Level 4 Award in Laser Core of Knowledge

Specification (For Centres)

May 2025

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About QUALIFI

QUALIFI is recognised and regulated by Ofqual (Office of Qualifications and Examinations Regulator). Our Ofqual reference number is RN5160. Ofqual regulates qualifications, examinations, and assessments in England.

As an Ofqual recognised Awarding Organisation, QUALIFI is required to carry out external quality assurance to ensure that centres approved for the delivery and assessment of QUALIFI's qualifications meet the required standards. This comprises centre approval, qualification approval and ongoing monitoring through our External Quality Assurance and annual centre monitoring processes.

Why Choose QUALIFI Qualifications?

QUALIFI qualifications aim to support learners to develop the necessary knowledge, skills and understanding to support their professional development within their chosen career and/or to provide opportunities for progression to further study.

Our qualifications provide opportunities for learners to:

- apply analytical and evaluative thinking skills
- develop problem solving and creativity to tackle problems and challenges
- exercise judgement and take responsibility for their decisions and actions
- develop the ability to recognise and reflect on personal learning and improve their personal, social, and other transferable skills.

Employer Support for the Qualification Development

During the development of this qualification QUALIFI consulted with a range of employers, providers and existing centres (where applicable) to ensure rigour, validity and demand for the qualification and to ensure that the development considers the potential learner audience for the qualification and assessment methods.

Equality, Diversity and Inclusion (EDI)

QUALIFI qualifications are developed to be accessible to all learners who are capable of attaining the required standard. QUALIFI promotes equality, diversity and inclusion across all aspects of the qualification process. Centres are required to implement the same standards of EDI and ensure teaching and learning are free from any barriers that may restrict access and progression. For further details please refer to QUALIFI's *Equality, Diversity and Inclusion Policy*.

Learners with any specific learning needs should discuss this in the first instance with their approved centre who will refer to QUALIFI's *Reasonable Adjustment and Special Consideration Policy*.

Qualification Title and Accreditation Number

This qualification has been accredited to the Regulated Qualification Framework (RQF) and has its own unique Qualification Accreditation Number (QAN). This number will appear on the learner's final certification document. Each unit within the qualification has its own RQF code. The QAN for each of these qualifications is as follows:

Qualifi Level 4 Award in Laser Core of Knowledge 610/5706/X

Qualification Aims and Learning Outcomes

Aims of the QUALIFI Level 4 Award in Laser Core of Knowledge

The aim of the QUALIFI Level 4 Award in Laser Core of Knowledge is to provide learners with an understanding of laser principles and protocols and essential underpinning knowledge to perform non-surgical cosmetic procedures using lasers safely.

Successful completion of the QUALIFI Level 4 Award in Laser Core of Knowledge provides learners with the opportunity to progress to further study or employment within the Aesthetics industry.

Learning Outcomes of the QUALIFI Level 4 Award in Laser Core of Knowledge

The overall learning outcomes of the qualification are for learners:

- **Laser Core of Knowledge** – learners will be able to understand the core principles of laser safety when carrying out a laser procedure within aesthetic practice.

The learning outcomes and assessment criteria for each unit are outlined in the unit specifications.

Delivering the Qualification

All centres are required to complete an approval process to be recognised as an approved centre. Centres must have the ability to support learners and:

- have in place qualified and experienced assessors. All assessors are required to undertake regular continued professional development (CPD)
- access to the physical resources needed to support the delivery of the qualification and learner achievement.

Centres must commit to working with QUALIFI and its team of External Quality Assurers (EQAs). Approved centres will be monitored by QUALIFI EQAs to ensure compliance with QUALIFI requirements and to ensure that learners are provided with appropriate learning opportunities, guidance, and formative assessment.

QUALIFI, unless otherwise agreed:

- sets all assessments;
- quality assures assessments prior to certification;
- provides the criteria to award the final mark and issues certificates.

Centre staffing

Staff delivering this qualification should:

- be occupationally competent and technically knowledgeable in the area[s] they are assessing
- have recent relevant experience in the specific area they will be assessing and quality assuring.
- hold, or be working towards, the relevant Assessor/ Internal Quality Assurers (IQAs) qualification (s).

Assessors are assessing learner performance in a range of tasks to ensure the evidence they produce meets the requirements of the unit assessment criteria. To do this effectively assessors need a thorough understanding of assessment and quality assurance practices, as well as in-depth technical understanding related to the qualifications they are assessing.

To support assessors and the centre's internal quality systems, IQAs must have appropriate teaching and vocational skills, knowledge and expertise and be familiar with the occupation and technical content covered within the qualification.

Continuing professional development (CPD)

Centres are expected to support the CPD of their staff to maintain current and up-to-date knowledge of the occupational area and ensure best practice in delivery, mentoring, training, assessment and quality assurance.

For the delivery of the QUALIFI Level 5 Certificate in Tattoo Fade and Removal qualification the following centre requirements need to be in place:

Trainer Requirements

Trainers must be appropriately qualified and occupationally competent in the areas they are training. They must have:

- A minimum of 2 years' experience in the procedures for which they will be training and supervising.
- A Level 4 Certificate in Education and Training or equivalent.
- Appropriate indemnity insurance
- Undertaken 30 hours Continued Professional Development (CPD) relating to aesthetic practice to maintain and update their skills and knowledge within the last year
- Current and valid Basic Life Support (BLS) and anaphylaxis management qualification

Assessor Requirements

Assessors must be appropriately qualified and occupationally competent in the areas they are assessing. They must have:

- A minimum of 2 years' experience in the procedures for which they will be assessing.
- A Level 4 Certificate in Education and Training or equivalent.
- A Level 3 Certificate in Assessing Vocational Achievement or be working towards
- Appropriate indemnity insurance
- Undertaken 30 hours Continued Professional Development (CPD) relating to aesthetic practice to maintain and update their skills and knowledge within the last year
- Current and valid Basic Life Support (BLS) and anaphylaxis management qualification

Internal Quality Assurer Requirements

Internal Quality Assurers (IQAs) must be appropriately qualified and occupationally competent in the areas they are internally quality assuring. They must have:

- A minimum of 2 years' experience in the procedures for which they will be internally quality assuring.
- A Level 3 Certificate in Assessing Vocational Achievement
- A Level 4 Award in the Internal Quality Assurance of Assessment Processes and Practice and/or Level 4 Certificate in Leading the Internal Quality Assurance of Assessment Processes and Practice or be working towards
- Appropriate indemnity insurance
- Undertaken 30 hours Continued Professional Development (CPD) relating to aesthetic practice to maintain and update their skills and knowledge within the last year.

Quality assurance

Approved Centres must have effective quality assurance systems in place to ensure robust qualification delivery and assessment, which includes internal monitoring and review procedures.

Qualifi will appoint approved External Quality Assurers (EQAs) to monitor the assessment and internal quality assurance carried out by centres and ensure that assessment is valid and reliable. Please see QUALIFI's *External Quality Assurance Policy.*

Learner Recruitment, Induction and Registration

Recruitment

Approved Centres are responsible for reviewing and making decisions as to the applicant's ability to complete the learning programme successfully and meet the demands of the qualification. The initial assessment by the centre will need to consider the support that is readily available or can be made available to meet individual learner needs as appropriate.

During recruitment, approved centres need to provide learners with accurate information on the title and focus of the qualification for which they are studying.

The qualification has been designed to be accessible without artificial barriers that restrict access. For this qualification, applicants must be aged 19 or over.

In the case of applicants whose first language is not English, then IELTS 6 (or equivalent) is required. International qualifications will be checked for appropriate enrolment to UK higher education postgraduate programmes where applicable. The applicants are normally required to produce two supporting references, at least one of which should preferably be academic.

Entry Criteria

The qualification has been designed to be accessible without artificial barriers that restrict access and progression. Entry to the qualifications will be through centre interview and learners will be expected to hold the following:

- A QUALIFI Level 3 Certificate or Diploma in either Beauty Therapy or Aesthetics or equivalent.

Learner induction

Approved Centres should ensure all learners receive a full induction to their study programme and the requirements of the qualification and its assessment.

All learners should expect to be issued with the course handbook and a timetable and meet with their personal tutor and fellow learners. Centres should assess learners carefully to ensure that they can meet the requirements of the qualification and that, if applicable, appropriate pathways or optional units are selected to meet the learner's progression requirements.

Centres should check the qualification structures and unit combinations carefully when advising learners. Centres will need to ensure that learners have access to a full range of information, advice and guidance to support them in making the necessary qualification and unit choices.

All learners must be registered with QUALIFI within the deadlines outlined in the QUALIFI *Registration, Results and Certification Policy and Procedure*.

Recognition of Prior Learning

Recognition of Prior Learning (RPL) is a method of assessment (leading to the award of credit) that considers whether learners can demonstrate that they can meet the assessment requirements for a unit through knowledge, understanding or skills they already possess and so do not need to develop through a course of learning.

QUALIFI encourages centres to recognise learners' previous achievements and experiences whether at work, home or at leisure, as well as in the classroom. RPL provides a route for the recognition of the achievements resulting from continuous learning. RPL enables recognition of achievement from a range of activities using any valid assessment

methodology. Provided that the assessment requirements of a given unit or qualification have been met, the use of RPL is acceptable for accrediting a unit, units, or a whole qualification.

Evidence of learning must be valid and reliable. For full guidance on RPL please refer to QUALIFI's *Recognition of Prior Learning Policy*.

Data Protection

All personal information obtained from learners and other sources in connection with studies will be held securely and will be used during the course and after they leave the course for a variety of purposes and may be made available to our regulators. These should be all explained during the enrolment process at the commencement of learner studies. If learners or centres would like a more detailed explanation of the partner and QUALIFI policies on the use and disclosure of personal information, please contact QUALIFI via email support@QUALIFI-international.com

Learner Voice

Learners can play an important part in improving the quality through the feedback they give. In addition to the ongoing discussion with the course team throughout the year, centres will have a range of mechanisms for learners to feedback about their experience of teaching and learning.

Professional Development and Training for Centres

QUALIFI supports its approved centres with training related to our qualifications. This support is available through a choice of training options offered through publications or through customised training at your centre.

The support we offer focuses on a range of issues including:

- planning for the delivery of a new programme
- planning for assessment and grading
- developing effective assignments
- building your team and teamwork skills
- developing learner-centred learning and teaching approaches
- building in effective and efficient quality assurance systems.

Please contact us for further information.

Progression and Links to other QUALIFI Programmes

Completing the **QUALIFI Level 4 Award in Laser Core of Knowledge** will enable learners to progress to:

- QUALIFI Level 4 Certificate in Laser, Light and Energy-Based Procedures

- QUALIFI Level 4 Diploma in Aesthetic Procedures for Skin Rejuvenation including unit AP412: Skin rejuvenation using laser, light and energy-based devices.
- QUALIFI Level 5 Certificate in Tattoo Fade and Removal
- Employment in an associated profession.

Qualification Structure and Requirements

Credits and Total Qualification Time (TQT)

The QUALIFI Level 4 Award in Laser Core of Knowledge comprises **1** credits which equates to **10** hours of TQT.

Total Qualification Time (TQT): is an estimate of the total amount of time that could reasonably be expected to be required for a learner to achieve and demonstrate the achievement of the level of attainment necessary for the award of a qualification.

Examples of activities that can contribute to Total Qualification Time include: guided learning, independent and unsupervised research/learning, unsupervised compilation of a portfolio of work experience, unsupervised e-learning, unsupervised e-assessment, unsupervised coursework, watching a prerecorded podcast or webinar, unsupervised work-based learning.

Guided Learning Hours (GLH): are defined as the time when a tutor is present to give specific guidance towards the learning aim being studied on a programme. This definition includes lectures, tutorials and supervised study in, for example, open learning centres and learning workshops, live webinars, telephone tutorials or other forms of e-learning supervised by a tutor in real time. Guided learning includes any supervised assessment activity; this includes invigilated examination and observed assessment and observed work-based practice.

Rules of Combination for QUALIFI Level 4 Award in Laser Core of Knowledge

To achieve this qualification a learner must successfully complete the **one** mandatory unit – **1** credit.

Unit Reference	Mandatory/Optional Units	Level	TQT	Credit	GLH
J/651/6011	Laser Core of Knowledge	4	10	1	8
		Total	**10**	**1**	**8**

Achievement Requirements

Learners must demonstrate they have met all learning outcomes and assessment criteria for all the required units to achieve these qualifications. QUALIFI will issue e-certificates directly to all successful learners registered with an approved QUALIFI centre.

Awarding Classification/Grading

This qualification grading is: **Pass/Fail**

All units will be internally assessed through practical observation, underpinning knowledge assessments and professional discussion. Assessments will be internally marked by the QUALIFI approved centre and subject to external quality assurance by QUALIFI.

Assessment Strategy and Methods

QUALIFI will provide the assessment methodology and marking guidelines for each unit of this qualification. Assessments will address all learning outcomes and related assessment criteria, all of which must be demonstrated/passed in order to achieve the qualification.

Assessments will enable learners to draw on case studies and clinical practice related information and/or examples wherever possible. Practical skills will need to be demonstrated in a real or simulated clinical environment and observation by an assessor, see Assessment Guidance for further information.

The assessment tasks will require learners to draw on real organisational information or case studies to illustrate their answers. To support this activity during the programme of learning, centres are required to make sure that they mandatory case study requirements are met and wherever possible, encourage learners to draw on work-place opportunities to undertake research and investigation to support their learning.

QUALIFI provides a user-friendly e-portfolio system for candidates to upload their assessment evidence and assignments for Assessors to mark and IQAs to quality assure. Approved centres should undertake the QUALIFI centre development courses to understand how to use the e-portfolio and the benefits to learners and the centre.

Learner assessments will be internally marked by the approved centre and will be subject to external quality assurance by QUALIFI prior to certification.

1: Formative Assessment

Formative assessment is an integral part of the assessment process, involving both the Tutor/Assessor and the learner about their progress during the course of study. Formative assessment takes place prior to summative assessment and focuses on helping the learner to reflect on their learning and improve their performance and does not confirm achievement of grades/pass-mark at this stage.

The main function of formative assessment is to provide feedback to enable the learner to make improvements to their work. This feedback should be prompt, so it has meaning and context for the learner and time must be given following the feedback for actions to be complete. Feedback on formative assessment must be constructive and provide clear guidance and actions for improvement. All records should be available for auditing

purposes, as QUALIFI may choose to check records of formative assessment as part of our ongoing quality assurance. Formative assessments will not contribute to the overall mark/achievement of the units.

2: Summative Assessment

Summative assessment is used to evaluate learner competence and progression at the end of a unit or component. Summative assessment should take place when the assessor deems that the learner is at a stage where competence can be demonstrated.

Learners should be made aware that summative assessment outcomes are subject to confirmation by the Internal Quality Assurer (IQA) and External Quality Assurer (EQA) and thus is provisional and can be overridden. Assessors should annotate on the learner work where the evidence supports their decisions against the assessment criteria. Learners will need to be familiar with the assessment and grading/marking criteria so that they can understand the quality of what is required.

Formative Assessment	**Summative Assessment**
used during the learning process	used at the end of the learning process
provides feedback on learning-in-process	evaluates achievement against learning outcomes and assessment criteria
dialogue-based, ungraded	graded Pass / Refer

Evidence of both formative and summative assessment MUST be made available at the time of external quality assurance – EQA.

Unit CO403: Laser Core of Knowledge

Unit code:

RQF level: Level 4

Unit Aim

- Learners will be able to understand the core principles of laser safety when carrying out a laser procedure within aesthetic practice.
- Learners will gain knowledge of laser and light including safety legislation, electromagnetic radiation, and tissue interaction.
- This unit has been mapped against the MHRA Guidance on the safe use of lasers, intense light source systems and LEDs in medical, surgical, dental, and aesthetic practices.

Fundamentals of optical radiation devices and their interaction with tissue

- Understand how the different types of optical radiation are produced, what types of active media are used, and emission modes and delivery systems.
- Understand the characteristics of optical radiation emitted from different types of equipment.
- Be familiar with the intended purpose of the optical radiation equipment.
- Understand the effects of optical radiation exposure to eyes, skin and other tissue.

Hazards and how to control them

- Understand the principles of risk assessment.
- Be aware of the effects of exposure and health hazards, including eye, skin and tissue, which can arise from the use of laser, IPL or other optical radiation equipment.
- Be aware of the basic principles of the maximum permissible exposure levels and how to keep exposure of unprotected skin and eyes below these levels.
- Understand the hazards from optical radiation equipment, including optical beams, electrical hazards, equipment malfunctions, fire risks and smoke plume effects.
- Understand the hazards to patients and clients and the methods of minimising risks.
- Understand the hazards associated to the different staff groups and methods for minimising risks.
- Understand the hazards from reflections or absorption of the optical radiation beam with respect to instruments, or reflective surfaces, or other equipment.
- Understand the hazard control procedures, including the use of personal protection.
- Be familiar with the additional precautions that may be necessary when undertaking non-routine activities with the equipment.

Safety management

- Be familiar with the basic principles of the administration of safety.
- Be aware of the relevant legislation, standards and hazard classifications relevant to lasers, IPLs and LEDs.

- Understand the safety procedures and policies governing optical radiation equipment use, including the local rules, and controlled area.
- Understand the role of the laser protection adviser, laser protection supervisor, authorised users and assisting staff.
- Be aware of the principles and requirements of equipment quality assurance processes and procedures.
- Be aware of the meaning of the warning labels and signs associated with optical radiation equipment.
- Understand the general principles of emergency action and how to report accidents.

https://assets.publishing.service.gov.uk/media/5a75936f40f0b6360e475291/Laser_guidance_Oct_2015.pdf MHRA Lasers, intense light source systems and LEDs – guidance for safe use in medical, surgical, dental and aesthetic practices.

Learning Outcomes, and Assessment Criteria

Learning Outcomes. To achieve this unit a learner must know and understand:		**Assessment Criteria: Assessment of these outcomes demonstrates a learner can:**	
LO1	The fundamentals of optical radiation devices (laser and Light technologies) and their interaction with tissue.	1.1	Appraise how the different types of optical radiation are produced, the types of active media used, and emission modes and delivery systems.
		1.2	Compare the characteristics of optical radiation emitted from different types of equipment.
		1.3	Describe the intended purpose of the optical radiation equipment.
		1.4	Examine the effects of optical radiation exposure to eyes, skin and other tissues.
LO2	Hazards and how to control them when using laser and light technologies in a laser clinic.	2.1	Determine the principles of a risk assessment.
		2.2	Explain the effects of exposure and the potential hazards to health, including eye, skin and tissues, from using laser, IPL or other optical radiation equipment.
		2.3	Describe the basic principles of the maximum permissible exposure levels

		2.4	Describe the hazards from optical radiation equipment, including optical beams, electrical hazards, equipment malfunctions, fire risks and smoke plume effects.
		2.5	Explain the hazards to clients and the methods used to minimise risks.
		2.6	Explain the hazards associated to the different staff groups and methods for minimising risks when using laser or light technologies.
		2.7	Understand the hazards from reflections or absorption of the optical radiation beam with respect to instruments, or reflective surfaces, or other equipment.
		2.8	Explain the hazard control procedures in place within the laser clinic, including the use of personal protection.
		2.9	Explain the additional precautions that may be necessary when undertaking non-routine activities with laser and light technologies.
LO3	Safety measures, legislation and management in a laser clinic.	3.1	Explain the basic principles of the administration of safety.
		3.2	Describe relevant legislation, standards and hazard classifications relevant to
		3.3	Outline the safety procedures and policies governing optical radiation equipment use, including the local rules, and controlled area
		3.4	Evaluate the role of the laser protection adviser, laser protection supervisor, authorised users and assisting staff.
		3.5	Outline the principles and requirements of equipment quality assurance processes and procedures

		3.6	Explain the meaning of the warning labels and signs associated with optical radiation equipment.
		3.7	Explain the general principles of emergency action and how to report accidents.

Indicative Content

Laser output mechanisms

- Continuous wave
- Gated or chopped CW mode
- Q-switched

Types of lasers used in medical applications

- Excimer
- Ruby
- Alexandrite
- Diode
- Nd:YAG
- CO2

Laser delivery systems for medical, surgical, dental, or aesthetic application:

- Beam delivery systems
- Fibre delivery systems

Typical clinical applications for Laser:

- Dentistry
- Dermatology
- General surgery

Intense pulsed light (IPL) applications

- Clinical applications
- Aesthetic applications

Electromagnetic spectrum and where Laser and IPLs appear on the spectrum

- Types of electromagnetic radiation
- Wavelength in nanometres
- Frequency

Effects of optical radiation on tissue

- Photo-thermal effect
- Photo-mechanical effect
- Photo-chemical effect
- Photo-ablative effect

Classification of Lasers and IPL

- **Laser classification scheme (Class 1-4)** including the types of lasers within each class and the hazard to eyes or skin
- **IPL classification scheme**. The standard IEC 62471 Photobiological safety of lamps and lamp systems provides information on lamp classification that includes IPL systems

Nature of hazards

The dangers to patients and clients

- Stray optical radiation (laser/IPL)
- Eye injury
- Skin burn from damaged external filter (IPL)
- Skin burn from hot spots on filter (IPL)
- Burn/infection risk from broken optical fibres
- Risk of fire
- External (endotracheal tube ignition) and internal (body cavity)
- Risk of mistreatment

Dangers to staff

- Risk of fire
- Laser plume emissions
- Unexpected adverse events

Safety Administration

The legal requirement of a risk assessment under regulation 3 of the Management of Health and Safety at Work Regulations 1999

The principles of risk assessment. (Risk assessments should include determining the hazards associated with these 4 areas:

1. Equipment (purchased/loan/demonstration)

2. Personnel who may be at risk:

- Authorised user
- Patients/clients

- Other staff who work in the area – cleaners
- Maintenance staff
- Contractors
- Visitors
- Others

3. Procedure(s)

4. Location

Safety Mechanisms and Controlling Hazards

The Laser controlled area and the safety measures to be taken into consideration for controlling safety:

- Principles of maximum permissible exposure (MPE)
- Nominal ocular hazard distance (NOHD)
- Blinds and barriers
- Door interlocks/keypad locks
- No reflective surfaces
- Restrictive access to area

Awareness of Laser and IPL equipment safety

- Safety key or smart card
- Password protected
- If a foot switch is required, standby and ready mode

Protective eyewear, PPE and uniform

- Endoscopes
- Laparoscopes
- Slit lamp
- Sterile disposable gloves (latex free)
- Specialised hand and clothing protection
- The importance of wearing white/pale uniforms
- Covering clients' dark clothing

The key areas for preventing fires when using laser/IPL equipment

- Electrical hazards of Laser and IPL
- Surgical fires

Other thermal and operational issues that can cause serious burns to people.

- Laser thermal and operating issues such as optical fibres,
- Aiming beam
- Mirrors
- Beam stops
- Endoscopic sheath
- Metallic tubing, and instruments.
- It can also include IPL thermal and operational issues such as applicator cleaning and heat effects

Laser Safety Legislation

Specific legislation relating to Class 3B, and 4 medical lasers are followed. Specific legislation of the country you are working in is of the utmost importance. The list of legislation below is not an exhaustive list:

- The Control of Artificial Optical Radiation at Work Regulations
- Care Standards Act 2000 and the bodies responsible for the enforcement of this Act in England, Scotland, Wales, and Northern Ireland. (Healthcare Commission in England, the Independent Healthcare Inspectorate Wales, the Care Commission in Scotland, and in Northern Ireland, regulation is covered under The Health and Personal Social Services (Quality, Improvement and Regulation) (Northern Ireland) Order 2003
- Control of Substances Hazardous to Health Regulations 2002 (COSHH)
- Electricity at Work Regulations
- Health and Safety at Work etc. Act 1974. Note: known in Northern Ireland as the Health and Safety at Work (Northern Ireland) Order 1978
- Health and Safety (Safety Signs and Signals) Regulations 1996
- Management of Health and Safety at Work Regulations 1999
- Council licencing in England
- The Medical Devices Directive: Includes most other medical devices, ranging from first aid bandages to X-ray equipment. Lasers, IPLs and LEDs are covered by this Directive. National Minimum Standards – introduced in 2002 by the department of Health. They are essential standards that ensure patients/clients receive treatment in accordance with safe and proper procedures from a trained and competent operator in a safe environment. National minimum standards in Wales are regulated by the Healthcare Inspectorate Wales (HIW), in Northern Ireland it is overseen by RQIA, the CQC in England, and the Healthcare improvement in Scotland
- Personal Protective Equipment at Work Regulations 1992. These regulations require the employer to provide appropriate and adequate protective equipment to their employees where the risk to the employee cannot be adequately controlled by any other means (for example, protective eyewear)

- Personal Protective Equipment Regulations 2002. Regulations cover CE marking and supply issues. Compliance with BS EN 207 and BS EN 208 are a requirement under these regulations
- Private and Voluntary Healthcare Regulations (England) 2001. These cover several issues including the regulation of Class 3B and 4 lasers as well as IPL systems that may be used in the private healthcare sector. Regulations with a similar scope have been drafted by the Welsh, Scottish and Northern Ireland Authorities
- Provision and Use of Work Equipment Regulations 1998
- Reporting of Injuries, Diseases and Dangerous Occurrences Regulations (RIDDOR) 1995

Safety Standards

- BS EN 60601-1: Medical electrical equipment (General)
- BS EN 60601-2-22: Medical electrical equipment (Laser)
- BS 60601-2-57: Medical electrical equipment (IPL)
- BS EN 60825-1: Safety of laser products and the recommendation of appointing an LSO

Equipment Management

The importance of pre-use checks (not all checks apply to every device):

- Electrical safety
- Output parameters (energy, wavelength, beam profile, temporal pulse shape, etc.)
- Beam alignment
- Beam stop, shutter or attenuator
- Aiming beam
- Accuracy of timer (if applicable)
- Interlock operation
- Filters
- Emergency cut-off
- Warning lights
- Footswitch operation
- Protective eye-wear assessment
- Equipment accessories assessment
- Fibre connectors
- Full and accurate records should be kept of the above checks

The importance of keeping equipment records and ensuring that machinery is serviced by an appropriate professional, on a regular basis checks should be undertaken daily/weekly by the authorised users. Examples of checks can include:

- Check the laser/IPL output stops when the footswitch or finger-switch is released
- Check the device's alignment of the aiming beam with the therapeutic beam
- Check filters for scratches or wear and tear. Clean or replace if appropriate
- Check all system alarms and lights are operating appropriately
- Assess all device accessories such as cables and connectors ensuring they are undamaged and fit for purpose
- Check for scratches or signs of wear and tear on the lenses of protective eye wear
- All protective blinds, windows and doors are working correctly and are undamaged
- Warning lights are in good working order
- All warning signs are undamaged and illuminated signs work correctly
- Interlock operations are working correctly
- Annual or bi-annual checks should also be carried out. They will be like the initial pre-use tests

Glossary

Beam delivery system: describes the way that the laser or light beam is 'delivered' to the client. Methods include fibre optics or an articulated arm with a 'handpiece' or light guide.

Broad spectrum light: light that contains a wide range of 'colours' or wavelengths. The sun and intense pulsed light systems produce broad spectrum light.

Care Standards Act 2000: an Act of Parliament that came into effect in April 2002 (in England and Wales). The CSA2000 replaced the Nursing Homes Act 1984 which previously regulated the use of lasers. CSA2000 was introduced to improve the old Act and to bring the management, interpretation and inspection under the authority of the National Care Standards Commission (NCSC).

Chromophore: a 'target' such as melanin, water or haemoglobin that can absorb light of the appropriate wavelength. The chromophore for hair removal is melanin in the hair follicle and possibly the stem cells in the bulge.

Coherent/Coherence: a property of laser light that describes the way that the light waves travel 'in phase' or in step with each other.

Electromagnetic spectrum: the range of energies or radiations that include gamma rays, X rays, ultraviolet, visible, infrared and radio waves. Lasers and intense pulsed light systems used for hair removal typically emit beams in the visible or infrared part of this spectrum.

Fluence (J/cm-2): the amount of light energy delivered over a given treatment area. Quoted as Joules per square metre (J/cm2 or J/cm-2). It may also be referred to as energy density.

Intense Pulsed Light (IPL) System: a system that uses a powerful flash of 'light' of broad spectrum, non-coherent light. Filters are used in front of the flashlamp to remove unwanted wavelengths of light and pass through only those needed for treatment. Light from an

intense pulsed light system can be used to target a range of chromophores in the skin making them suitable for hair removal and/or skin photo-rejuvenation.

Interlock connector: a socket on a laser/intense pulsed light system that allows a switch (interlock) to be connected to a door/entrance. Opening the door will pause the laser/intense pulsed light system.

Laser : an acronym that describes the way that laser light is produced: **L**ight **A**mplification by the **S**timulated **E**mission of **R**adiation. A device which amplifies light and usually produces an extremely narrow beam of a single wavelength (one colour).

Laser Classification: the 'class' allocated to a laser (not intense pulsed light systems) from BSEN60825-1:1994. Medical laser devices are typically Class 4 (the highest classification) carrying the greatest risk of eye and skin injury.

Light Energy: with a laser or intense pulsed light system this refers to the emitted beam of light and its capacity to do work. Light is radiation that causes the sensation of vision. Even though some lasers and intense pulsed lights emit invisible radiation it is generally still referred to as light or light energy. Energy is expressed in Joules (J). Energy is the product of power (W) multiplied by pulse duration (typically milliseconds). See also Fluence.

Light Guide: the glass or quartz block used to deliver the light energy to the treatment site. Light guides are most commonly used on intense pulsed light systems.

Local Rules: local rules should be written for each specific application of a laser or intense pulsed light equipment. They should include details about the actual equipment in use, hazards or risks from the equipment, details of authorised users, methods of safe working and normal operating procedures, contact details of the LPA or LPS, accident procedures, safety checks and use of any safety equipment. Your LPA should be able to support you in writing and implementing local rules.

Maintenance (of equipment): tasks undertaken by the practitioner to maintain the correct performance of the system. This can include handpiece cleaning, cooling water top-up, cleaning display screens, checking filters.

Maximum Permissible Exposure (MPE) : the level of radiation (light) to which, under normal circumstances, a person may be exposed without suffering adverse effects, e.g., how much laser light can be withstood by the eye or skin before tissue damage occurs.

Monochromatic: light that contains a single wavelength or 'colour'. Laser light is described as monochromatic.

Pulse delay: a short delay, often variable, between the emitted pulses of light. Typically quoted in milliseconds (ms).

Pulse duration: the duration or 'length' of the pulse of light energy. Hair removal typically uses pulses that last for milliseconds (ms). The pulse duration determines how the tissues of

the skin and hair react to the light – ranging from heat damage through to total destruction of cells.

Pulse repetition frequency (PRF) or pulse repetition rate: the rate or 'frequency' at which pulses of light energy are emitted. Measured in Hertz (Hz).

Radiation: the process of emitting energy as waves or particles. Radiation is the correct term for invisible wavelengths that do not cause the sensation of vision.

Selective Photo thermolysis: a theory used to describe the selective absorption of light energy by a target chromophore without damaging the surrounding tissue.

Service (of equipment): tasks normally undertaken by a specialist or service engineer to ensure product performance. This can include: flashlamp replacement, calibration, realignment, changing or cleaning optical parts.

Specifications and variables: the controls or settings on a laser or light system that might be varied by the practitioner in order to deliver the correct amount of light energy in the right quantity and speed to bring about an effective treatment. Variables can include the size of the treatment spot, the pulse duration, pulse delay, the strength of cooling, pulse repetition frequency.

Spot size: the size of the beam used for treatment. Typically quoted in millimetres (mm). Circular beams refer to the diameter of the spot in mm, whereas intense pulsed light systems often have rectangular or square shaped beams. Some systems offer different spot sizes for treating larger or smaller areas. Larger spot sizes also allow deeper penetration of light energy into the skin. The area of the spot size is used in the calculation of fluence.

Thermal Relaxation Time (TRT): a theory used to describe the time taken for a target chromophore to lose a given percentage of the heat caused by the absorption of light energy. Many systems allow the user to vary pulse duration to 'match' the TRT of different hair types and thickness for optimum treatment outcomes.

Wavelength: a term to describe the 'length' of a light wave measured between successive peaks or crests of the wave. Typically quoted in nanometres(nm) or micrometres (µ). Certain 'targets' within the skin are known to absorb energy of particular wavelengths – the basis of selective photo thermolysis. The wavelength determines the 'colour' of the beam and the type of interaction with different materials.

Suggested Resources

https://www.hee.nhs.uk/sites/default/files/documents/HEE%20Cosmetic%20publication%20part%20one.pdf

Assessment Guidance

This Award is assessed through one multiple-choice question paper, which covers the learning outcomes and the knowledge and understanding criteria. Questions for the assessment provided by Qualifi are listed below.

Theory Assessment:

MCQs are graded: <69% = Fail, >70% = Pass

Assessment Criteria:

- **Unit CO403: Laser Core of Knowledge**:
    - 1 LO1 – LO4 knowledge and understanding will be assessed through 1 x MCQ - multiple choice question paper

Special Considerations and Reasonable Adjustments

This qualification and its assessments have been designed to best support accessibility and inclusion for all learners. In the design and development of qualifications and assessment Qualifi complies with the requirements of the Equality Act 2010 and the appropriate Ofqual general conditions of regulation. In some instances individuals will have diverse learning needs and need reasonable adjustments to be able fully participate in the qualification and have fair access to assessment. Reasonable adjustments, including additional time or alternative evidence formats, are intended to enable learners with individual needs to demonstrate their skills and knowledge without changing the demands of the assessment. Centres are responsible for making sure that learners can access the requirements of the qualification at the start of a programme of learning.

Special consideration can be given after an assessment has taken place for learners who have been affected by adverse circumstances, such as illness. Special considerations can be in relation to the amount of time given for evidence to be provided or the format of the assessment as long as this is equally valid. However, centres must not agree to the use of alternative forms of evidence to those stipulated in a unit, or to the omission of any assessment criteria when judging attainment.

For further details please see QUALIFI's *Reasonable Adjustment and Special Consideration Policy* and *Access to Fair Assessment Policy and Procedure.*

Malpractice and Maladministration

Centre or learner malpractice undermines the integrity and validity of assessment and/or the certification of qualifications and can arise or be suspected in relation to any unit or type of assessment within the qualification.

Centres are required to take steps to prevent malpractice and to investigate instances of suspected malpractice. Centres will investigate the allegation in compliance with their own published and QUALIFI approved policy and procedures.
Incidents of maladministration, unintentional errors in the delivery or assessment of QUALIFI qualifications that may affect the assessment of learners, should also be reported in the same way.

QUALIFI may conduct an investigation if we believe that internal assessment and/or internal quality assurance is not being carried out in line with our policies. QUALIFI reserves the right to withhold the issuing of results and/or certificates while an investigation is in progress.

For further details regarding malpractice and how to report suspected malpractice please see QUALIF's *Malpractice and Maladministration Policy* and *Plagiarism, Collusion and Cheating Policy.*
Where centres have concerns about learner use of Artificial Intelligence (AI) please refer to the QUALIFI *Guidance statement to centres on the risk of AI.*

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