding of the importance of adhering to the following:</p> <p>Standard Operating Procedures</p> <ul style="list-style-type: none"> <li>• Use and importance of following Standard Operating Procedures (SOPs), including what a SOP is, who it is applicable to and how to access SOPs for a given activity</li> </ul> <p>Management of equipment and work areas</p> <ul style="list-style-type: none"> <li>• Importance of regular cleaning of work areas and suitable preparation for use</li> <li>• Importance of maintenance, cleaning and servicing of equipment</li> <li>• Calibration and testing of equipment to ensure it is fit for use. Current calibration status of equipment and escalation routes if equipment is not correctly calibrated/unsuitable for intended use</li> </ul> <p>Stock control</p> <ul style="list-style-type: none"> <li>• Management and ordering of stock to ensure sufficient supply of required consumables and materials</li> </ul> <p>Storage</p> <ul style="list-style-type: none"> <li>• Appropriate storage of products, materials and equipment including storage and use of limited stability products</li> </ul> |
| <p><b>Core Science concepts</b></p>                 | <p>An understanding of fundamental scientific concepts which have application to the health, healthcare science and science pathways:</p> <p><b>Structure and function of cells and tissues:</b> cell theory as an underlying concept, ultrastructure including</p>   |

organelles and similarities/differences between animal and plant cells, specialisation of cells

**Large molecules:** proteins, carbohydrates and lipids are the three key groups of large molecules: Understanding of structures to understand function related to their properties

**Exchange and transport mechanisms:** need for exchange of substances, how/where this takes place, including cellular exchange and transport, factors that affect requirements and give rise to specialised systems

**Genetic information and genetics:** including sequence of bases in DNA molecule relationship to the mechanism of inheritance, variation and relationship between organisms

**Microbiology:** including classification and characteristics of micro-organisms and microscopy techniques

**Immunology:** including the nature of infection and its existence in individuals and amongst populations and communities. Examples of infectious diseases and causative agents. Possible causes of infection and routes of transmission. How the body responds to invasion by foreign substances including phagocytosis and actions of T-cells and B-cells. Understanding of cell mediated immunity and antibody mediated immunity

**Structure of materials and the relationship with physical and chemical properties:** including physical properties of metals-conductivity (electrical and thermal), malleability, ductility. Chemical properties such as reactivity. Relationship between the structure and properties of composite materials, such as ceramics and polymers

**Acids/bases and chemical change:** concept of strong and weak acids (as distinct from dilute and concentrated solutions), properties and characteristics, reactions and resulting salts produced

**Rates of reaction and energy changes:** collision theory, relationship with temperature changes on rates of reaction, role of catalysts in reactions

**Chemical analysis of substances:** use of a range of tests and techniques to detect, identify chemical composition and determine amounts of substances. To

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|  | <p>include simple tests, use of instrumental techniques and determination of amounts of acids and alkalis by titration</p> <p><b>Electricity:</b> current, potential difference and resistance, electrical charge and current, resistors and mains electricity</p> <p><b>Magnetism and electromagnetism:</b> poles of magnets, magnetic fields, use of electromagnetism</p> <p><b>Waves:</b> function in terms of carrying both energy and information, properties of waves and uses</p> <p><b>Particles and radiation:</b> types of radiation, properties and interaction with matter</p> <p><b>Units:</b> use of SI units and conversion between units, appropriate use of significant figures and science notation</p> |
|--|---|

## Core knowledge and understanding across Healthcare Science Pathway

| Element                              | Content   |
|--------------------------------------|---|
| <b>The Healthcare Science sector</b> | <p>How route core knowledge of working within the Health and Science sector relates to the Healthcare Science pathways as well as specific knowledge on:</p> <ul style="list-style-type: none"> <li>• How the Healthcare Science sector is structured in the UK: organisations and services</li> <li>• The diversity of employers, organisations and the range of working environments within the Healthcare Science sector. Awareness that for each occupational specialism there are a variety of working environments including hospital clinics and wards, laboratories and retail environments</li> <li>• Job roles within the Healthcare Science sector: entry requirements for these roles and responsibilities of these roles in line with job descriptions and person specifications. Awareness of the range and diversity of job roles that exist in the Healthcare sector, both across occupational specialisms and within them</li> <li>• Career pathways, progression routes and opportunities within the Healthcare Science sector including level 4, 5 and 6 opportunities as outlined on the Health and Science Route occupational map</li> <li>• Scope of practice of roles and awareness of activities that can only be undertaken by a registered Healthcare professional, such as dispensing optician or</li> </ul> |

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|   | <p>pharmacist). Role of accreditation and certification in Healthcare Science sector jobs</p> <ul style="list-style-type: none"> <li>• Awareness of use of appraisals and performance reviews within the Healthcare Science sector</li> <li>• External factors that can impact on the activities of Healthcare Science sector organisations such as epidemics or extremes of weather</li> <li>• Increasing use of technology/automation/Artificial Intelligence in the Healthcare Science sector, including personalised health apps and miniaturised scanning equipment linked to smart phones</li> </ul>  |
| <b>Further Science concepts</b>                             | <p>How core knowledge of science relates to the Healthcare Science pathway, as well as further specific knowledge on:</p> <p><b>Human anatomy and physiology:</b> Overview of all physiological systems to include both structure and function. Expected normal physiological parameters and how these are routinely measured. Maintenance of homeostasis of physiological systems</p> <p><b>Diseases and disorders:</b> Classification systems for diseases and disorders such as by bodily system or by organ or tissue or by physiological effects. Examples of diseases and disorders from each of these classification types. How the body reacts systemically as a response to injury or trauma. Epidemiology-how often disease states occur in different groups of people and why, use of this information to plan and evaluate strategies to prevent illness. Health promotion to prevent disease and disorders</p> <p><b>Genomics:</b> structure, function, evolution, mapping, and editing of genomes including DNA sequencing and bioinformatics</p> <p><b>Medical physics:</b> Electric potentials, transducers, non-ionising imaging and X-ray imaging: application of these physical principles in the fields of clinical measurement and medical imaging, including electrocardiography, ultrasound, magnetic resonance, diagnostic x-rays and CT scanners</p> |
| <b>Health and Safety, regulations in Healthcare Science</b> | <p>How route core knowledge of health and safety regulations within the Health and Science sector relates to the Healthcare Science pathways as well as specific knowledge on:</p> <ul style="list-style-type: none"> <li>• Health and Safety (First-Aid) Regulations 1981</li> <li>• Health and Social care Act 2004</li> <li>• Human Medicines regulations 2012 and the role of the Medicines and Healthcare Products Regulatory Agency (MHRA)</li> <li>• Misuse of drugs Act 1971</li> <li>• First Aid awareness and awareness of UK resuscitation council guidelines</li> <li>• Serious Hazards of Transfusion haemovigilance scheme</li> </ul>   |
| <b>Providing person centred care</b>                        | <ul style="list-style-type: none"> <li>• Values and standards in providing care and support in the Healthcare sector, including NHS quality standards</li> </ul>  |

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| <p><b>when working in Healthcare Science</b></p> | <ul style="list-style-type: none"> <li>• Placing individuals, their carers and significant others at the centre of their care and support so that any care provided is in the patient's best interest</li> <li>• Principles of choice and consent: requirement to gain consent</li> <li>• Awareness of the NHS constitution</li> <li>• Role of the Care Quality Commission and the Care Certificate</li> <li>• Understand the concept of privacy and dignity of the patient</li> <li>• How to ensure terms/procedures are always clearly explained to patients/carers</li> <li>• Equality, diversity and inclusion (including faith, cultural needs and preferences)</li> <li>• Basic understanding of the application of ethics and research ethics in the Healthcare Science sector</li> <li>• Meaning and importance of 'Duty of care' in the Healthcare Science sector</li> <li>• Basic understanding of the rights of individuals in the Healthcare Science sector</li> <li>• The six Cs - Care, Compassion, Communication, Courage, Commitment and Competence</li> <li>• Partnership working with patients, carers, other professionals and the public to ensure person centred care is always provided</li> <li>• Meaning and importance of 'Safeguarding': protection and types of abuse and harm</li> <li>• Importance and application of probity and candour in a Healthcare Science setting</li> <li>• Appreciation of an individuals' mental and physical capacity in relation to care provided</li> <li>• How mental health conditions can influence a person's needs in relation to overall care</li> <li>• Needs of individuals with dementia or learning difficulties</li> <li>• Promoting independence and self-care strategies; importance of getting people involved in their own health care</li> <li>• Promoting health and wellbeing with in all aspects of patient care including 'Making Every Contact Count', holding Healthy Conversations, stressing the importance of healthy eating, regular exercise and reducing health risks such as alcohol consumption and smoking</li> <li>• Obtaining and acting on patient feedback on their experience of contacts and treatments provided by the Healthcare Science sector</li> <li>• Urgent or immediate referrals: what these are and acting on them appropriately</li> </ul> |
|--|--|

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|--|--|
| <b>Infection prevention and control in Healthcare Science settings</b> | <ul style="list-style-type: none"> <li>• Techniques for prevention and control of infection in healthcare science settings, including use of appropriate Personal Protective Equipment, appropriate cleaning and disinfecting, and use of single and multiple-use products</li> <li>• Importance of hand washing and good personal hygiene</li> <li>• Sterilisation techniques and effect of sterilisation on materials</li> <li>• Impact of antimicrobial resistance on infection prevention and control</li> <li>• Waste management and waste streams taking into consideration special waste, hazardous waste and how to reduce waste</li> <li>• Types of spillage that can occur, dealing with spillage and how to prevent it</li> </ul>   |
| <b>Managing information and data</b>                                   | <p>How route core knowledge of managing information and data within the Health and Science sector relates to the Healthcare Science pathway as well as specific knowledge on:</p> <ul style="list-style-type: none"> <li>• Different methods of recording and reporting patient information and data</li> <li>• Confidentiality of customer/patient records and organisational information: what to do if information is not being stored securely, limits of confidentiality where self-harm or harm to others may be involved</li> <li>• Statistical software tools and importance of the bioinformatician and data scientist</li> <li>• Reporting and recording of incidents, events and conditions</li> <li>• Knowing when to escalate issues in relation to patient information</li> <li>• Statistical interpretation and analysis of data</li> <li>• Communication and presentation of data to others</li> </ul> |
| <b>Good scientific practice</b>  | <p>How route core knowledge of good scientific and clinical practice within the Health and Science sector relates to the Healthcare Science pathway as well as specific knowledge on:</p> <ul style="list-style-type: none"> <li>• Importance of adhering to Good Laboratory Practice (GLP) and Good Manufacturing Practice (GMP)</li> <li>• To be always working towards continuous service improvement, through awareness of Quality Management policies and procedures</li> <li>• How to handle hazardous materials and substances</li> </ul>   |

## Employer-set project

The employer-set project ensures students have the opportunity to combine core knowledge and skills to develop a substantial piece of work in response to an employer-set brief.

To ensure consistency in project scope and demand, awarding organisations will develop assessment objectives, which require students to:

- plan their approach to meeting the brief
- apply core knowledge and skills as appropriate
- select relevant techniques and resources to meet the brief
- use maths, English and digital skills as appropriate
- realise a project outcome and review how well the outcome meets the brief.

The awarding organisation will work with a relevant employer or employers, to devise a set brief that:

- ensures a motivating starting point for students' projects, for example, a real-world problem to solve
- ensures students can generate evidence that covers the assessment objectives
- is manageable for providers to deliver
- is officially approved by the awarding organisations and employer.

For Healthcare Science, in achieving the assessment objectives and meeting the brief, students must demonstrate the following core skills, through mostly self-directed activities to promote and develop independent learning:

- **Research skills:** researching from independently identified sources of information including being able to conduct literature searches to contribute to research and innovation within a specific area of practice
- **Communication skills:** be able to communicate effectively with patients, customers, carers and other health and social care professionals using a range of techniques to overcome communication barriers
- **Team working skills:** be able to work collaboratively with a range of Healthcare professionals within and outside a specific team, as well as with other individuals such as carers
- **Problem solving skills:** be able to identify problems, propose innovative solutions and implement these solutions and where appropriate make use of new technologies to solve problems
- **Reporting and presentation skills:** be able to interpret and analyse information and data to present conclusions in a range of formats to a variety of stakeholders
- **Reflective evaluation:** be able to reflect on own practice and make improvements to own practice e.g. having completed a task reviewing and suggesting improvements and consideration of lessons learnt for own professional development.



## Occupational Specialist Content

Specialist content is structured into different occupational specialisms, which correspond to the apprenticeship standards listed on the occupational map covered by the T Level. Occupational specialisms ensure students develop the knowledge and skills necessary to achieve a level of competence needed to enter employment in the occupational specialism.

Achievement of this minimum level of competence signals that a student is well-placed to develop full occupational competence, with further support and development, once in work (including an apprenticeship). The knowledge and skills listed are required to achieve one or more 'performance outcomes'. These indicate what the student will be able to do as a result of learning and applying the specified knowledge and skills.

In essence, each performance outcome describes, at a high level, what the student 'can do' to have met minimum competence requirements in an occupational specialism.

Core skills and behaviours are specified in occupational specialism(s) only where they are essential to achieving the given performance outcome. Although the behaviours maybe assessed implicitly through application of skills, they must be clearly specified in the qualification specification to support effective application of those skills.

## Occupational Specialism: Technical: Optical Care Services

**Performance Outcome 1: Provide Optical Care and advice including prescription interpretation, screening and dispensing to contribute to patient health and well-being**

| Knowledge specific to Performance Outcome  | Skills specific to Performance Outcome  |
|--|---|
| <p><b>Roles and responsibilities of an Optical Assistant</b></p> <p>Members of the optical team: roles and responsibilities</p> <p>Job role, responsibilities and duties of an optical assistant:<br/>Importance of personal development, CPD and self-reflection/evaluation to support continuous improvement</p> <p>Scope of Practice: own role and responsibilities, activities which can only be carried out by an optometrist and dispensing optician</p> <p>When to refer to clinical colleagues for support and advice, including in relation to when completing a collection for customers within protected named groups (under 16's, partially sighted/blind) and for complex prescriptions</p> | <p>Identify when a task falls outside own area of responsibility and refer appropriately within the optical team</p>  |
| <p><b>Health and Safety regulations, legislation and standards in the optical environment</b></p> <p>How core knowledge of Health and Safety regulation, legislation and standards relates to the provision of Optical Care, this includes:</p> <ul style="list-style-type: none"> <li>• Health and Safety at work legislation and regulations</li> <li>• Safe use of equipment,</li> <li>• COSHH regulations and importance of</li> </ul>   | <p>Undertake and maintain safe working practices at all times</p> <p>Identify risks and hazards or dangers to self, customers or colleagues and act to minimize these</p> <p>Undertake procedures and processes for the reporting of accidents and emergencies and carrying out evacuation</p> <p>Demonstrate adherence to British and European standards and industry governance</p> |

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| <ul style="list-style-type: none"> <li>• Adherence to Standard Operating Procedures and meeting required quality standards (including NHS standards)</li> </ul> <p>British and European standards and industry governance set out by the General Optical Council (GOC) regulatory body</p> <p>Regulation of the Optical business</p> <p>Infection control procedures including the use of optical-specific cleaning chemicals, body bio-spillage kit and appropriate disposal of clinical optical waste (e.g. contact lenses, used tissues and sterile wipes)</p> <p>Ocular emergency situations: what they are and how to deal with them e.g.</p> <ul style="list-style-type: none"> <li>• Flashes and floaters</li> <li>• Sudden loss of vision</li> <li>• Red eye</li> </ul> <p>Procedures for dealing with ocular emergencies, including knowledge of set procedures and use of triage pads</p> | <p>Undertake all Optical Care activities in accordance with relevant Standard Operating Procedures, quality standards and systems</p> <p>Exercise judgement in relation to health, safety and standards within parameters agreed with clinical practitioners including appropriate responses to ocular emergencies</p> <p>Escalate any issues including ocular emergencies outside agreed parameters to clinical practitioners as appropriate</p> <p>Recognise ocular emergencies and refer these to clinical practitioners</p> |
| <p><b>Interaction and communication with customers</b></p> <p>Procedures for establishing customer needs for Optical Care</p> <p>Making recommendations for eyewear based on information obtained from customers, and knowing when to seek advice from colleagues</p> <p>Customer types and barriers to communication they may face e.g. customers of varying ages, customers with specific communication or mental health needs</p>  | <p>Use a range of communication techniques when providing Optical Care services to build rapport and trust with the customer</p> <p>Identify customer communication preferences in relation to their Optical Care</p> <p>Use a range of suitable questions to identify customers' requirements for Optical Care</p>   |

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| <p>Customers with challenging optical requirements or complex needs, for example those with physical disabilities or disfigurement</p>  |  |
| <p><b>Prescriptions</b></p> <p>Knowledge of the structure and function of all parts of the eye</p> <p>Knowledge of how an optical prescription is written and interpreted, including, but not limited to, myopia, hyperopia, presbyopia, visual acuity and the effects the prescription has on vision and spectacle lens thickness. Awareness of how a prescription relates to parts of the eye</p> <p>Understanding of prescriptions, lens power and how lenses are manufactured</p> <p>Understanding of the different sources from which a prescription could be written and how to request a prescription if required</p> <p>Transposing a prescription; the conversion of a written spectacle lens power from one format to another e.g. plus-cylinder form to minus cylinder form or vice-versa</p> <p>How to recognise a complex prescription</p> <p>How to explain the optical prescription and its effects to the customer</p> <p>Understanding of presbyopia; what it is, its effect and the options available to presbyopic customers</p> | <p>Explain verbal and written prescription specifications to the customer and the effect this has on the eye</p> <p>Explain to the customer the translation of written prescription to finished product</p> <p>Provide advice and support to customers to select appropriate frames and lens, including for customers with complex needs or presbyopia</p> <p>Transpose prescriptions when required to do so, performing mathematical functions (geometry and algebra) relevant to optical prescriptions</p> <p>Recognise when a prescription may be incorrect and seek clarification/verification</p> |
| <p><b>Product knowledge: Frames and lens</b></p> <p>Knowledge of:</p>   | <p>Apply knowledge of available products to explain to the customer how particular choices will affect vision</p>  |

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| <ul style="list-style-type: none"> <li>• Wide range of frame and lens material, including features, benefits, visual and material limitations</li> <li>• Characteristics of frame and lens materials and their application</li> <li>• The benefits and disadvantages of different lens types e.g. single vision bifocal and varifocal lenses</li> <li>• How facial features, face shapes and frame may impact on choice of frames and lens</li> </ul> <p>The importance of adhering to the legal requirements regarding fitting of spectacles, the potential allergic reactions that materials may cause</p> <p>How to ensure the best vision, fit and comfort of spectacles</p> <p>How to use progressive power templates</p> <p>How to use demonstration lenses</p> | <p>Make recommendations for dispensing of glasses, including suitable frame and lens materials</p> <p>Identify, explain and recommend to customers suitable fitting frames based on customers' needs, facial features, possible allergies and prescription requirements</p> <p>Explain the advantages and disadvantages of lens options</p> <p>Use progressive power templates and demonstration lenses when making recommendations to customers</p>  |
| <p><b>Frames and lens measurements and fitting prescriptions up to +/- 10</b></p> <p>Understanding of which measurements should be taken and how to take them e.g. pupil distances, vertical heights, pantoscopic angles, frontal bow, length to bend, eye size and bridge width, back vertex distance (BVD)</p> <p>Understanding of the effect on vision if incorrect measurements are taken</p> <p>How to check vision and fit for multiple vision types and the precautionary recommendations to issue to customers on final fitting</p> <p>How to safely use a wide range of optical tools and equipment including: focimeter, pupilometer, frame heater, double nylon jaw</p>  | <p>Take required measurements accurately using appropriate tools and equipment e.g. pupil distances, back vertex distance, vertical heights, pantoscopic angles, frontal bow, length to bend, eye size and bridge width</p> <p>Identify suitable fitting frames based on facial and prescription requirements</p> <p>Explain back vertex distance and pantoscopic angles and their effect to customers as appropriate</p> <p>Explain appropriately to customer the wide range of tools and equipment used in the optical environment</p> <p>Use optical tools and equipment in close proximity to customer without making the customer feel uncomfortable</p> |

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| <p>pliers, angling pliers, snipe nose pliers, cutter pliers, nose pad pliers, axis pliers, screwdriver set, non-contact tonometer, auto refractor, visual field screeners</p> <p>Safe use and limitations of hand tools</p> <p>Health and legal requirements for measurements and fitting</p> <p>Health and safety requirements for some products e.g. safety /protective eyewear</p> <p>Health and legal requirements of different types of optical materials e.g. anti-reflection coatings and occupational safety spectacles</p> <p>Health and legal requirements when dealing with restricted categories of patients (including under 16 year-olds and those with low vision)</p> <p>How to make optical orders using IT systems or manual pads</p> | <p>Make adjustments to a range of spectacles and frames, e.g. those of different materials e.g. polycarbonate lenses or Optyl</p> <p>Accurately measure spectacle prescriptions using a focimeter</p> <p>Assess and check spectacle measurements to solve non-tolerance problems raised by customers</p> <p>Take into account how the final fit of the frames can affect someone's vision</p> <p>Ensure that health and legal requirements are met (such as anti-reflection coatings and occupational safety spectacles), including for restricted categories of customers (including under 16 year-olds and those with low vision)</p> <p>Input the optical order onto the relevant IT system or make manual order</p> |
| <p><b>Screening</b></p> <p>Understanding of retinal imaging to produce digital images of the clearest possible quality for use by qualified optical professional</p> <p>How to conduct other screening tests including pressure test (tonometer) to measure internal pressure, visual field test, use of an auto-refractor and Optical Coherence Tomography (OTC)</p> <p>Structure and function of all parts of the eye for screening purposes</p>  | <p>Clearly explain screening checks to customers, the reasons they are done and how the equipment works</p> <p>Undertake the screening process accurately</p> <p>Accurately input and record pre-screening results onto the relevant IT system</p> <p>Empathise with customers undergoing screening and reassure them appropriately, including when recalling customers for repeat screening</p> <p>Input screening results onto the relevant IT systems</p>  |

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| <p>Understanding of the purpose of screening tests and why they may have to be repeated</p> <p>Understanding of the consequences of incorrect or inaccurate screening</p> <p>Understanding of eye sight and medical conditions/common eye diseases screened for, such as glaucoma, macular degeneration and diabetes</p> <p>Understanding of screening equipment used, its function, and the appropriate language to explain its function</p> <p>Knowledge of when to refer to a clinician when using screening equipment</p> <p>Knowledge of specialist equipment required for pre-screening customers</p>  |   |
| <p><b>Customer records and information</b></p> <p>How core knowledge of handling customer records and information relates to the provision of Optical Care; this includes requirements for accuracy in recording information, the secure storage of customer information, confidentiality, SOPs, the application of GDPR and use of IT systems</p> <p>NHS record and information requirements: checking eligibility and entitlement to Optical Care, including customers returning earlier than recall date, fraudulent action</p> <p>Technical documentation required for dispensing optical prescriptions, including duplicate prescriptions</p> | <p>Ensure all required customer records and information is accurately recorded and stored appropriately</p> <p>Check eligibility for Optical Care and sensitively deal with customers who are not entitled to or eligible for treatment</p> <p>Explain to customers the processes and procedures being followed when completing records to maintain confidentiality and data protection</p> <p>Complete all required NHS paperwork following standard procedures</p> <p>Interpret and evaluate data and NHS reports in relation to Optical Care</p> |

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| Consequences of poor record keeping | Ensure adherence to SOPs when customers or other practices request copy/duplicate prescriptions |
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**Performance Outcome 2: Provide spectacle collection, adjustments and repair services**

| <b>Knowledge specific to Performance Outcome</b>  | <b>Skills specific to Performance Outcome</b>   |
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| <p><b>Spectacle collection and adjustment</b></p> <p>How to greet and inform customers of the procedures at the time of collection, including customers with behavioural difficulties or complex needs</p> <p>Details required from customers at the time of collection</p> <p>How to check fit of product, including use of verification locating and marking apparatus</p> <p>Consequences of poor fitting</p> <p>Frame materials and adjustment: selecting and using the correct tools for any required adjustments</p> <p>Standard Operating Procedures and good practice for after sales service, customer care etc.</p> <p>How to deal with situations where the customer is unable to collect spectacles in person</p> | <p>Greet customers at time of collection and ascertain required details</p> <p>Adhere to British Standard guidelines to ensure spectacle prescription accuracy</p> <p>Fit the final product using correct tools to ensure on-going comfort and correct vision</p> <p>Explain to the customer how to use the product e.g. safe use of single vision, varifocals or bifocals and address any concerns they raise</p> <p>Discuss and recommend additional and suitable products for the care of spectacles and services as appropriate to store and the customer</p> <p>Accurately check visual acuity of the final product, based on the prescription requirements</p> <p>Identify and resolve any errors found</p> <p>Explain after sales service in line with Standard Operating Procedures</p> |



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| <p><b>Spectacle repair</b></p> <p>Reasons why spectacles may need repairs</p> <p>Range of possible repairs and adjustments that can be made within the optical environment</p> <p>Damage that can occur when incorrect tools or equipment are used</p> <p>How to recognise limitations of adjustments e.g. on certain frame types or materials, and when spectacles need to be referred/sent off site for repair</p> <p>How to deal with situations where the customer is unable to instigate the repair in person</p> | <p>Take measurements to be able to adjust and repair spectacles as required</p> <p>Carry out repairs and adjustments on an on-going basis, for example replacing nose pads, adjusting temple tips, tightening sides</p> <p>Explain to customer how to care for and maintain spectacles</p> |
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**Performance Outcome 3: Undertake retail activities to provide walk-in customers with a range of products and Optical Services**

| Knowledge specific to Performance Outcome  | Skills specific to Performance Outcome                                     |
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| <p><b>Different optical environments</b></p> <p>Range of optical environments including: small, large, independent and multiple practice, supermarket and domiciliary environments</p> <p>Differences in working practices and requirements when working in different optical environments e.g. types of customer encountered, behaviours required</p> |  |
| <p><b>Retail activities in Optical Care services</b></p>   | <p>Adhere to SOPs when managing appointments and using booking systems</p> |

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| <p>Standard Operating Procedures (SOPs) for appointments and booking systems</p> <p>Types of retail activities within different optical environments</p> <p>Principles of selling optical products and displaying products</p> <p>Understanding of the principles and skills of ethical selling</p> <p>Range of different retail products available in the optical environment, such as non-prescription items and consumables e.g. lens cleaning solutions/wipes, anti-static cleaning cloths, sun clips/flip-ups, ready readers</p> <p>Knowledge of the purpose and properties of retail products sold in an optical environment</p> <p>Knowledge of which products would be most suitable for customers presenting a range of issues or requirements</p> <p>Knowledge of how to handle and process cash and non-cash transactions</p> <p>Factors that impact on the commercial success of the optical business, such as quality of products, customer care, competition</p> <p>How core knowledge of maintaining adequate levels of all products relates to the provision of Optical Care; this includes the importance of ensuring that all products and particularly consumables are fit for sale, within date, not damaged, correctly packaged and labelled</p> <p>How core knowledge of procedures for re-ordering products and consumables relates to the provision of Optical Care</p> | <p>Deal with all customers in a polite and courteous way</p> <p>Complete sales transactions adhering to relevant policies and procedures and principles of ethical selling</p> <p>Make appointments and deal with price enquiries from customers</p> <p>Display products to maximise sales</p> <p>Maintain adequate stock levels of all products, following procedures for reordering and for incoming and outgoing products, being mindful of waste levels and fraud</p> <p>Ensure products are fit for sale, handle products carefully</p> <p>Handle payments and transactions in an optical care environment</p> <p>Identify when a retail customer should be referred to clinical practitioner</p> |
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| <p>How core knowledge of stock control relates to the provision of Optical Care</p> <p>How to recognise when a retail customer needs referring to a clinical practitioner</p>   |  |
| <p><b>Complaints: policies and procedures</b></p> <p>Understand policies and procedures in respect of customer complaints</p> <p>Content of policies and procedures such as issuing refunds</p> <p>Understand the reasons a customer may wish to return products or make a complaint</p> <p>Strategies to handle customer complaints within the optical environment: how this links to after-sales policies</p> <p>How complaints can impact on the overall success of the optical business</p> | <p>Handle customer complaints and refunds in line with policies and procedures</p> <p>Deal with customer complaints in a polite and courteous way, explaining procedures and policies relating to e.g. warranties and guarantees</p> <p>Deal with customer complaints in a way that minimises the negative impact on the public view and reputation of the optical business, including negotiating a satisfactory outcome for both parties</p> <p>Issue refunds or process exchanges in line with policies and procedures</p> <p>Identify when optical complaints need to be referred to clinical or senior colleagues</p> |

## Occupational Specialism: Pharmacy Services

### Performance Outcome 1: Provide pharmaceutical care and advice to contribute to patient health and well being

| Knowledge specific to Performance Outcome  | Skills specific to Performance Outcome  |
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| <p><b>Roles and responsibilities in the pharmacy environment</b></p> <p>Job role, responsibilities and duty of Pharmacy Services assistant: Importance of personal development, CPD and self-reflection /evaluation to support continuous improvement</p> <p>Roles and responsibilities within the pharmacy team; including activities which can only be carried out by registered professionals</p> <p>Range of pharmacy environments in which a Pharmacy Services assistant may work, including: hospitals, small, large and independent pharmacies</p> <p>Roles of other health care professionals and organisations who may support the work of the pharmacy team and ensure the health and wellbeing of patients</p> <p>When to refer to a clinical colleague for support and advice</p> <p>Where to go to for help and advice when working in the pharmacy environment</p> | <p>Apply knowledge of roles and responsibilities to provide appropriate pharmaceutical care and advice</p> <p>Gather information to support the provision of care and advice, through questioning, listening to and observing patients and/or carers</p> <p>Maintain and further develop own skills and knowledge (CPD)</p> |
| <p><b>Human anatomy and physiology</b></p> <p>How core knowledge of human anatomy and physiology relates to the provision of Pharmacy Services; this includes structure, function and interaction of all main physiological systems</p>  | <p>Apply underpinning scientific knowledge of human anatomy and physiology to make judgements to ensure that the most appropriate pharmaceutical care and advice is provided</p>  |

**Diseases, disorders and minor illnesses relevant to providing Pharmacy Services**

How core knowledge of diseases, disorders and minor illnesses relates to the provision of Pharmacy Services

What is meant by disease, disorder and minor illness in the context of Pharmacy

Understanding of:

- Pathophysiology of major disease states likely to be encountered within the pharmacy environment, for example Cardiovascular diseases, diabetes and Respiratory diseases
- Pathophysiology of minor illnesses likely to be encountered within the pharmacy environment, for example Coughs and colds, sickness and diarrhoea
- The range of, and specific factors contributing to major diseases and minor illnesses

Apply underpinning scientific knowledge of diseases, disorders and minor illnesses when making any judgements to, ensure that the most appropriate pharmaceutical care and advice is provided

**Health and wellness**

- What is meant by health and wellness in the context of pharmacy i.e. that this is not just an absence of disease
- How health inequalities may affect different parts of society
- Understanding of and promotion of ways to maintain healthy lifestyles including healthy eating, regular exercise, smoking cessation and limiting alcohol consumption

Promote healthy lifestyles to patients and customers, when authorised to do so, including providing information and advice on healthy eating, regular exercise, attaining healthy weight, smoking cessation and limiting alcohol consumption

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| <p><b>Therapeutic options</b></p> <p>Understanding of what therapeutic options are available for the treatment of different diseases and conditions including:</p> <ul style="list-style-type: none"> <li>• British National Formulary (BNF): what this is and how it is used in Pharmacy Services</li> <li>• Therapeutic areas listed in BNF</li> <li>• Treatment options linked to therapeutic areas and listed in BNF</li> <li>• Non-prescription treatment options</li> <li>• Non-pharmacological options</li> </ul> | <p>Provide appropriate advice, when authorised, on medicines and products based on knowledge of diseases, disorders, minor illnesses, therapeutic areas and treatment options</p>                |
| <p><b>Urgent or immediate/referrals in the pharmacy environment</b></p> <p>What is meant by urgent or immediate referrals in the context of Pharmacy Services:</p> <ul style="list-style-type: none"> <li>• Possible links to diseases, disorders, minor illnesses and therapeutic areas</li> <li>• Possible symptoms for urgent or immediate referrals, including but not limited to: non-blanching rash, neck stiffness, intractable headache, high temperature, fever and unresponsive to treatment</li> </ul>        | <p>Recognise the need to refer patients displaying possible urgent or immediate referral indicators and refer them to another member of the pharmacy team, healthcare worker or manufacturer</p> |
| <p><b>Standards, legislative requirements and legal responsibilities in pharmacy</b></p> <p>How core knowledge of standards, legislative requirements and legal responsibilities relate to working in the pharmacy environment, including:</p> <p>Legal Classification of Medicines:</p> <ul style="list-style-type: none"> <li>• General Sales List (GSL)</li> </ul>  | <p>Recognise and adhere to all ethical standards and legal responsibilities when providing pharmaceutical care and advice</p>  |

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| <ul style="list-style-type: none"> <li>• Pharmacy Only</li> <li>• Prescription Only Medicines (POM)</li> </ul> <p>Acts &amp; Regulations:</p> <ul style="list-style-type: none"> <li>• Medicines Act 1968</li> <li>• Human Medicines Regulations 2012</li> <li>• Veterinary Medicines Regulations</li> <li>• The Misuse of Drugs Act 1971 as amended</li> <li>• The Misuse of Drugs Regulations 2001 as amended</li> <li>• The Misuse of Drugs (Safe Custody) Regulations 1973 as amended</li> <li>• The Health Act 2006</li> <li>• Controlled Drugs (Supervision of Management and Use) Regulations 2013</li> </ul> <p>Standards for Pharmacy Professionals and Registered Pharmacies, published by the General Pharmaceutical Council</p> <p>Medicines, Ethics &amp; Practice, published by the Royal Pharmaceutical Society of Great Britain</p> |   |
| <p><b>Pharmacy IT systems</b></p> <p>What the main IT systems commonly used in pharmacies are, and:</p> <ul style="list-style-type: none"> <li>• The applications of IT systems in the pharmacy setting</li> <li>• Security of the IT system: hardware, software and medical, commercial and patient information stored on it</li> <li>• Awareness of the existence of organisational policies for IT systems</li> </ul>  | <p>Use pharmacy IT systems and other IT resources according to legislative requirements and organisational policies for labelling products, managing stock control, record keeping and prescription logging</p> |

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| <p><b>Handling and storing information in the pharmacy environment</b></p> <p>How core knowledge of handling and storing information relates to Pharmacy Services including confidentiality and security of information</p>  | <p>Handle patient information in line with local and national policies to meet all legislative and legal requirements and keep patient information confidential</p>   |
| <p><b>Person centred care</b></p> <p>How core knowledge of “Providing person centred care when working in Healthcare Science” relates to Pharmacy Services to ensure patients receive high quality care</p> <p>Understanding of medicines optimisation to ensure patients obtain the best possible outcomes from their medicines</p>   | <p>Provide all elements of person centred care when providing any pharmaceutical care and advice, this includes promoting and advocating equality, diversity and inclusion and medicine optimisation</p> <p>Make pharmacy patients and patient safety your first concern</p>  |
| <p><b>Good Clinical Practice</b></p> <p>How core knowledge of the principles of Good Clinical Practice relate to Pharmacy Services, including actively involving individuals in their own health care and empowering individuals to take responsibility for their own healthcare</p>   | <p>Adhere to the principles of Good Clinical Practice when providing pharmaceutical care and advice</p>   |
| <p><b>Health and Safety, Standard Operating Procedures and Quality standards in the pharmacy environment</b></p> <p>How core knowledge of Health and Safety, Standard Operating Procedures and Quality standards relates to Pharmacy Services, including identifying risks and hazards and knowing the appropriate action to take in response to incidents or emergencies</p> <p>Knowledge of aseptic dispensing and how this reduces risks to patients and to staff preparing medicines</p> | <p>Follow safe working practices at all times when undertaking any activities when in the pharmacy environment</p> <p>Identify risks and hazards or dangers to self, customers or colleagues and act to eliminate or minimise these</p> <p>Follow procedures and processes for reporting of accidents and emergencies and carrying out evacuation</p> <p>Follow all relevant SOPS</p> |



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| <p>Examples of risks, hazards, incidents or emergencies could include dispensing of medicines with similar names or needle stick injuries when patients return medicines</p>  | <p>Meet all required Quality Standards</p>                               |
| <p><b>Biometric measurements and near patient testing</b></p> <p>Understanding of how and why biometric measurement and near patient testing are carried out in a pharmacy setting, including:</p> <ul style="list-style-type: none"> <li>• Height</li> <li>• Weight</li> <li>• Blood Pressure</li> <li>• Blood Glucose</li> <li>• Carbon Monoxide</li> <li>• Blood lipids</li> <li>• International Normalised Ratio for Anticoagulant Therapy</li> </ul> | <p>Perform biometric measurements to aid health promotion activities</p> |

**Performance Outcome 2: Dispense Prescriptions**

| <p><b>Knowledge specific to Performance Outcome</b></p>   | <p><b>Skills specific to Performance Outcome</b></p>  |
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| <p><b>Different types and forms of medicines</b></p> <p>What the different types and forms of medicines are, the differences between them and how they should be managed in the pharmacy setting:</p> <ul style="list-style-type: none"> <li>• Over The Counter (OTC) medicines</li> <li>• Prescription Only Medicines</li> <li>• Dose forms such as tablets, inhaler or liquid</li> <li>• Legal categories of medicines</li> </ul> | <p>Assist with the dispensing of prescriptions following standard operating procedures and apply knowledge of different types and forms of medicines</p> <p>Demonstrate person centred care when assisting in the dispensing of prescriptions</p> <p>Apply Good Clinical Practice when assisting in the dispensing of prescriptions</p> |

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| <p><b>Different types of prescriptions</b></p> <p>Knowledge of the different types of prescriptions that can be used/presented and the meaning of each:</p> <ul style="list-style-type: none"> <li>• Colours</li> <li>• Codes</li> <li>• Different types of prescriber e.g. Medical: doctor, dentist, Non-medical: Pharmacist, Nurse, Physiotherapist</li> </ul> <p>Awareness of the different sources and uses of each and how to check their validity</p> | <p>Recognise different types of prescriptions and ensure that all required information is included on prescriptions before they are dispensed</p>   |
| <p><b>Dispensing procedures and practices including the importance of labelling</b></p> <p>Knowledge of the Standard Operating Procedures, legal requirements and good practice when dispensing prescriptions, in relation to:</p> <ul style="list-style-type: none"> <li>• Receiving and logging</li> <li>• Documentation</li> <li>• Labelling</li> <li>• Accuracy checks</li> </ul>   | <p>Receive and log prescriptions in line with Standard Operating Procedures and under supervision</p> <p>Handle prescription information in line with local and national policies to meet all legislative and legal requirements</p> <p>Assist with the assemble of prescribed items for dispensing to patients</p> <p>Assist with in-process accuracy checks before issuing any prescribed items</p> <p>Ensure all dispensed medicines are correctly and clearly labelled, under supervision</p> |
| <p><b>Pharmacy calculations</b></p> <ul style="list-style-type: none"> <li>• Underpinning maths to complete required calculations</li> <li>• How to complete pharmacy calculations e.g. the number of tablets or volume of liquid to be supplied</li> <li>• Different weights and measures including units and conversion between e.g. grams to kilograms or millilitres to litres, weight in weight, weight in volume and percentages</li> </ul>           | <p>Undertake any required measuring and weighing activities in order to assist with the dispensing of prescribed items to patients</p> <p>Complete any required calculations to assist with the dispensing of prescriptions</p>   |

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| <p><b>Factors that affect the taking of medicines</b></p> <p>How knowledge of the factors that affect the taking of medicines impact on the medicines dispensed, including:</p> <ul style="list-style-type: none"> <li>• Interactions between different medicines</li> <li>• Cautions and contraindications of medicines</li> <li>• Possible effects of food and drink on different medicines</li> <li>• Indications for the use of medicines in the treatment of diseases</li> <li>• Routes of administration of medicines</li> </ul> | <p>Apply knowledge of the factors that affect the taking of medicines when assisting with the dispensing of prescribed items</p> <p>Provide advice and information to patients, when authorised to do so and as appropriate, based on factors such as interactions and indications</p> |
| <p><b>Medical devices</b></p> <ul style="list-style-type: none"> <li>• The range of medical devices that can be used</li> <li>• What the most common medical devices are</li> <li>• When, why and how they are used</li> <li>• Examples of medical devices include blood glucose monitors and stoma appliances</li> </ul>  | <p>Identify different medical devices</p> <p>Recognise applications of different medical devices</p> <p>Provide instructions to patients, when authorised to do so, on how to make effective use of medical devices</p>  |
| <p><b>Cold chain requirements</b></p> <ul style="list-style-type: none"> <li>• What cold chain requirements are</li> <li>• Why cold chain requirements are important</li> <li>• Examples of medicines that have cold chain requirements, for example insulin</li> </ul>  | <p>Adhere to cold chain requirements for relevant medicines</p>  |
| <p><b>Limited stability products</b></p> <p>What limited stability products are, for example, antibiotics after reconstitution</p>   | <p>Handle and store limited stability products in line with pharmacy Standard Operating Procedures and manufacturers guidelines</p>  |

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| How to handle and store limited stability products in line with pharmacy Standard Operating Procedures and manufacturers guidelines |  |
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**Performance Outcome 3: Produce extemporaneous medicines**

| <b>Knowledge specific to Performance Outcome</b>   | <b>Skills specific to Performance Outcome</b>   |
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| <p><b>Infection control</b></p> <p>How core knowledge of infection control is relevant to Pharmacy Services when producing extemporaneous medicines, for example parenteral medicines and aseptic suite</p>  | Apply infection control procedures when assisting in the production of extemporaneous medicines   |
| <p><b>Compatibilities of medicines</b></p> <p>Awareness of:</p> <ul style="list-style-type: none"> <li>• Drug-drug compatibilities</li> <li>• Drug-excipient compatibilities</li> <li>• Excipient-excipient compatibilities</li> </ul>   | Apply knowledge of the compatibilities of medicines when assisting in the production of extemporaneous medicines  |
| <p><b>Knowledge of extemporaneous production methods</b></p> <p>What is meant by extemporaneous production</p> <p>How extemporaneous production differs from large scale production</p> <p>How different medicinal forms are produced extemporaneously, such as:</p> <ul style="list-style-type: none"> <li>• Topical: Creams/Ointments/Drops</li> <li>• Oral: Liquid/Solid/Powder Dose Forms</li> </ul> | <p>Follow Standard Operating Procedures and instructions/decision tress when assisting with the production of extemporaneous medicines</p> <p>Adhere to PPE requirements when assisting with the production of extemporaneous medicines</p> <p>Undertake measuring and weighing activities to be able to assist with the production of extemporaneous medicines</p> |

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| <ul style="list-style-type: none"> <li>• Parenteral: Injections</li> <li>• Rectal/Vaginal: Suppositories/Pessaries/Enemas</li> <li>• Mixing</li> <li>• Tituration (not to be confused with titration)</li> <li>• Dissolution</li> <li>• Suspension</li> </ul>   |   |
| <p><b>Titration</b></p> <p>An understanding of what titrations are, why they are carried out and how to undertake them, including:</p> <ul style="list-style-type: none"> <li>• The purpose of titrations in quantitative analysis</li> <li>• Technique used for carrying out titrations</li> <li>• Equipment used when carrying out titrations e.g. reagents, burettes, pipettes, volumetric flasks, and stirrers</li> <li>• Serial dilutions and reagents to prepare quality control standards</li> </ul> | <p>Carry out titrations to prepare control solutions, under supervision</p> <p>Use serial dilutions and reagents to prepare quality control standard curve, under supervision</p> |
| <p><b>Principles of Good Manufacturing Practice in the pharmacy environment</b></p> <p>How core knowledge of the principles of Good Manufacturing Practice relate to Pharmacy Services, including:</p> <ul style="list-style-type: none"> <li>• Quality control procedures</li> <li>• Use of appropriate raw materials</li> <li>• Preparation and use of appropriate equipment</li> </ul>   | <p>Apply Good Manufacturing Practice when assisting in the production of extemporaneous preparations</p>  |

#### Performance Outcome 4: Undertake administrative and retail activities in the pharmacy environment

| Knowledge specific to Performance Outcome  | Skills specific to Performance Outcome  |
|--|---|
| <p><b>Retail activities in the pharmacy environment</b></p> <ul style="list-style-type: none"> <li>• Types of retail activities within the pharmacy environment, including different products available to customers in the pharmacy environment</li> <li>• Principles of selling pharmacy products and displaying products for sale in the pharmacy environment</li> <li>• Factors that impact on the commercial success of the pharmacy</li> <li>• Handling and processing payments within the pharmacy environment</li> </ul>   | <p>Display products to maximise sales within the pharmacy environment</p> <p>Provide advice and information to customers on different products available for sale within the pharmacy environment</p> <p>Deal with all customers in a polite and courteous manner</p> <p>Complete sales transactions, adhering to company policies and procedures</p> <p>Carefully handle payments, transactions, stock and packaging</p> |
| <p><b>Supply chain, stock control &amp; storage principles in the pharmacy environment</b></p> <ul style="list-style-type: none"> <li>• The supply chain and importance of maintaining adequate levels of all products in the pharmacy environment</li> <li>• Importance of ensuring all products and particularly consumables are fit for sale (within date, not damaged, correctly packaged and labelled) in the pharmacy environment</li> <li>• Procedures for reordering products and consumables, including handling and processing invoices in the pharmacy environment</li> <li>• Stock rotation in the pharmacy environment</li> </ul> | <p>Maintain adequate stock levels of all products, following procedures for re-ordering when required</p> <p>Ensure all products are fit for sale</p> <p>Follow guidelines to safely and appropriately dispose of pharmacy products and medicines</p>   |
| <p><b>Complaints: policies and procedures</b></p>  | <p>Handle customer complaints and refunds in line with policies and procedures</p>  |

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| <p>Requirement for policies and procedures in respect of customer complaints. Content of policies and procedures such as issuing refunds</p> <p>Strategies to handle customer complaints within the pharmacy environment: how this links to after-sales policies</p> <p>How complaints can impact on the overall success of the pharmacy business</p> | <p>Deal with customer complaints in a polite and courteous manner</p> <p>Issue refunds in line with policies and procedures</p> <p>Identify the need to refer complaints to clinical colleagues</p> |
| <p><b>Administration activities in the pharmacy environment</b></p> <p>Knowledge of:</p> <ul style="list-style-type: none"> <li>• Paperwork and requirements for the use of controlled drugs</li> <li>• Completing and checking invoices and orders</li> <li>• Completing VAT returns</li> </ul>  | <p>Undertake administration activities as required within a pharmacy environment</p>  |

## Occupational Specialism: Assisting with Healthcare Sciences

**Performance Outcome 1: Contribute to patient care by supporting physiological, physical and clinical engineering services to produce reliable data and images for use by health care professionals in diagnosis and treatment**

| Knowledge specific to Performance Outcome   | Skills specific to Performance Outcome   |
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| <p><b>Job roles, disciplines and divisions in physiological, physical and clinical engineering services</b></p> <p>Job role, responsibilities and duties of a Healthcare Science Assistant who is supporting the collection of clinical measurements. This includes awareness of the range of divisions and disciplines that they could work in covering physiological sciences and physical sciences, in areas such as audiology, cardiac physiology, neurophysiology, respiratory physiology, diagnostic radiology, ultrasound, MR Physics, or nuclear medicine.</p> <p>Understanding of the Scope of Practice of the Healthcare Science Assistant in these specific areas: Importance of personal development, CPD and self-reflection/evaluation to support continuous improvement across these service areas. Awareness of the NHS leadership model and its relevance and implications in terms of scope of practice</p> <p>Knowledge of the range of services within healthcare science that contribute to patient care, to investigate, diagnose and treat disease, including physiological, physical and chemical engineering services</p> <p>Understanding of the roles and responsibilities within a multi-professional team working in these areas; including activities which can only be carried out by registered professionals</p> | <p>Apply knowledge of roles and responsibilities to provide the best patient care when supporting the physiological, physical and clinical engineering services to produce reliable data and images for use by health care professionals in diagnosis and treatment</p> <p>Recognise the need to refer, and make referrals of patients to another member of the healthcare team</p> <p>Apply understanding of the Scope of Practice in these specific areas to ensure effective patient care</p> <p>Contribute to research and innovation within the boundaries of relevant clinical and scientific practice as required</p> |



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| <p>How job role may contribute to research and innovation and the regulatory framework within which research and innovation is conducted, including research ethics: implications for job role</p> <p>The role of quality management/improvement and the regulatory environment to maintain and improve HCS services and the quality standards relevant to your role</p> <p>When to refer to a clinical colleague for support and advice, including in difficult situations that may present when working in these specific areas</p>   |  |
| <p><b>Human Anatomy and physiology</b></p> <p>How core knowledge of human anatomy and physiology relates to the collection of clinical measurement data; this includes knowledge of structure, function and interaction of all main physiological systems</p> <p>Expected range of normal physiological measurements, taking into consideration a range of factors such as age and gender</p> <p>Possible exceptions to normal values that may occur due to factors such as age, gender, ethnicity or particular medical conditions</p> | <p>Apply knowledge of anatomy and physiology to the collecting of clinical measurement data, for example knowledge of the cardiovascular system when taking blood pressure or ECGs</p>   |
| <p><b>Equipment and devices used to take clinical measurements to support physiological, physical and clinical engineering services</b></p> <p>Underpinning scientific principles of how the equipment and devices used allow for required measurements to be taken; aligned with underpinning core knowledge of scientific concepts</p>  | <p>Apply knowledge of relevant science concepts when supporting the collection of clinical measurements, for example principles related to the safe use of ionising radiation to produce medical images or why it is important to ensure good contact between skin and electrodes when taking ECGs in order that electric potential can be accurately measured</p> |

such as, waves and electricity, electric potentials and role of transducers or use of ionising radiation

Supporting physiological services

For example:

- Blood pressure monitoring: how use of a sphygmomanometer and stethoscope restricts blood flow and on release of pressure allows the 'sounds' of systolic and diastolic pressure readings to be noted
- ECG recordings: measurement of heart activity over time by measuring electrical potentials and using transducers which convert these potentials into an electron current that can be represented on a trace
- Peak flow: how a peak flow meter or spirometer allows lung function measurements to be collected

Supporting physical and clinical engineering services

- Medical X-rays: Understand how x-rays are produced for clinical imaging
- CT-scans: Understand the advantages/disadvantages of CT compared to conventional x-ray imaging and appreciate the use of contrast dyes
- Magnetic Resonance Imaging (MRI): How these devices make use of strong magnetic fields, magnetic field gradients and radio waves to generate images
- Ultrasound: Understand how ultrasound images are produced and the advantages/disadvantages of this technique

Nuclear Medicine: Understand what radiopharmaceuticals are, how they are administered to patients and how images are generated using a gamma camera

Select appropriate equipment and/or devices for measurement to be collected

Apply knowledge of the underpinning principles of how equipment and devices allow accurate measurements and images to be obtained

**Principles and practice of equipment management used for the collection of clinical measurements**

- Understanding of the importance of calibration to ensure the highest level of accuracy possible when collecting measurements and images from patients
- Understanding the importance of maintenance of equipment to ensure equipment is always fit for use
- Understanding of the importance of adhering to maintenance schedules for complex equipment such as x-ray machinery and scanners
- How to address issues with equipment to ensure it is fit for use
- How to handle hazardous materials and substances
- Awareness of the required decontamination processes for equipment and devices, relevant to the categories of risk, for example blood pressure cuffs are low risk as contact is with patient's skin
- Awareness of the difference between single use and multi-use equipment, for example single use tubes on hand held peak flow meters

Undertake calibration of equipment that is within Scope of Practice, for example calibrating of pulse oximetry meters for checking O2 saturation

Ensure that maintenance schedules for equipment are adhered to

Ensure equipment is fit for use before using it with patients, for example checking leads and sensors on an ECG machine prior to use

Use single or multiple use equipment as appropriate for the measurement being taken in accordance with SOPs and to ensure health and welfare of the patient

**Techniques used to support patient care when collecting clinical measurements and images**

Understand how core knowledge of providing person centred care when working in Healthcare Science relates to collecting clinical measurements from patients in addition to knowledge of:

- Appropriate techniques to be used for taking required measurements
- Appropriate techniques taking into consideration factors such as age of patient, state of wellbeing etc.

Provide person centred care in respect of collecting all data and images

Apply consent procedures when collecting clinical measurements

Gather information to support the safe and appropriate collection of measurement data and images, through questioning, listening to and observing patients and/or carers

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| <ul style="list-style-type: none"> <li>• Importance of adhering to Good Clinical and Scientific Practice</li> <li>• Contraindications for undertaking measurements</li> </ul>   | <p>Promote health and well-being, both physical and mental at all times when working with patients</p> <p>Obtain reliable data and images using appropriate techniques, following Standard Operating Procedures</p> <p>Apply Good Clinical and Scientific Practice when undertaking all activities in respect of collecting measurement data and images</p>  |
| <p><b>Health, safety, regulation, legislation, local and national policies and standards when assisting with Healthcare Science in physiological, physical and clinical engineering services</b></p> <p>How core knowledge of health, safety, regulation, legislation, local and national policies and standards relates to the collection of clinical measurements and images including but not limited to:</p> <ul style="list-style-type: none"> <li>• Risk assessments</li> <li>• Use of appropriate Personal Protective Equipment</li> <li>• Taking appropriate action in response to emergencies</li> <li>• Moving, lifting and positioning of individuals and equipment safely</li> </ul> <p>Specific regulations for specialised environments and supporting health professionals in using specialist equipment such as x-rays: Ionising Radiation Regulations 2017</p> | <p>Adhere to all required health and safety regulations when taking clinical measurements from patients</p> <p>Adhere to all local and national policies and legislation when taking clinical measurements from patients</p> <p>Undertake risk assessment based on patient characteristics and needs</p> <p>Move and position equipment and people in accordance with all manual handling requirements</p> |
| <p><b>Use and importance of Standard Operating Procedures</b></p> <p>How core knowledge of Standard Operating Procedures relates to assisting with healthcare science in supporting patients in physiological, physical and clinical engineering services, to ensure a safe and effective practice environment is established and maintained</p>  | <p>Adhere to Standard Operating Procedures to establish and maintain a safe and effective practice environment</p>   |

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| <p><b>Infection control procedures when assisting with Healthcare Science in physiological, physical and clinical engineering services</b></p> <p>How core knowledge of infection control relates to assisting with healthcare science and in particular collecting clinical measurements, which includes but is not limited to: causes of infection, routes of transmission, techniques for prevention and control, importance of hand washing, waste management and dealing with spillages</p>  | <p>Apply good infection control techniques at all times to maintain a safe environment for patients and staff</p>   |
| <p><b>IT systems for recording patient information</b></p> <p>How core knowledge of IT systems for recording patient information relates to assisting with healthcare science and in particular collecting clinical measurements, which includes, but is not limited to:</p> <ul style="list-style-type: none"> <li>• Confidentiality of consultation and medical records</li> <li>• Appreciation of different IT systems used for recording of data</li> <li>• Importance of secure systems for recording, storing and sharing information and the need for back-up systems</li> </ul> | <p>Apply appropriate national and local regulations when using IT systems to obtain and record information in the physiological, physical and clinical engineering services</p>                                 |
| <p><b>Procedures for reporting patient information in physiological, physical and clinical engineering services</b></p> <p>How core knowledge of procedures for reporting patient information relates to assisting with healthcare science and in particular collecting clinical measurements, including but not limited to the importance of accuracy and confidentiality</p>  | <p>Accurately record patient information from a range of clinical measurement tasks</p> <p>Handle all patient information in line with local and national policies to meet all confidentiality requirements</p> |

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| <p><b>Urgent or immediate referrals</b></p> <p>How core knowledge of urgent or immediate referrals relates to assisting with Healthcare Science and in particular collecting clinical measurements, including observing patient behaviour</p> <p>Examples of urgent or immediate referral indicators such as abnormal measurement results, faulty equipment or safeguarding issues</p> | <p>Check for any specific urgent or immediate referrals prior to undertaking clinical measurements</p> <p>Take appropriate actions if an urgent or immediate referral is noted</p> |
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**Performance Outcome 2: Contribute to patient care by supporting the collection of a range of specimens for analysis to aid diagnosis and treatment**

| Knowledge specific to Performance Outcome   | Skills specific to Performance Outcome  |
|---|---|
| <p><b>Job roles, disciplines and divisions in physiological services, physical sciences and life sciences in relation to the collection of specimens</b></p> <p>Job role, responsibilities and duties of a Healthcare Science Assistant who is supporting the collection of specimens from patients, including awareness of the range of physiological services, physical services and life-science divisions and disciplines that they could work in, areas such as gastrointestinal physiology, urodynamic science, vascular science, phlebotomy, cytopathology including cervical cytology, clinical pathology, histopathology, reproductive embryology, clinical immunology and genomics/genetics</p> <p>Understanding of the Scope of Practice of the job role in these specific areas: Importance of personal development, CPD and self-reflection/evaluation to support continuous improvement</p> | <p>Apply knowledge of roles and responsibilities to provide the best patient care when supporting physiological services, physical services and life sciences in the collection of specimens from patients</p> <p>Recognise the need to refer, and refer patients to another member of the healthcare team</p> <p>Apply understanding of the Scope of Practice in these specific areas to ensure effective patient care</p> <p>Contribute to research and innovation within the boundaries of relevant clinical and scientific practice as required</p> |

across these service areas. Awareness of the NHS leadership model and its implications in terms of scope of practice

Knowledge of the range of services within Healthcare Science that contribute to patient care, to investigate, diagnose and treat disease, across both physiological sciences, physical sciences and life-sciences

Understanding of the roles and responsibilities within a multi-professional team; including activities which can only be carried out by registered professionals

How job role may contribute to research and innovation and the regulatory framework within which research and innovation is conducted, including research ethics: implications for job role

The role of quality management/improvement and the regulatory environment to maintain and improve Healthcare Science services and the quality standards relevant to your role

When to refer to a clinical colleague for support and advice, including in difficult situations

**Specimen collection procedures**

Awareness of the definition of clinical/patient specimen: any bodily substance taken from a patient

Examples of specimens that are collected, such as skin/wound, blood, urine, nasopharyngeal aspirates, cervical smears, and stool samples

Rationale and overarching principles of specimen collection

- Anatomy and physiology in relation to specimen collection

Apply knowledge of principles of specimen collection to support the safe and appropriate collection of a specimen from a patient

Apply knowledge of principles of anatomy and physiology to support the safe and appropriate collection of a specimen from a patient

Gather information to support the safe and appropriate collection of the sample, through questioning, listening to and observing patients and/or carers

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| <ul style="list-style-type: none"> <li>• Appropriate specimen collection procedures including range of sampling sites</li> <li>• Standard Operating Procedures for specimen collection</li> <li>• Infection prevention control when collecting specimens</li> <li>• Health and safety requirements when collecting specimens</li> <li>• Ensuring person centred care in specimen collection</li> <li>• Contraindications affecting specimen collection</li> <li>• Rationale behind use of personal protective equipment for sample collection</li> </ul> <p>Safety management procedures when collecting samples including waste stream management and disinfection procedures</p> | <p>Undertake specimen collection using appropriate procedures, following Standard Operating Procedures including appropriate infection prevention control, risk assessment, waste disposal and Health and Safety requirements</p> <p>Provide person centre care when undertaking sample collection</p> <p>Recognise the need to refer and when to refer patients to another member of the team as stated in the Standard Operating Procedures or based on patient handover/data collection</p> <p>Recognise the legal requirements linked to undertaking sample collection, recognition and reporting of patient safety and cases of abuse</p> <p>Demonstrate the ability to recognise appropriate waste streams for consumables associated with sample processing</p> <p>Demonstrate the ability to recognise appropriate disinfection/sterilisation requirements for consumables associated with sample processing</p> |
| <p><b>Equipment and resources used in the collection of patient specimens</b></p> <ul style="list-style-type: none"> <li>• Use of appropriate equipment and resources for particular procedure/sample site/individual patient, including use of correct specimen collecting container</li> <li>• Checking any required equipment used in the collection of specimens is fit for use</li> <li>• Requirements for stock rotation of equipment for specimen collection</li> </ul>   | <p>Use equipment and resources appropriately in the collection of patient specimens</p> <p>Demonstrate the ability to recognise appropriate disinfection/sterilisation requirements for equipment used to collect patient specimens</p>  |



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| <ul style="list-style-type: none"> <li>• Infection control procedures in relation to equipment and resource use: single and multiple use equipment, sterilisation and disinfection procedures</li> </ul>  |  |
| <p><b>Handling collected specimens</b></p> <ul style="list-style-type: none"> <li>• Awareness of the requirements for effective labelling, such as patient full name or coded identifier, date of birth, hospital or NHS number and date of collection</li> <li>• Awareness of requirements to ensure effective packaging, storage and transportation of specimens within and outside of a Healthcare facility. For example, the requirement to have lockable fridges and to record minimum and maximum temperatures of fridges<br/>Understanding of the National legislation, local guidance and accreditation standards required in handling of specimens, for example if specimens are from patients known or highly suspected of having particular conditions these must be clearly labelled as High Risk</li> <li>• Awareness of the requirements of Cold chain management, i.e. the continuum of required temperature during storage and transportation to ensure samples are suitable for analysis</li> <li>• Awareness of temperature storage requirements of different specimens and what to do if there have been deviations from these temperature requirements</li> </ul> | <p>Handle patient information in line with local and national policies to meet all legislative and legal requirements and keep information confidential</p> <p>Record patient information on samples and ensure data accuracy across documentation</p> <p>Record the collection of the sample and pertinent information</p> <p>Package samples appropriately for transportation, adhering to national legislation and local guidance</p> <p>Store samples correctly until collected for transportation, analysis or disposal</p> |
| <p><b>Disease states and the collection of specimens</b></p> <ul style="list-style-type: none"> <li>• Awareness that disease states may affect the ability to collect specimens: Types of disease states to be aware of: Communicable and non-communicable</li> <li>• Examples of disease states that may affect specimen</li> </ul>  | <p>Identify disease states that may affect specimen collection procedures</p> <p>Make reasonable adjustments to specimen collection procedures in relation to identified disease states, for example use of alternative equipment</p>  |

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| <p>collection procedures (for example the need to use alternative sample sites) and or specimens collected may not be as expected</p>   |   |
| <p><b>Waste streams for equipment used in the collection of specimens</b></p> <ul style="list-style-type: none"> <li>• Appropriate waste streams for specimen collection equipment, for example ensuring that a sharps disposal unit is available at point of use</li> <li>• Legislation related to waste: awareness of waste classification relevant to equipment used in collection of specimens</li> </ul>   | <p>Demonstrate the ability to recognise appropriate waste streams for equipment used to collect patient specimens</p> <p>Dispose of any equipment adhering to relevant legislation and local guidelines</p>   |
| <p><b>Requirements for good stock control and storage/use of limited stability products</b></p> <p>How core knowledge of good stock control and storage/use of limited stability products relates to stock control and storage in specimen collection</p>   | <p>Maintain adequate stock levels of all products used in the collection of specimens, following procedures for re-ordering when required</p> <p>Ensure all products are fit for use</p> <p>Rotate stock as appropriate</p>   |
| <p><b>Point of care testing</b></p> <p>Awareness of the increasing requirement for point of care testing and that this could be part of the role of a Healthcare Science Assistant</p> <p>Understanding that point of care testing (POCT) or bedside testing is defined as medical diagnostic testing at or near the point of care, at the time and place of patient care, knowledge that this could be in a wide range of settings</p> <p>Understanding of self testing digital healthcare technologies.</p> | <p>Perform point of care testing techniques on a range of individuals, following all required guidelines and applying knowledge of the tests that can be undertaken</p> <p>Provide person centred care in respect of POCT</p> <p>Apply consent procedures when undertaking POCT</p> <p>Gather information to support safe and appropriate POCT through questioning, listening to and observing patients and/or carers</p> |

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| <p>Know which tests are often undertaken as Point of Care tests, and how to undertake these tests, using specialized instrumentation/equipment, for example:</p> <ul style="list-style-type: none"> <li>• Blood gases and electrolyte testing</li> <li>• Dipstick urine analysis</li> <li>• Lateral flow tests</li> <li>• Amperometric bio-sensor strips for testing a range of blood metabolites such as blood glucose</li> <li>• Potentiometric test strips</li> </ul> <p>Awareness of the advantages and disadvantages of point of care testing</p> <p>Awareness of the quality management requirements for POCT equipment to ensure it is fit for use with patients and will provide accurate and reliable results</p> | <p>Promote health and well-being, both physical and mental at all times when working with patients, including during POCT</p> <p>Obtain reliable data from POCT using appropriate techniques, following Standard Operating Procedures</p> <p>Apply Good Clinical and Scientific Practice when undertaking all activities in respect of POCT, including quality management of equipment</p> |
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**Performance Outcome 3: Contribute to patient care by processing and analysing patient specimens in a range of life science areas and laboratory environments to produce reliable data sets for use by healthcare professionals in diagnosis and treatment**

| <b>Knowledge specific to Performance Outcome</b>   | <b>Skills specific to Performance Outcome</b>   |
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| <p><b>Job roles, disciplines and divisions in the processing and analysing of patient specimens</b></p> <p>Job role, responsibilities and duties of a Healthcare Science Assistant who is processing and analysing patient specimens, including awareness of the wide range of life science areas and laboratory environments in which they could work for example: pathology, clinical immunology, cytopathology, histopathology, reproductive embryology, virology, genomics/genetics and microbiology</p> | <p>Apply knowledge of roles and responsibilities to provide the best patient care when processing and analysing patient specimens in a range of laboratory environments</p> <p>Recognise the need to refer to a clinical colleague, and refer patients to another member of the healthcare team</p> <p>Apply understanding of the Scope of Practice in each specific laboratory area to ensure effective patient care</p> |

Understanding of the Scope of Practice of the job role in these life science areas: Importance of personal development, CPD and self- reflection/evaluation to support continuous improvement across these services. Awareness of the NHS leadership model and its implications in terms of scope of practice

How job role may contribute to research and innovation and the regulatory framework within which research and innovation is conducted, including research ethics: implications for job role

The role of quality management/improvement and the regulatory environment to maintain and improve Healthcare Science services and the quality standards relevant to your role

Knowledge of the range of services within Healthcare Science and in particular life sciences, that contribute to patient care to investigate, diagnose and treat disease, across the life-sciences division

Understanding of the roles and responsibilities within a multi-professional team; including activities which can only be carried out by registered professionals

When to refer to a clinical colleague for support and advice, including in difficult situations

Contribute to research and innovation within the boundaries of relevant clinical and scientific practice as required

**Quality Assurance in processing patient specimens**

Importance of Quality Assurance (QA) and audit to ensure quality data is obtained when processing patient specimens in any life science area, including:

- Use of audits and audit cycles to ensure high quality

Participate in audits to ensure valid, accurate and reliable data is produced

Adhere to all required QA procedures to ensure valid, accurate and reliable data is produced

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| <p>service outcomes and continuous improvements to benefit patients, staff and health services</p> <ul style="list-style-type: none"> <li>• External Quality Assurance</li> <li>• Internal Quality Assurance</li> <li>• Internal Quality Controls</li> <li>• Statistics of audit analysis</li> <li>• The need for accurate data presentation and transfer of Data using IT systems</li> <li>• How to present and transfer data accurately using IT systems</li> </ul>   |  |
| <p><b>Receiving, handling and storage of samples for processing and subsequent disposal</b></p> <p>Receiving and handling:</p> <p>Suitability of specimens for processing. How to:</p> <ul style="list-style-type: none"> <li>• Ensure that correct sample for testing has been received</li> <li>• Leaking samples: awareness of procedures to follow if samples are leaking</li> <li>• Samples incorrectly labelled or packaged: awareness of procedures to follow if samples are incorrectly labelled or packaged</li> <li>• Samples that are outside of time/temp range for processing: awareness of procedures to be followed if cold chain management requirements have not been adhered to</li> </ul> <p>Storage and disposal:</p> <ul style="list-style-type: none"> <li>• How to ensure all storage requirements are met, such as temperature</li> <li>• Awareness of storage duration requirements</li> </ul> | <p>Check the suitability and quality of all samples received adhering to local guidelines</p> <p>Demonstrate the ability to determine if samples received are of a sufficient quality to permit processing</p> <p>Follow procedures if samples are deemed not suitable, for example if samples are leaking they should be discharged and disposed of appropriately</p> <p>Use IT systems to record details of samples received</p> <p>Handle all samples with care and respect</p> <p>Adhere to storage requirements for samples</p> <p>Dispose of all specimens and tissue samples in line with regulations</p> |

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| <ul style="list-style-type: none"> <li>Regulations for the safe disposal of specimens and tissue samples</li> </ul>   |   |
| <p><b>Laboratory equipment used in the processing of specimens</b></p> <p>Knowledge of a range of laboratory equipment such as: centrifuges, balances, microscope, ph meter, microtome, spectrophotometer and HPLC</p> <ul style="list-style-type: none"> <li>Appropriate equipment/devices for required processing task</li> <li>Calibration and maintenance in line with requirements</li> <li>Addressing issues with equipment to ensure it is fit for use</li> </ul>  | <p>Use a range of pieces of routine laboratory equipment to process patient specimens</p> <p>Calibrate equipment in line with manufacturers requirements</p> <p>Maintain equipment to ensure it is fit for use</p>  |
| <p><b>Underlying principles of techniques used in the processing of specimens, to include:</b></p> <ul style="list-style-type: none"> <li>Light microscopy: awareness that this device uses visible light and system of lenses to magnify images that could not been seen by the naked eye</li> </ul> <p>Separation techniques</p> <ul style="list-style-type: none"> <li>Analytical chromatography: awareness that this is a group of techniques for the separation of mixtures so that the presence and amount of a particular analyte can be determined</li> <li>Electrophoresis: awareness that this is a group of techniques for the separation of molecules based on physical characteristics</li> <li>Immunological techniques: awareness of the use of these techniques to detect antibodies/antigens in patient specimens. Knowledge of most commonly used direct</li> </ul> | <p>Apply knowledge of underlying principles of microscopy techniques used in the processing of samples, to ensure that samples are processed effectively to obtain the most accurate results possible</p> <p>Apply knowledge of underlying principles of separation techniques used in the processing of samples, to ensure that samples are processed effectively to obtain the most accurate results possible</p> <p>Apply knowledge of underlying principles of quantitative techniques used in the processing of samples, to ensure that samples are processed effectively to obtain the most accurate results possible</p> |

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| <p>assay techniques such as Electrochemical immunoassay and enzyme-linked immunosorbent assay (ELISA)</p> <p>Quantitative analysis techniques</p> <ul style="list-style-type: none"> <li>• Spectrophotometry: awareness that this technique is based on the amount of light absorbed by coloured compounds and using compounds of known concentrations it is possible to analyse unknown mixtures against 'standard curves'</li> <li>• Flow cytometry: awareness that this is a technique used to detect and measure physical and chemical characteristics of a population of cells or particles</li> <li>• Mass spectroscopy: awareness that the basic principle for this technique is that a stream of charged particles is deflected by a magnetic field. The amount of deflection depends on the mass and the charge of the particles in the specimen</li> </ul> |   |
| <p><b>Techniques and specimens to be processed</b></p> <p>Knowledge of appropriate techniques taking into consideration specimen to be processed:</p> <ul style="list-style-type: none"> <li>• Importance of adhering to Good Laboratory Practice</li> <li>• Importance of adhering to Standard Operating Procedures</li> <li>• Infection prevention and control in specimen processing</li> <li>• Automation in the processing of specimens</li> </ul>  | <p>Undertake specimen processing using appropriate techniques, following Standard Operating Procedures including appropriate Infection Prevention Control and Health and Safety requirements including use of safety cabinets</p> |
| <p><b>Specimen details and results from specimen processing</b></p> <p>Knowledge of:</p> <ul style="list-style-type: none"> <li>• Recording specimen details</li> <li>• Recording results from specimen processing</li> </ul>  | <p>Record results and data obtained from specimen processing</p> <p>Be able to present data associated with results from process specimens in appropriate formats for hand over to team members</p>                               |

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| <ul style="list-style-type: none"><li>• Handling large data sets from specimen processing</li><li>• Enquiries relating to results: types of enquiry, data protection and clinical governance</li><li>• Awareness that some samples may be part of research and innovation activities within the clinical environment</li></ul> | Demonstrate the ability to deal with laboratory enquiries and to understand clinical governance when releasing information |
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## Occupational Specialism: Dental Technical Services

**Performance Outcome 1: Prepare and maintain work areas, equipment and resources to work safely in the dental laboratory when assisting in the manufacture and repair of a range of custom-made dental devices**

| Knowledge specific to Performance Outcome   | Skills specific to Performance Outcome  |
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| <p><b>Roles and responsibilities of dental technicians and other members of the dental team</b></p> <p>Job role, responsibilities and duties of a dental technician, scope of practice of the job role: importance of personal development, CPD and self-reflection/evaluation to support continuous improvement</p> <p>Roles and responsibilities within the dental services team; including activities which can only be carried out by registered professionals</p> <p>When to refer to a registered Dental Team member colleague for support and advice</p>                 | <p>Recognise scope of practice and the need to refer to other dental team members</p>   |
| <p><b>Health and Safety and standards in the dental laboratory</b></p> <p>How core knowledge of Health and Safety and standards relates to Dental Technical services, including but not limited to:</p> <ul style="list-style-type: none"> <li>• Health and Safety at work legislation and regulations</li> <li>• Safe use of equipment</li> <li>• COSHH regulations</li> <li>• Risk assessment</li> <li>• Importance of utilising appropriate Personal Protective Equipment (PPE) when necessary</li> </ul> <p>Within the dental laboratory specifically this will include</p> | <p>Follow safe working procedures and use equipment correctly, utilising PPE when necessary</p> <p>Contribute to a safe working environment, identify risks and hazards to protect yourself and your colleagues</p> <p>Use dust extractions systems to reduce work area contamination</p> <p>Use mechanical and light cure equipment to safely manufacture dental devices</p> <p>Carry out appropriate disposal or storage of waste materials</p> |

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| <p>the use of appropriate PPE before, during and after the manufacturing process, including:</p> <ul style="list-style-type: none"> <li>• Dust and fume extraction systems</li> <li>• Light-cure health and safety systems</li> <li>• Appropriate disposal or storage of waste material</li> </ul>  |  |
| <p><b>Regulations, legislation, protocols and processes within the dental laboratory</b></p> <p>Know how core regulations, legislation and ethics apply to own scope of practice within the dental laboratory, in order to promote and protect the health of individual patients. These include:</p> <ul style="list-style-type: none"> <li>• Medical Devices Regulations (MDR)</li> <li>• Medicines and Healthcare Products Regulatory Agency (MHRA)</li> <li>• General Dental Council (GDC) Regulations and guidance</li> </ul> | <p>Comply with all legislation, regulations, protocols and processes to ensure safe working in the dental laboratory</p> <p>Comply with all legal and ethical responsibilities in protecting and promoting the health of individual patients</p> |
| <p><b>Handling patient information within the dental laboratory</b></p> <p>How core knowledge of handling and storing information relates to Dental Technical Services including confidentiality and security of information to comply with General Data Protection Regulation (GDPR)</p>   | <p>Handle patient information to meet all legislative and legal requirements and keep patient information confidential</p>   |
| <p><b>Infection prevention and control in the dental laboratory</b></p> <p>How core knowledge of infection control relates to dental technical services, which includes but is not limited to:</p> <ul style="list-style-type: none"> <li>• Causes of infection</li> <li>• Routes of transmission</li> <li>• Techniques for prevention and control of infection during and after the dental manufacturing process,</li> <li>• Waste management of infected materials</li> </ul>   | <p>Apply knowledge of decontamination and infection prevention and control to ensure that work areas, equipment and resources are effectively maintained and cleaned during and after the manufacturing process</p>                              |

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| <ul style="list-style-type: none"> <li>Dealing with spillages in the dental laboratory</li> </ul>  |   |
| <p><b>Receiving and handling items received from a patient and/or clinics</b></p> <p>Understanding of the standard operating procedure for the receipt and handling of incoming items</p> <p>Cross infection control: identification of cross infection control labels and how to safely deal with items which do not appear to be correctly controlled and treated whilst quarantined at initial inspection</p> | <p>Receive items from a patient and/or clinics</p> <p>Ensure items are correctly controlled and safe to handle using normal safety precautions, as per standard operating procedures.</p> <p>Follow quarantine procedures and/or seek advice from a clinical colleague if items do not appear to be correctly controlled or appear unsafe</p> |
| <p><b>Preparing work areas within the dental laboratory</b></p> <p>Principles of maintaining and cleaning work areas within the dental laboratory ensuring they are always safe for use</p> <p>Disinfectants and their impact on materials within the dental laboratory, for example sodium hypochlorite on impression material</p> <p>Safe disposal of unwanted and hazardous materials, such as polymers</p>   | <p>Work in a safe and efficient manner to prepare the laboratory environment before manufacturing procedures</p> <p>Use disinfectants appropriately to ensure that materials are not damaged</p> <p>Dispose of unwanted materials in a safe and environmentally accepted manner, for example polymers</p>                                     |
| <p><b>Instruments and equipment used in the dental laboratory</b></p> <ul style="list-style-type: none"> <li>Range of equipment and instrumentation and their uses within the dental laboratory</li> <li>Understanding of equipment auditing, testing and maintenance</li> <li>Understanding of the safe use of equipment commonly used in the laboratory</li> </ul>   | <p>Adhere to manufacturer's requirements for storage, use and post use procedures of equipment and instruments</p> <p>Comply with workplace and legislative requirements for the storage, use and post use procedures of equipment and instruments</p>  |

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| <ul style="list-style-type: none"> <li>Understanding of the workplace and legislative requirements for storage of equipment and instruments used in the dental laboratory</li> </ul>   | <p>Use a range of dental laboratory equipment and instrumentation in an appropriate and safe manner</p>   |
| <p><b>Human anatomy and physiology</b></p> <p>How core knowledge of human anatomy and physiology relates to dental technical services; this includes structure, function and interaction of all main physiological systems</p> <p>Oral Anatomy: The basic understanding of normal dental/oral anatomy and physiology</p> <p>Basic head and neck anatomy which includes:</p> <ul style="list-style-type: none"> <li>Facial anatomy and the structure of the skull</li> <li>The structure and function of the mouth, tongue and soft tissues</li> <li>Structure and function of the human dentition</li> <li>The identification of individual teeth forms from the permanent dentition</li> </ul> <p>Common oral disorders and diseases: A basic understanding of common oral disorders and diseases</p> | <p>Apply knowledge of human anatomy and physiology, and oral common disorders, in particular oral anatomy and the forms of different human teeth to the design, manufacture and repair of prescribed dental devices</p> |

**Performance Outcome 2: Assist in the design, manufacture and repair of a range of prescribed dental devices to contribute to patient health and wellbeing**

| Knowledge specific to Performance Outcome   | Skills specific to Performance Outcome   |
|---|--|
| <p><b>Dental laboratory procedures</b></p> <p>Understanding of a range of Dental laboratory procedures e.g. making custom made dental devices including fixed</p> | <p>Apply knowledge of dental laboratory procedures to assist with the design and manufacture of simple custom-made dental devices with reference to the patient prescription</p> |

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| <p>prosthodontics (crowns, bridges) removable orthodontics and prosthetics (dentures)</p> <p>Clinical procedures undertaken with patients and how the prescription generated from these procedures is used to convey requirements to the dental technician</p>  | <p>Recognise manufacturing requirements and meet the clinical standards for custom made dental devices, referring for advice from the Dental Technician as appropriate</p>                 |
| <p><b>Production of a range of models and casts</b></p> <p>Understanding of:</p> <ul style="list-style-type: none"> <li>• Impression techniques and materials</li> <li>• How to prepare impressions for casting models considering all required infection control procedures</li> <li>• Appropriate materials for making models</li> </ul>  | <p>Use casting techniques to assist with the manufacture of a range of accurate models</p> <p>Modify casting techniques to assist with the production of models for different purposes</p> |
| <p><b>Production of partial and edentulous base and occlusal rim</b></p> <p>Understanding of:</p> <ul style="list-style-type: none"> <li>• Prescription requirements for the form of occlusal registration base and rim required</li> <li>• Understanding of what is involved in recording occlusal registration</li> <li>• Materials and equipment suitable to be used and adapting these materials</li> <li>• Understanding of how to construct a range of bases and occlusal rims</li> <li>• Standard sizes of rims</li> </ul> | <p>Assist in constructing laboratory made bases and rims for edentulous and partially edentulous cases</p>   |
| <p><b>Production of partial and edentulous special impression trays</b></p> <p>Understanding of:</p> <ul style="list-style-type: none"> <li>• Impression techniques and impression materials used in dentistry</li> </ul>   | <p>Assist with the assemble of the component parts for a laboratory made special tray</p> <p>Provide a spacer if it meets the prescription request</p>                                     |

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| <ul style="list-style-type: none"> <li>• Prescription requirements for the form of special tray required</li> <li>• Materials and equipment suitable to be used and the methods of adapting these materials</li> <li>• How to determine the peripheral outline, spacer thickness and handle requirements</li> <li>• Construction of a range of special impression trays</li> </ul>   | <p>Assist with the manufacture of the special tray and finish to correct dimensions</p> <p>Perforate the tray if required</p> <p>Assist in the review of the final product against the prescription request</p>  |
| <p><b>Production of a simple retainer, stents, bleaching trays and gum shields</b></p> <p>Understanding of:</p> <ul style="list-style-type: none"> <li>• Prescription requirements</li> <li>• Materials and equipment suitable to be used and adapting these materials</li> <li>• Construction of these devices using a range of techniques: <ul style="list-style-type: none"> <li>○ Thermoforming</li> <li>○ Loss wax technique</li> <li>○ Digital milling or printing</li> </ul> </li> </ul>  | <p>Assist in the manufacture of simple retainers, stents, bleaching trays and basic gum shields using a range of techniques, primarily thermoforming</p>   |
| <p><b>Production of a simple removable orthodontic custom-made device including wire components</b></p> <p>Understanding of:</p> <ul style="list-style-type: none"> <li>• Principles of orthodontics and different techniques for achieving tooth movement</li> <li>• Prescription requirements indicating the form of appliance</li> <li>• Methods and hand equipment suitable to be used and the adapting of stainless-steel wire components such as Adams Clasps, Labial bow with U loops.</li> <li>• Applications of self-cure resin for the base plate</li> </ul> | <p>Assist in the manufacture of the component parts of the orthodontic appliance from appropriate gauge stainless steel wire using various appropriate orthodontic pliers to the accepted component forms</p> <p>Assist with the assembly of the components on the model/cast to meet the prescription requirements for the requested basic removable orthodontic appliance</p> <p>Assist with the application of self-cure polymer and monomer by the standard technique using appropriate PPE and air extraction to ensure monomer vapour is removed</p> |

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|   | Assist with the application of shaping and finishing techniques to create a smooth well-fitting appliance to meet the clinical prescription   |
| <p><b>Manufacture of a polymeric tooth coloured restoration</b></p> <p>Understanding of:</p> <ul style="list-style-type: none"> <li>• Prescription requirements</li> <li>• Materials and equipment suitable to be used and adapting these materials</li> <li>• Finishing and polishing techniques for polymeric materials</li> <li>• Use of waxes and instruments to carve anatomically correct tooth morphology</li> <li>• Use of different loss wax techniques to produce tooth coloured crowns</li> <li>• The importance of colour and shade on teeth</li> <li>• The techniques employed in using composite materials for laboratory made single tooth restorations</li> <li>• How digital technology is used to make tooth coloured restorations</li> </ul> | <p>Assist a qualified practitioner with the manufacture of a polymeric tooth coloured restoration by:</p> <ul style="list-style-type: none"> <li>• Sectioning a pinned model and trim prepared tooth margin</li> <li>• Manufacturing a single tooth restoration in wax</li> <li>• Assembling the range of materials required to create the colour and transparency associated with the particular indicated tooth shade</li> <li>• Manufacturing a tooth coloured restoration in a polymeric material</li> <li>• Manufacturing a single tooth restoration in tooth coloured material</li> </ul>   |
| <p><b>Manufacture of an edentulous polymeric denture</b></p> <p>Understanding of:</p> <ul style="list-style-type: none"> <li>• Prescription requirements</li> <li>• Materials and equipment suitable to be used and adapting these materials</li> <li>• Understanding of articulation and different types of articulators</li> <li>• How to transfer casts and occlusal registration information to mount models onto an articulator</li> <li>• How to use information from the registration rim and the cast to create a base plate</li> </ul>   | <p>Assist a qualified practitioner with the manufacture of an edentulous polymeric denture by:</p> <ul style="list-style-type: none"> <li>• Mounting the complete denture occlusal registration on a suitable articulator</li> <li>• Adapting a wax denture base to the edentulous model/cast</li> <li>• Setting the given anterior teeth to a natural form on the wax denture base</li> <li>• Setting the given posterior teeth to provide correct interdigitation and adjusting to give appropriate articulations</li> <li>• Developing the base into a natural self-cleaning contour</li> <li>• Reflecting and reviewing the case ready for Clinical try-in</li> </ul> |

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| <ul style="list-style-type: none"> <li>• How to set denture anterior teeth to a correct natural position, and for the posterior teeth to integrate correctly with the opposing dentition</li> <li>• How to wax the denture base to a self-cleansing natural anatomical form</li> <li>• How to use a lost wax technique and two-part flasks, to accurately convert the wax denture into a polymeric denture</li> <li>• How to process the case to create polymerisation of polymer materials</li> <li>• De-flasking and stoning techniques to finalise the shape and polishing techniques for final lustre of the polymeric denture base</li> </ul> | <ul style="list-style-type: none"> <li>• Making the adjustments requested after Clinical try-in</li> <li>• Investing the final denture wax pattern into polymeric material using a two part mould and a lost wax process</li> <li>• Finishing the polymerised complete denture by stoning and polishing to create a smooth self-cleaning natural denture base</li> <li>• Making a final check of the appliance, and its occlusion and articulations ready for internal quality check</li> </ul>  |
| <p><b>Repair a partial and edentulous polymeric denture</b></p> <p>Understanding of the required processes and techniques in the repair, including:</p> <ul style="list-style-type: none"> <li>• Disinfection of broken components</li> <li>• Accurate refitting together</li> <li>• Noting the reasons for the potential breakage and potential needs to refer back to a clinical team member</li> <li>• Methods for repairing using autopolymerising resin and additional support links that might be proposed</li> </ul>  | <p>Assist a qualified practitioner with the repair of a partial and edentulous polymeric denture by:</p> <ul style="list-style-type: none"> <li>• Disinfecting the part of the denture</li> <li>• Assembling parts of the fractured denture and making a temporary join</li> <li>• Considering the need for an impression or clinical team member review</li> <li>• Casting a model to enable repair</li> <li>• Preparing and repairing the fracture using polymeric material and polymerise</li> <li>• Finishing the denture after repair and polish</li> <li>• Applying appropriate cleaning prior to final quality checking within the dental laboratory</li> </ul> |
| <p><b>Digital technology in Dental Technical services including the use of Computer Aided Design and Manufacture (CAD/CAM)</b></p>   | <p>Assist a qualified practitioner with the use of Digital Technology by:</p> <ul style="list-style-type: none"> <li>• Undertaking basic scanning using digital technology</li> </ul>  |



Principles of using Computer Aided Design and Manufacture  
CAD/CAM:

- Scanning, design and manufacture principles within dental technology
- Scanning analogue to digital files
- Intra-oral scanning and file transfer methods
- Digital design methods used within the dental laboratory environment
- Digital manufacture including milling, 3D printing and laser sintering

- Using CAD/CAM software in designing a component for a dental restoration
- Transferring files for the production of a dental device by various manufacturing systems e.g. milling, 3D printing and sintering a dental device

## Occupational Specialism: Technical: Prosthetic and Orthotic services

**Performance Outcome 1: Design and manufacture custom made devices to meet the prescription needs and goals of individual patients and to contribute to their health and well being**

| Knowledge specific to Performance Outcome  | Skills specific to Performance Outcome  |
|--|---|
| <p><b>Roles and responsibilities in the prosthetic and orthotic team</b></p> <p>Job role, responsibilities and duties of a prosthetic and orthotic technician, scope of practice of the job role and limitations</p> <p>The need to keep skills and knowledge up to date and the importance of career-long learning; the use of valid research and best practice evidence to inform reflection on practice and the need to record the outcome of such reflections</p> <p>How to work collaboratively with those who provide services to individuals; recognising the limits of prosthetic/orthotic technical practice and when to seek advice</p> <p>When to escalate concerns in a timely manner to the correct person</p> <p>The limits of prosthetic/orthotic technical practice in the context of individual care and when to refer back to the Prosthetist/ Orthotist</p> | <p>Work collaboratively in partnership with other team members, individuals and carers</p> <p>Work safely and within limitations of practice</p> <p>Work as part of a team, seek help and guidance when necessary, escalate concerns in a timely manner to the correct person</p> |
| <p><b>Health and Safety regulations, legislation and standards in the prosthetic and orthotic environment</b></p> <p>How core knowledge of Health and Safety regulation, legislation and standards relates to the provision of prosthetic and orthotic technical services. This includes: Health and Safety at work legislation and regulations, safe use of equipment, COSHH</p>  | <p>Follow and maintain safe working practices at all times</p> <p>Undertake risk assessments using a range of techniques</p> <p>Comply with local and national standards regarding reporting of medical device failures and incidents</p>   |

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| <p>regulations and importance of and adherence to policies and procedures and meeting required quality standards</p> <p>Ways to assess risks that ensures safety and security of prescribed devices and quality guidelines and device design principles that apply to individual devices; incident reporting and escalation</p>  | <p>Adhere to all required policies, procedures quality standards and systems</p>  |
| <p><b>Human anatomy and physiology</b></p> <p>How core knowledge of human anatomy and physiology relates to prosthetic and orthotic technical services; this includes basic structure, function and interaction of all main physiological systems and in particular for Technical: Prosthetic and Orthotic Services the structure and function of the musculoskeletal system</p> | <p>Apply knowledge of the structure and function of the musculoskeletal system when manufacturing a prescribed device</p>                 |
| <p><b>Conditions that can lead to the need for/use of prosthetic and orthotic devices</b></p> <p>Examples of conditions that can lead to the use of prosthetic and orthotic devices. Conditions such as Diabetes and Multiple Sclerosis</p> <p>Features of conditions, such as neuropathy and phantom limb pain which may directly affect the wearing of devices</p>             | <p>Apply knowledge of conditions that can lead to the need for a device when assisting in the manufacture of a prescribed device</p>      |
| <p><b>Structure and properties of materials used to manufacture and repair prosthetic and orthotic devices</b></p> <p>Types of materials used and their appropriate application to prosthetic or orthotic hardware and clinical practice</p> <p>Range of modelling techniques used in the manufacturing process</p> <p>How to measure and adjust a model</p>                     | <p>Apply knowledge of the structure and properties of materials when assisting in the manufacture or repairing of a prescribed device</p> |

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| <p><b>Manufacturing machinery and equipment</b></p> <p>Types and examples of manufacturing machinery and equipment used in the manufacture and repair of prosthetic and orthotic devices</p> <p>How such manufacturing machinery and equipment works</p> <p>How to maintain machinery and equipment to a high standard at all times</p> <p>When and where to report faults with machinery and equipment</p>   | <p>Assist a qualified practitioner in the manufacture of a prescribed device by:</p> <ul style="list-style-type: none"> <li>• Using appropriate machinery and equipment</li> <li>• Maintaining manufacturing machinery to ensure that devices produced meet required standards</li> <li>• Identifying any problems with the manufacturing machinery and report any defects</li> </ul> |
| <p><b>Required information to manufacture custom made devices</b></p> <p>The patient, measurement, material and component information required to manufacture the device that has been requested</p> <p>How to and where to correctly record the relevant manufacturing details</p>   | <p>Assist a qualified practitioner in the manufacture of a prescribed device by:</p> <ul style="list-style-type: none"> <li>• Using patient, measurement, material and component information to ensure that devices produced meet required standards</li> <li>• Using the recorded manufacturing details to ensure that devices produced meet required standards</li> </ul>           |
| <p><b>Computer Aided Design Technology in the manufacture of custom made devices</b></p> <p>Principles of using Computer Aided Design and Manufacture CAD/CAM:</p> <ul style="list-style-type: none"> <li>• Scanning, design and manufacture principles within orthotic and prosthetic technology</li> <li>• Digital design methods used within the prosthetic/orthotic laboratory environment</li> <li>• Digital manufacture including milling, 3D printing and laser sintering</li> </ul> | <p>Assist a qualified practitioner in the manufacture of a prescribed device by:</p> <ul style="list-style-type: none"> <li>• Making appropriate use of IT systems as part of the manufacturing process, i.e. use computer aided technologies in the manufacture of custom made devices</li> </ul>  |

**Performance Outcome 2: Work directly with patients to fit custom made devices, make mechanical repairs to devices and provide advice and support in the use of devices**

| Knowledge specific to Performance Outcome  | Skills specific to Performance Outcome  |
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| <p><b>Providing Person Centred Care</b></p> <p>How core knowledge of providing person centred care relates to prosthetic and orthotic technical services, which includes but is not limited to:</p> <ul style="list-style-type: none"> <li>• Awareness of the importance of effective patient interaction in providing person centred care for prosthetics and orthotics</li> <li>• What is meant by informed consent and how to secure it across the age range and in line with cognitive ability</li> <li>• The importance of providing individuals with information that allows them to make informed decisions and safely manage their condition and supplied devices</li> <li>• Meaning and importance of duty of care medical ethics and the safeguarding of adults and children</li> <li>• Working in partnership with patients and carers to ensure person centred care is always provided</li> </ul> <p>As well as understanding how disability affects and influences prosthetic and orthotic management</p> <p>The requirement to adapt practice to meet the needs of individuals dealing with the emotional effects of a range of circumstances and experiences that have led them to require prosthetic and orthotic services</p> | <p>Support a qualified practitioner to fit custom made devices, make mechanical repairs to devices and provide advice and support in the use of devices by:</p> <ul style="list-style-type: none"> <li>• Providing person centred care when working directly with patients to fit or repair devices</li> <li>• Obtaining and documenting informed consent for prosthetic/orthotic care</li> <li>• Providing support to individuals receiving prosthetic/orthotic care such as the fitting or repair of custom made devices</li> <li>• Safeguarding individuals, including vulnerable adults and children when providing prosthetic/orthotic care</li> </ul> |
| <p><b>Patient assessment</b></p>   | <p>Assist in assessment of the patient by taking patient history</p>  |

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| <p>Knowledge of:</p> <ul style="list-style-type: none"> <li>• How to take a patient history</li> <li>• How to conduct a patient physical examination (including taking measurements for the device)</li> </ul> <p>Requirements of a device prescription</p>   | <p>Assist in conducting a physical examination (including taking measurements for the device) and preparation of a device prescription</p>  |
| <p><b>Managing patient information</b></p> <p>How core knowledge of managing patient information relates to prosthetic and orthotic technical services, which includes but is not limited to:</p> <ul style="list-style-type: none"> <li>• How to maintain confidentiality and apply the principles of information governance</li> <li>• The importance of managing records and data in accordance with legislation, protocols and best practice</li> <li>• How IT systems are used to access and record patient information</li> </ul> | <p>Safeguard confidential information relating to individuals at all times</p> <p>Maintain records that are fit for purpose and process them accordingly</p> <p>Utilise IT systems to read and record patient information</p>   |
| <p><b>Fitting prosthetic and orthotic devices</b></p> <p>The importance of effective assessment in prosthetics and orthotics to ensure the correct fitting of devices</p> <p>How to work directly with patients and carers to fit prescribed devices</p> <p>The importance of providing individuals with information that allows them to make informed decisions and safely manage their condition and supplied devices</p>   | <p>Assist qualified practitioners with the fitting of prosthetic and orthotic devices by:</p> <ul style="list-style-type: none"> <li>• Explaining to patients how to make effective use of fitted devices</li> <li>• Checking that the completed device meets the prescription provided and is suitable for the individual patient</li> <li>• Working directly with patients to correctly fit the device</li> <li>• Testing that the device is working correctly and modify if required</li> <li>• Supporting patient/carer to maintain the device</li> </ul> |

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| <p><b>Quality guidelines and incident reporting</b></p> <p>Understanding of all applicable clinical governance and national and local standards such as:</p> <ul style="list-style-type: none"> <li>• NICE guidelines</li> <li>• Customer service guidelines</li> <li>• Patient led prosthetics services charter</li> <li>• British association of prosthetics</li> </ul> <p>Understanding of the importance and use of manufacturers' quality assurance requirements in relation to specific devices</p> | <p>Adhere to all applicable national and local clinical governance standards</p> <p>Ensure that any device is fit for use and purpose and complies with the manufacturer/department/company quality assurance and legal requirements</p> <p>Comply with local and national standards regarding reporting of medical device failures and incidents</p> |
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## Integrating Maths, English and digital skills

### Maths

The completion of a level 2 mathematics qualification (GCSE mathematics or Functional Skills) is a minimum exit requirement for all T Levels. This will ensure that all students have demonstrated fluency and competence in mathematics, and are able to recognise the importance of mathematics in their own lives, in work and to society. Achievement of a level 2 mathematics qualification will also provide the foundation to access mathematics at a higher level, if required.

Technical Qualifications should contain sufficient and appropriate maths to help students reach the required minimum competence in their chosen specialism(s). The following General Maths Competencies (GMCs) have been developed with input from the Royal Society Advisory Committee on Maths Education (ACME), and awarding organisations will need to embed these, and the underpinning maths, into the specifications and assessments being developed as part of the Technical Qualification.

The GMCs below are relevant to this particular Technical Qualification:

- Communicate using mathematics
- Cost a project
- Estimate, calculate and error-spot
- Measure with precision
- Optimise work processes
- Process data
- Represent with mathematical diagrams
- Understand data
- Use rules and formulae
- Work with proportion.

Awarding organisations that are awarded an exclusive licence will need to integrate these into the Technical Qualification specification and assessments, drawing upon a more detailed framework of maths that underpins the GMCs, currently being developed in association with the Royal Society ACME.

### English

The completion of a level 2 English qualification (English language GCSE or Functional Skills) is a minimum exit requirement for all T Levels. This will ensure that all students have demonstrated that they can read fluently, communicate and write effectively, and demonstrate a confident control of Standard English.

The specification for a Technical Qualification should ensure that students acquire the technical vocabulary, and gain the practical communication skills (written and oral), needed to achieve competence in their chosen occupational specialism(s).

The assessments for Technical Qualifications should ensure that students:

- Know the correct technical vocabulary and use it appropriately



- Apply their communication skills (written and oral) appropriately, using Standard English
- Use accurate spelling, punctuation and grammar.

## Digital

Technical Qualifications should contain sufficient and appropriate digital skills to help students reach competence in their chosen specialism(s).

This Technical Qualification should support students to develop the digital knowledge and skills needed in order to:

- Adopt professional approaches to using digital communications and social media
- Collate, manage, access and use digital data in spreadsheets, databases and other formats
- Design and create new digital artefacts and materials such as digital writing, digital image, digital audio and video, digital code, apps and interfaces and web pages
- Follow licensing guidelines, using only approved and licensed software applications
- Gather and organise information from different digital sources
- Make use of standard analytical tools in applications to better interpret information.

Awarding organisations that are awarded an exclusive licence will need to integrate these into the Technical Qualification specification and assessments.