Module Specification

Applied Neurophysiology, Respiratory and Sleep Physiology

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Contents

Part 1: Information

Module title: Applied Neurophysiology, Respiratory and Sleep Physiology

Module code: USSJYC-30-3

Level: Level 6

For implementation from: 2023-24

UWE credit rating: 30

ECTS credit rating: 15

Faculty: Faculty of Health & Applied Sciences

Department: HAS Dept of Applied Sciences

Partner institutions: None

Field: Applied Sciences

Module type: Module

Pre-requisites: Pathophysiological Sciences A 2023-24, Pathophysiological Sciences B 2023-24, Respiratory and Sleep Physiology and Pathophysiology A 2023-24, Respiratory and Sleep Physiology and Pathophysiology B 2023-24

Excluded combinations: None

Co-requisites: Advanced Cardiac Physiology and Neurophysiology 2023-24

Continuing professional development: No

Professional, statutory or regulatory body requirements: None

Part 2: Description

Overview: Pre-requisites: students must take USSKAY-30-2 Respiratory and Sleep Physiology and Pathophysiology A and USSKBA-30-2 Respiratory and Sleep Physiology and Pathophysiology B or USSKL9-30-2 Pathophysiological Sciences A and USSKLA-30-2 Pathophysiological Sciences B.

This module explores the clinical environment and contains two distinct units, namely:-

Unit 1: Applied Respiratory and Sleep Physiology
Unit 2: Applied Neurophysiology

Students complete one of these units as prescribed by their pathway. Unit 1 aligns to the Healthcare Science (Physiological Sciences) Respiratory and Sleep Physiology pathway. Unit 2 aligns to the Healthcare Science (Physiological Sciences) Neurophysiology pathway.

Features: Module Entry requirements: Students must have a Level 5 (or equivalent) physiological sciences qualification.

Educational aims: On successful completion of this module students will be able to fulfil the learning outcomes from 1 of the following 2 Physiological Sciences themed units of study:-

Unit 1: Applied Respiratory and Sleep Physiology
Unit 2: Applied Neurophysiology

Unit 1 aligns to the Healthcare Science (Physiological Sciences) Respiratory and Sleep Physiology pathway. Unit 2 aligns to the Healthcare Science (Physiological Sciences) Neurophysiology pathway.

Outline syllabus: The syllabus covers:

1. Applied Respiratory and Sleep Physiology (Respiratory and Sleep Physiology pathway)

Patient Centred Care:-
Communication skills
Care pathways for patients with respiratory disease
Problems associated with care

Sleep Studies:-

Sleep physiology including neurological aspects of sleep

Sleep pathophysiology – International Classification of Sleep Disorders

Physiological changes between wake and sleep

Sleep-breathing disorders

Overnight oximetry and transcutaneous PCO2 measurements

Limited (semi) and full polysomnography

Channels

Equipment characteristics

Use of electroencephalography (EEG), electrooculography (EOG), electromyography (EMG) and electrocardiography (ECG)

Actigraphy

American Academy of Sleep Medicine (AASM) guidelines and normal values

Adults vs paediatrics

Subjective Assessment of Sleepiness and Fatigue:-

Epworth Sleepiness Score

Fatigue Score

Stop-Bang Questionnaire

Driver and Vehicle Licensing Agency (DVLA) regulations

Treatment of Sleep-Breathing Disorders:-

Continuous Positive Airway Pressure

Machines - function/types/modalities

Cleaning and filter changing

Mask/interface types

Contraindications

Side effects/troubleshooting

Patient education

Monitoring

Indications for other treatments

Mandibular Advancement Device

Non-Invasive Ventilation

Additionally, it is expected that students will integrate knowledge from both this unit

and the co-requisite USSJYB30-3 Advanced Respiratory and Sleep Physiology module in order to fully understand the scientific basis and diagnosis of respiratory and sleep conditions.

2. Applied Neurophysiology (Neurophysiology pathway)

The adult EEG and recording of other physiological variables and common adult EEG abnormalities:-

Waveform measurement and annotation

Effect of stimuli or activation techniques on the EEG

Common adult EEG abnormalities

Generalised

Focal

Repetitive/intermittent

Localisation of abnormalities

Polygraphy – respiration, movement, ECG, eye movement

Factual report and the interpretation of the EEG

Control of consciousness, reticular activating system, sleep/wake circulation, influence of brainstem, levels of consciousness defined by EEG

Visual evoked potentials, auditory evoked potentials, somoatosensory evoked potentials and the annotation of the waveforms and interpretation of abnormal findings

Additionally, it is expected that students will integrate knowledge from both this unit and the Advanced Neurophysiology unit within the co-requisite USSJY3-30-3 module in order to fully understand the scientific basis and diagnosis of neurophysiological conditions.

Part 3: Teaching and learning methods

Teaching and learning methods: If the COVID-19 situation allows, there will be blocks of contact time at UWE. Included in each block week are laboratory workshops, lectures and tutorials. The contact time will equate to approximately 15 hours per block (a total of 45 hours). If onsite block weeks are not possible, these sessions will be delivered online as far as possible.

Theoretical material within the module will be presented to the students in the form of lectures throughout the block periods in each of the semesters in the academic year. The learning of lecture content will be reinforced through tutorials and time spent in independent learning by the directed reading of recommended texts and through the use of technology enhanced learning resources that will be provided online.

If the COVID-19 situation allows, a number of relevant practical sessions will be incorporated during the campus based blocks in addition to the work based learning that must be achieved under supervision by a workplace supervisor. Practical sessions will both drive hands on learning and the acquisition of technical skills at both an individual and group working level. If onsite Block Weeks are not possible due to COVID-19, these sessions will be delivered as online workshops, lectures and tutorials.

The remainder of the independent learning time allocated to the module should be spent preparing for assessments (B1, B2), and undertaking revision for the exams (A1, A2).

Scheduled learning includes lectures, seminars, tutorials, project supervision, demonstration, practical classes and workshops; fieldwork; external visits; work based learning; supervised time in studio/workshop.

Independent learning includes hours engaged with essential reading, case study preparation, assignment preparation and completion etc. These sessions constitute an average time per level as indicated in the Contact Hours. Scheduled sessions may vary slightly depending on the module choices you make.

Module Learning outcomes: On successful completion of this module students will achieve the following learning outcomes.

MO1 Applied Respiratory and Sleep Physiology (Respiratory and Sleep Physiology pathway): Explain in detail the underpinning basic and clinical science with respect to sleep studies including the neurological aspects of sleep and sleep disturbed breathing

MO2 Applied Respiratory and Sleep Physiology (Respiratory and Sleep Physiology pathway): Evaluate the mode of action and application of key pharmacological and non-pharmacological treatments for disorders assessed in the key areas

MO3 Applied Respiratory and Sleep Physiology (Respiratory and Sleep Physiology pathway): Discuss in detail the differences between children and adults with respect to investigations in the key areas

MO4 Applied Respiratory and Sleep Physiology (Respiratory and Sleep Physiology pathway): Detail the importance of patient-centred care within this care pathway

MO5 Applied Respiratory and Sleep Physiology (Respiratory and Sleep Physiology pathway): Use a wide range of contemporary literature and guidelines to discuss and evaluate clinical practice in a range of relevant settings

MO6 Applied Respiratory and Sleep Physiology (Respiratory and Sleep Physiology pathway): Effectively communicate clinical and scientific concepts

MO7 Applied Neurophysiology (Neurophysiology pathway): Correlate stimuli characteristics with the effect on recorded waveforms

MO8 Applied Neurophysiology (Neurophysiology pathway): Distinguish normal from abnormal waveforms and phenomena in adult EEG

MO9 Applied Neurophysiology (Neurophysiology pathway): Characterise the features of a normal paediatric EEG and provide a technical description of an example measurement

MO10 Applied Neurophysiology (Neurophysiology pathway): Explain the process of factual report writing and EEG interpretation

MO11 Applied Neurophysiology (Neurophysiology pathway): Characterise the effects of activation techniques and drugs on the adult EEG

MO12 Applied Neurophysiology (Neurophysiology pathway): Describe the adult VEP, brainstem evoked potential (BSEP) and SSEP, and the annotation of the waveforms

MO13 Applied Neurophysiology (Neurophysiology pathway): Interpret abnormal findings of the VEP

MO14 Applied Neurophysiology (Neurophysiology pathway): Appraise the value of the EEG and evoked potential in the intensive care unit (ICU)

Hours to be allocated: 300

Contact hours:

Independent study/self-guided study = 225 hours

Face-to-face learning = 75 hours

Total = 300

Reading list: The reading list for this module can be accessed at readinglists.uwe.ac.uk via the following link https://uwe.rl.talis.com/modules/ussjyc-30-3.html

Part 4: Assessment

Assessment strategy: The assessments within this module have been designed to show that the apprentice has developed the required knowledge and clinical skills required to practice as a respiratory and sleep physiologist or neurophysiologist, as appropriate.

Assessment 1 is a practical examination in a relevant clinical setting in order to assess both knowledge and the application of the relevant clinical skills required of a respiratory and sleep physiologist or neurophysiologist, as appropriate. The practical exam relates to clinical competence and therefore students must achieve a minimum pass mark of 40% in this element, in order to satisfy professional body requirements.

Assessment 2 is a written assignment and assessment 3 is an oral presentation. These assessments are integrated. The apprentice will be expected to demonstrate the synthesis of data and literature from multiple sources, effective communication, and the ability to answer questions and justify their approach to the relevant treatment and management strategy.

Assessment 4 is a set exercise. This will assess a broad knowledge base and focus on data interpretation of clinical scenarios and case based material.

Formative feedback is available to apprentices throughout the module through group discussions, and in workshops. Apprentices are provided with formative feed-forward for their exam through a revision and exam preparation session prior to the exam and through the extensive support materials supplied through Blackboard.

Assessment tasks:

Practical Skills Assessment (First Sit)
Description: Practical Skills Assessment
Students must achieve a mark of 40% or above in this element in accordance with professional body requirements.
Weighting: 20 %
Final assessment: No
Group work: No
Learning outcomes tested: MO1, MO11, MO12, MO13, MO14, MO2, MO3, MO6, MO7

Written Assignment (First Sit)
Description: Written Assignment
Weighting: 35 %
Final assessment: No
Group work: No
Learning outcomes tested: MO1, MO10, MO11, MO12, MO13, MO2, MO3, MO4, MO5, MO6, MO7, MO8, MO9

Presentation (First Sit)

Description: Oral presentation (30 minutes including questions)

Weighting: 15 %

Final assessment: No

Group work: No

Learning outcomes tested: MO1, MO10, MO11, MO12, MO13, MO2, MO3, MO4, MO5, MO6, MO7, MO8, MO9

Set Exercise (First Sit)

Description: Set Exercise

Weighting: 30 %

Final assessment: Yes

Group work: No

Learning outcomes tested: MO1, MO10, MO11, MO12, MO13, MO14, MO2, MO3, MO6, MO7, MO8, MO9

Practical Skills Assessment (Resit)

Description: Practical Skills Assessment

Students must achieve a mark of 40% or above in this element in accordance with professional body requirements.

Weighting: 20 %

Final assessment: No

Group work: No

Learning outcomes tested: MO1, MO11, MO12, MO13, MO14, MO2, MO3, MO6, MO7

Written Assignment (Resit)

Description: Written Assignment

Weighting: 35 %

Final assessment: No

Group work: No

Learning outcomes tested: MO1, MO10, MO11, MO12, MO13, MO14, MO2, MO3, MO4, MO5, MO6, MO7, MO8, MO9

Presentation (Resit)

Description: Oral presentation (30 minutes including questions)

Weighting: 15 %

Final assessment: No

Group work: No

Learning outcomes tested: MO1, MO10, MO11, MO12, MO13, MO2, MO3, MO4, MO5, MO6, MO7, MO8, MO9

Set Exercise (Resit)

Description: Set Exercise

Weighting: 30 %

Final assessment: Yes

Group work: No

Learning outcomes tested: MO1, MO10, MO11, MO12, MO13, MO14, MO2, MO3, MO6, MO7, MO8, MO9

Part 5: Contributes towards

This module contributes towards the following programmes of study:

Healthcare Science (Neurophysiology) {Apprenticeship-UWE}
[Sep][FT][Frenchay][3yrs] BSc (Hons) 2021-22

Healthcare Science (Respiratory & Sleep Physiology) {Apprenticeship-UWE}
[Sep][FT][Frenchay][3yrs] BSc (Hons) 2021-22