Demonstrate knowledge of the electrical currents and physics principles used for beauty services

Level 4
Credits 6

Purpose
People credited with this unit standard are able to explain: the physics used in beauty services treatments; the waves and laws of physics used in beauty services treatments; the use of ultraviolet light and infra-red radiation in beauty services treatments; the electrical currents used in the application of beauty services treatments; and safe management of the electrical equipment used in a beauty services clinic.

Subfield Beauty Services
Domain Beauty Therapy
Status Registered
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Accreditation Evaluation of documentation and visit by NZQA and industry.

Standard setting body (SSB) NZ Hairdressing Industry Training Organisation Inc

Accreditation and Moderation Action Plan (AMAP) reference 0035
This AMAP can be accessed at http://www.nzqa.govt.nz/framework/search/index.do.

Special notes

1 Enterprise requirements, for the purposes of this unit standard, refers to any policies, procedures, and requirements of the company and/or workplace involved, and any ethical codes of relevant professional management, which collectively provide a standard that applies to all competent performances in this unit standard. It is assumed that such enterprise requirements exist in all companies and/or workplaces.
2 As the content of this unit standard is largely informational, performance criteria assume that knowledge will be acquired from reference texts, models, and other information-bearing media. No one textbook or other source of information is envisaged, as new approaches to the study of anatomy and physiology are published regularly.

3 All demonstrations of knowledge for assessment in this unit standard must be evidenced with relation to the application to and use in the beauty services industry.

4 For the purposes of this unit standard, *explain* and *explanation* are to be interpreted to include any form of visual and/or other aid, such as diagram, gesture, or model, that is used in addition to or in place of a verbal explanation.

5 In this unit standard, all ranges identify the minimum that is critical for assessment. A wider scope may nevertheless be taught.

6 The focus of this unit standard is the anatomy and physiology of human systems that are healthy and functioning properly. Diseases and disorders are included only where appropriate to the professional competence of a beauty practitioner.

7 The following legislation is relevant to the administration of radiation treatments (refer element 3):
   - Health Act 1956

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### Elements and performance criteria

#### Element 1

Explain the physics used in beauty services treatments.

**Performance criteria**

1.1 Explanation identifies molecular and atomic structures and the three phases of matter.

Range  molecular structure, atomic structure (nucleus, protons, electrons, valency shells, neutrons); solids, liquids, gases.

1.2 Explanation identifies the electrical components that influence how an electrical current is produced.

Range  rheostat, conductor, insulator, oscillator, filter, rectifier, potentiometer, transformer, anodes, cathodes, milliampere meter, fuse, electronic flows, anions, cations.

1.3 Explanation identifies the units of measurements of electricity.

Range  volts, watts, amps, milliamps, ohms.

1.4 Explanation identifies the international colour codes of AC wiring.
1.5 Explanation identifies the electrical generation of ozone from high frequency treatments.

Element 2

Explain the waves and laws of physics used in beauty services treatments.

Performance criteria

2.1 Explanation identifies the application of various laws of physics in beauty services treatments.

Range cosine, inverse square, Ohm’s law.

2.2 Explanation identifies the types and parts of a wave model used in beauty services treatments.

Range wavelength, hertz, amplitude; low, medium, high-frequency.

Element 3

Explain the use of ultraviolet light and infra-red radiation in beauty services treatments.

Performance criteria

3.1 Explanation identifies the physiological effects and characteristics of ultraviolet and infra-red on the skin and body tissues.

Range erythema, tanning, desquamation, perspiration.

3.2 Explanation identifies the wavelengths of the electromagnetic spectrum.

3.3 Precautions to be observed when administering ultraviolet light and infra-red radiation treatments are identified according to Health and Safety in Employment Act 1992 and the Health Act 1956.

Element 4

Explain the electrical currents used in the application of beauty services treatments.

Range galvanic (iontophoresis, desincrustation), high frequency (direct, indirect), faradic, alternating mains supply.

Performance criteria

4.1 Explanation identifies the types and principles of electrical currents.

4.2 Explanation identifies the chemical effects of electrodes when involved in face and body galvanic electrical treatments.

Range anodes, cathodes, acid, alkaline.
4.3 Explanation identifies the physiological effects of electrical currents on the body.

**Element 5**

Explain safe management of the electrical equipment used in a beauty services clinic.

**Performance criteria**

5.1 Explanation identifies the physical and chemical dangers of electrical equipment used in a beauty services clinic.

5.2 Explanation identifies the signs of malfunction in electrical equipment and the procedures to rectify hazards and repairs.

5.3 Explanation identifies safety precautions required when using electrical equipment in a beauty services clinic, according to enterprise requirements and relevant safety legislation.

**Please note**

Providers must be accredited by NZQA, or an inter-institutional body with delegated authority for quality assurance, before they can report credits from assessment against unit standards or deliver courses of study leading to that assessment.

Industry Training Organisations must be accredited by NZQA before they can register credits from assessment against unit standards.

Accredited providers and Industry Training Organisations assessing against unit standards must engage with the moderation system that applies to those standards.

Accreditation requirements and an outline of the moderation system that applies to this standard are outlined in the Accreditation and Moderation Action Plan (AMAP). The AMAP also includes useful information about special requirements for organisations wishing to develop education and training programmes, such as minimum qualifications for tutors and assessors, and special resource requirements.

**Comments on this unit standard**

Please contact the NZ Hairdressing Industry Training Organisation Inc enquiries@hito.org.nz if you wish to suggest changes to the content of this unit standard.