

<p>ITEC Level 3</p> <p>Unit 854 – Dermatology and Microbiology</p> <p>Recommended Minimum Guided Learning Hours – 42</p> <p>Unit Accreditation Number: T/601/4460</p>	
<p>Learning outcome The Learner will:</p> <p>1. Know the structure and functions of the skin, hair and nails</p>	
<p>Assessment Criteria</p> <p>1.1 Identify the anatomical structures of the skin, nails and hair</p>	<p>Taught Content</p> <p>1.1.1 To include: The Cell</p> <ul style="list-style-type: none"> ▪ Cell Membrane ▪ Cytoplasm ▪ Mitochondria ▪ Nuclear membrane ▪ Nucleus ▪ Nucleolus ▪ Ribosomes ▪ Chromatin ▪ Chromosomes ▪ Centrosome ▪ Centrioles ▪ Endoplasmic reticulum ▪ Vacuoles ▪ Lysosomes ▪ Golgi apparatus ▪ Protein cell receptor sites <p>1.1.2 To include: The skin Epidermis</p> <ul style="list-style-type: none"> ▪ Stratum Corneum - Horny layer ▪ Corneocytes ▪ Filaggrin ▪ Stratum Lucidum - Transparent layer ▪ Transitional layer ▪ Eleidin ▪ Stratum Granulosum - Granular layer ▪ Keratohyalin granules “Glue” ▪ Stratum Spinosum - Prickle cell layer ▪ Desmosome connection ▪ Langerhans cells ▪ Lipids ▪ Fatty acids ▪ Cholesterol ▪ Ceramides ▪ Lamellar granules ▪ Stratum Germinativum - Basal Layer ▪ Melanocytes ▪ Keratinocytes ▪ Dendrites ▪ Basal cells ▪ Stem cells ▪ Amplifying cells ▪ Postmitotic cells ▪ Inflammatory chemical mediators <p>Dermis</p> <ul style="list-style-type: none"> ▪ Papillary layer ▪ Dermal Papillae ▪ Rete's pegs ▪ Capillaries ▪ Nerve endings ▪ Grenz zone ▪ Collagen ▪ Elastin ▪ Glycosaminoglycans (GAGs) ▪ Leucocytes ▪ Histiocytes ▪ T Lymphocytes ▪ Macrophages (Histiocytes) and Mast cells

<p>1.2 Describe the functions of the skin, nails and hair</p>	<ul style="list-style-type: none"> ▪ Reticular layer • Fibroblast • Golgi apparatus • Rough Endoplasmic reticulum • Collagen ▪ Elastin • Reticulin • Glycosaminoglycans (GAGs) ▪ Blood vessels • Lymphatic vessels • Eccrine glands • Apocrine glands • Pilosebaceous unit ▪ Hair • Intercellular cement • Interstitial fluid <p>Subcutaneous tissue/Hypodermis</p> <ul style="list-style-type: none"> ▪ Adipose tissue <p>1.1.3 To include:</p> <p>The Nail</p> <ul style="list-style-type: none"> ▪ Free edge • Hyponychium • Eponychium • Peronychium • Lunula • Mantle • Cuticle • Nail plate • Nail bed • Nail fold • Matrix • Nail wall <p>1.1.4 To include:</p> <p>The Hair</p> <ul style="list-style-type: none"> ▪ Keratin • Cuticle • Cortex • Melanin • Medulla • Inner Root Sheath ▪ Huxley's • Henle's • Outer Root Sheath • Vitreous Membrane • Connective Tissue • Dermal Papilla • Lanugo • Vellus • Terminal <p>1.2.1 To include:</p> <p>Cell:</p> <ul style="list-style-type: none"> ▪ Movement • Respiration • Sensitivity • Growth • Reproduction • Excretion • Metabolism ▪ Mitosis to include Prophase • Metaphase • Anaphase • Telophase • Interphase ▪ Meiosis <p>1.2.2 To include:</p> <p>Skin</p> <ul style="list-style-type: none"> ▪ Secretion • Heat regulation • Absorption • Protection • Elimination • Sensation • Vitamin D production <p>Epidermis</p> <ul style="list-style-type: none"> ▪ Barrier function • Natural moisturising factor NMF • pH balance • Lipid protein "glue", ▪ Keratinisation • Production of: Melanin • Melanosomes • Tyrosinase • Tyrosine <p>Dermis</p> <ul style="list-style-type: none"> ▪ Papillary dermis: • Dermal-epidermal junction (DEJ) • Thermoregulation ▪ Production of: • Collagen • Elastin • Glycosaminoglycans (Gags) <ul style="list-style-type: none"> ▪ Reticular dermis: • Production of: • Collagen • Elastin • Glycosaminoglycans (Gags) ▪ Hyaluronic acid • Matrix metallo proteases (MMP'S): Hyaluronidase • Collagenase ▪ Elastase ▪ Pilosebaceous unit: Production of sebum
---	---

<p>1.3 Describe the factors that affect the growth of hair and nails</p> <p>1.4 Describe the factors that cause changes in the appearance of the skin, which are associated with ageing</p>	<ul style="list-style-type: none"> ▪ Sweat glands: Production of Eccrine and Apocrine sweat ▪ Formation of the Acid Mantle <p>Subcutaneous tissue/ Hypodermis</p> <ul style="list-style-type: none"> ▪ Insulation ▪ Energy source ▪ Shock absorption <p>1.2.2 To include:</p> <p>Cells involved in the immune response</p> <ul style="list-style-type: none"> ▪ Langerhans cells ▪ Keratinocytes ▪ T Lymphocytes ▪ Macrophages (Histiocytes) ▪ Mast cells <p>Absorption pathways</p> <ul style="list-style-type: none"> ▪ Appengageal ▪ Transcellular ▪ Intercellular <p>Wound Healing</p> <ul style="list-style-type: none"> ▪ Healing response and blood clotting to include: the role of granulocytes, leukocytes, thrombocytes, lymphocytes, monocytes, macrophages, langerhans cells <p>To include the following stages ▪ Inflammatory stage ▪ Proliferative Phase ▪ Remodelling Phase</p> <ul style="list-style-type: none"> ▪ Wounds to include epithelialisation, compromised wound healing ▪ Mitotic activity ▪ Scarring: Normal, abnormal ▪ Hyperplasia ▪ Causes of scarring ▪ Postmitotic cells ▪ Angiogenesis <p>1.2.3 To include:</p> <p>Nails</p> <ul style="list-style-type: none"> • Protection ▪ Manual dexterity <p>1.2.4 To include:</p> <p>Hair</p> <ul style="list-style-type: none"> ▪ Protection ▪ Temperature control <p>1.3.1 To include:</p> <ul style="list-style-type: none"> • Factors affecting hair and nail growth: • Health • Age • Diet • Medication • Climate • Damage • Lifestyle <p>1.4.1 To include:</p> <ul style="list-style-type: none"> • Intrinsic ageing – physiological factors • Extrinsic ageing – environmental factors • Diet • Smoking • Alcohol • Central heating • Air conditioning • Stress • Sleep • Exercise • Fresh air • UV light exposure • Occupation • Lifestyle • Current regime • General health • Hormones <p>1.4.2 To include:</p> <ul style="list-style-type: none"> ▪ Free radical-molecule, ▪ Free radical formation ▪ Causes of free radical activity ▪ Diet ▪ Lifestyle ▪ Smoking ▪ Drinking ▪ Pollution ▪ Chemicals ▪ Medication ▪ Hormones
---	---

- Food ▪ Sun ▪ Trauma ▪ Injury ▪ Transepidermal water loss (TEWL) ▪ Natural moisturising factor (NMF)
- Free radical effect on living cells, tissue ischemia, injury and ageing
- Effects of free radicals on normal skin function
- Reducing free radical activity - antioxidants, Vitamin C, sunscreen, anti-inflammatories

1.4.3 To include:

Skin types: • White • Black • Asian type skin • Mixed • Dry • Oily • Combination

Skin conditions/characteristics:

- Mature skin • Young skin • Lack of elasticity • Lack of muscle tone • Blemishes • Crow's feet
- Broken capillaries • Open pores • Milia • Comedones • Dermatitis papulosa nigra
- Pseudo folliculitis • Keloids • Ingrowing hairs • Vitiligo • Albinism • Chloasma • Ephilides
- Lentigo • Naevi • Port wine stain • Leucoderma • Scarring • Thin skin • Small moles
- Papilloma • Dehydrated • Dull/lifeless skin • Sensitive • Reactive skins • Inflammation
- Couperose • Telangiectasia • Rosacea • Acne Rosacea • Pustules • Papules • Acne Vulgaris • Acne scarring • Hyper pigmentation • Hypo pigmentation • Dermal and Epidermal pigmentation • Photo damage • Keratosis • Ageing skin

1.4.4 Causes and effects:

Dehydrated

- Lack of water/sebum • Vascularity • Fine lines • Wrinkles • Compromised skins

Dull/lifeless skin

- Irregular epidermal reproduction • Excess keratinisation • Hyper sebaceous activity
- Damaged vascular network • Lack of nutrients • Avascular

Reactive skins, couperose, Inflammation

- Exaggerated response to stimulus • Mast cells • Mediators (histamine) • Internal processes,
- Over exfoliation • Artificial additive/preservatives • Post laser/IPL • Accutane

Rosacea, Acne Rosacea

- Sebaceous hyperplasia • Connective tissue hypertrophy • Parasite (Demodex) • Digestion
- Acidic environment • Inflammation • stages of Rosacea 1 – 4
- Triggers - weather, emotional, temperature, physical, beverages, food, medication, topical skin care

Acne, Papules, Pustules, Acne Rosacea, Acne scarring

- Hormones • Sebum stimulation • Juvenile acne • Acne grades I – IV • Conglobata
- Nodular • P acnes • Milia • Comedones • Inflammation • Ice pick scarring • Concave scarring • Cosmetics • Make-up • Stress • Diet

Hyper-pigmentation, Hypo-pigmentation, Dermal and Epidermal pigmentation, albinism, vitiligo, lamellar ichthyosis, melasma, haemochromatosis, dyschromia

	<ul style="list-style-type: none"> • Hormones • Drugs • Photosensitising agents • Trauma • UV exposure • Free radical damage Photo damaged, Photo damage/ageing, Keratosis • Loss collagen/elastin/GAGs • Increased capillary visibility • Damage of vessels • Irregular epidermis • Slow keratinocyte mitosis • Elastotic changes • Reduced oxygen/nutrients supply Ageing skin • Thinning epidermis • Thickening of Stratum corneum • Reduced melanocyte function • Photosensitivity • Reduced cell turnover • Lack of NMF • Glycation • Fatty acid deficiency • Milia • Rhytids - static, dynamic <p>1.4.5 To include:</p> <ul style="list-style-type: none"> • Hormonal changes • Pregnancy • Peri-menopause • Menopause
<p>Learning outcome The Learner will:</p> <p>2. Know the diseases and disorders of the skin, hair and nails</p>	
<p>Assessment Criteria</p>	<p>Taught Content</p>
<p>2.1 Describe the signs and causes of non-infectious diseases and disorders of the skin, hair and nails that contraindicate treatment</p>	<p>2.1.1 To include:</p> <p>Contraindications requiring medical permission:</p> <p>Skin:</p> <ul style="list-style-type: none"> • Medical oedema • Recent facial surgery affecting the area • Diabetes • Skin cancer • Undiagnosed pain • When taking prescribed medication <p><i>In circumstances where medical permission cannot be obtained clients must sign an informed consent form stating that the treatment and its effects have been fully explained to them and confirm that they are willing to proceed without permission from their GP</i></p> <p>Contraindications that restrict treatment:</p> <ul style="list-style-type: none"> • Any known allergies • Eczema • Psoriasis • Dermatitis • Undiagnosed lumps and bumps • Localised swelling • Inflammation • Cuts • Bruises • Abrasions • Scar tissue (2 years for major operations and 6 months for a small scar) • Sunburn • Hormonal implants • Urticaria • Hypersensitive skin • Botox/ dermal fillers (1 week following treatment) • Hyperkeratosis • Skin allergies • Trapped/pinched nerve affecting the treatment area • Inflamed nerve

<p>2.2 Describe the signs and causes of infectious disorders of the skin, hair and nails that contraindicate treatment</p>	<p>Hair Contraindications requiring medical permission: • Alopecia • Trichotillomania <i>In circumstances where medical permission cannot be obtained clients must sign an informed consent form stating that the treatment and its effects have been fully explained to them and confirm that they are willing to proceed without permission from their GP</i></p> <p>Nails Contraindications requiring medical permission: • Recent operations on the hands • Inflamed nerve • Undiagnosed pain • Acute rheumatism <i>In circumstances where medical permission cannot be obtained clients must sign an informed consent form stating that the treatment and its effects have been fully explained to them and confirm that they are willing to proceed without permission from their GP</i></p> <p>Contraindications that restrict treatment: • Bruised nails • Loss of skin sensation • Chilblains • Dermatitis • Eczema • Psoriasis • Onychatrophia • Onychauxis • Onychophagy • Severely bitten/damaged nails • Nail separation</p> <p>2.1.2 To include: Contraindications for facial treatment and chemical peels: • Basal Cell Carcinoma (BCC) • Squamous Cell Carcinoma (SCC) • Melanomas • Radiotherapy • Chemotherapy • Cystic Acne • Actinic keratosis • Solar Keratosis • Diabetes • Atopic dermatitis • Eczema • Psoriasis • Seborrhea • Open or undiagnosed lesions • Sunburn • Vitiligo • Current users of tretinoin • Oral anti-coagulants • Pregnancy or lactation • Injectables (2 weeks prior to treatment) • Dermal fillers (2 weeks prior to treatment) • Recent cosmetic surgery (1 year) • Recent laser treatment (1 year)</p> <p>Precautions: • Acne • Cuts • Abrasions • Electrolysis, waxing or depilatory treatments (2 weeks prior to treatment) • Telangiectasia • Rosacea • History of topical medications e.g. tretinoin (off medication 1 year) • Hormone medication e.g. birth control, HRT • Previous cosmetic or reconstructive surgery • Smoking • Very dehydrated skin • Previous chemical peels • Other procedures e.g. microdermabrasion • Urticaria • Allergic reactions</p> <p>2.2.1 To include: Skin Contraindications that restrict treatment Infestations • Scabies • Pediculosis Bacterial • Acne vulgaris • Acne rosacea • Impetigo • Folliculitis • Boils Viral • Herpes simplex • Herpes zoster • Warts</p>
--	--

	<p>Fungal • Tinea corporis</p> <p>Hair Contraindications that restrict treatment • Folliculitis • Pediculosis</p> <p>Nails Contraindications that restrict treatment • Onychia • Onychocryptosis • Onycholysis • Onychomycosis (Tinea Ungium) • Onychoptosis • Onychorrhexis • Paronychia (Whitlow) • Sepsis</p> <p>2.2.1 To include: Contraindications for facial treatments and chemical peels: Bacterial infections: • Cellulitis • Impetigo • Folliculitis • Acne (III and IV) Fungal: • Tinea corporis • Yeast infections - Candida Viral: • Active Herpes Simplex • Hepatitis C, A, B • Warts General • Open lesions and rashes • Accutane users • Immediate post operative: • Facelifts • Blepharoplasty • Neck lifts • Autoimmune disorders e.g. HIV • Lupus Precautions for chemical peels: • Previous but not active Herpes Simplex • Medications</p>
<p>Learning outcome The Learner will:</p> <p>3. Be able to prepare for the culturing of bacteria</p>	
<p>3.1 Prepare themselves and the work area for the culturing of bacteria</p> <p>3.2 Select materials, tools and equipment needed to culture bacteria</p> <p>3.3 Devise an experiment to culture bacteria</p> <p>3.4 Describe the laboratory requirements for preparing</p>	<p>3.1.1 To include: • Personal Protective Equipment i.e. gloves, laboratory coat, protective eyewear • Aseptic techniques • Methods of sterilisation • Methods of minimising cross contamination • Management of working area</p> <p>3.2.1 To include: • Inoculating loop, swab or needle • Inoculated agar plate • Petri dishes • Culture media • Agar • Tape • Self-seal plastic bags • Incubator • Methods of disposal</p> <p>3.3.1 To include: • Hypothesis • Experiment to test hypothesis • Variables • Control • Analysis of results • Conclusion</p> <p>3.4.1 To include:</p>

<p>themselves and the work area for culturing bacteria</p> <p>3.5 Explain how to select materials, tools and equipment needed to culture bacteria</p> <p>3.6 Describe the process of culturing bacteria</p>	<ul style="list-style-type: none"> • Aseptic techniques • Personal Protective Equipment • Health and Safety procedures <p>3.5.1 To include:</p> <ul style="list-style-type: none"> • Inoculating loop, swab or needle • Inoculated agar plate • Petri dishes • Culture media • Agar • Tape • Self-seal plastic bags • Incubator • Methods of disposal <p>3.6.1 To include:</p> <ul style="list-style-type: none"> • Purpose • Preparation of Petri dishes • Culture media • Bacteria collection • Bacteria transfer • Seal Petri dishes • Incubation – location, period and temperatures • Monitoring bacterial growth • Analysis of results • Conclusion • Disposal of Petri dishes and bacterial samples
<p>Learning outcome The Learner will:</p> <p>4. Be able to investigate the conditions required for the successful growth of bacteria and relate this to salon hygiene</p>	
<p>4.1 Follow health and safety working practices when investigating the culturing of bacteria</p> <p>4.2 Carry out tests to investigate the conditions required for the successful growth of bacteria</p> <p>4.3 Explain how to follow health and safety working practices when investigating the culturing of bacteria</p> <p>4.4 Describe the conditions required to successfully cultivate bacteria</p> <p>4.5 Describe the structure, lifecycle and transmission of micro-organisms</p>	<p>4.1.1 To include:</p> <ul style="list-style-type: none"> • Risk assessment • Current legislation i.e. COSHH, the Management of Health and Safety at Work Regulations etc. • Workplace health and safety procedures/practices <p>4.2.1 To include:</p> <p>Identification of:</p> <ul style="list-style-type: none"> • Required nutrients • Temperature • pH scale • Light levels • Atmospheric conditions <p>4.3.1 To include:</p> <ul style="list-style-type: none"> • Compliance with current legislation <p>4.4.1 To include:</p> <ul style="list-style-type: none"> • Temperature • pH Balance • Energy Source • Nutrients • Moisture • Lack of light <p>4.5.1 To include:</p> <ul style="list-style-type: none"> • Single cell micro-organisms • Prokaryotes • Pathogenic • Non-pathogenic • Nucleoid • DNA • Ribosomes • Cytoplasm • Storage granules • Plasmid • Endospore • Cell wall • Plasma membrane • Outer membrane • Capsule • Flagella • Pili

<p>4.6 Describe hygiene procedures that can be used to reduce the risk of cross-contamination in the salon</p>	<ul style="list-style-type: none"> • Round – cocci • Rod shaped – bacilli • Spiral – spirilla • Binary fission • Lag phase • Log phase • Stationary phase • Death phase • Contact transmission – direct and indirect • Droplet transmission • Airborne transmission • Contamination – food/water • Vector borne <p>4.6.1 To include:</p> <ul style="list-style-type: none"> • Sterilisation • Sanitisation • Hygienic working practices • Identification of contraindications • Referral
<p>Unit 854 – Dermatology and Microbiology</p> <p>Assessment All Learners will be assessed via an assignment and a multiple choice theory paper for this unit. For details please see www.itecworld.co.uk</p>	<p>Unit 854 – Dermatology and Microbiology assignment guidance and assessment forms may be downloaded from www.itecworld.co.uk</p>