MODULE DESCRIPTION FORM

FACULTY OF ENGINEERING

EF500 STEM Engagement and Support

Module Registrar: Dr Gordon Flockhart	**Taught To (Course): optional module for 4th and 5th year engineering students**		
Other Lecturers Involved: Dr Katarzyna Sypek	**Credit Weighting: 10**	**Semester: 1 and 2**	
Assumed Prerequisites: none	**Optional**	**Academic Level: 5**	**Suitable for Exchange: N**

Module Format and Delivery (HOURS i.e. 1 credit = 10hrs of study):

Lecture	Tutorial	Laboratory	Groupwork	External	Online	Project	Assignments	Private Study	**Total**
5			10	50	10			25	100

Educational Aim

This module aims to provide a multi-faceted learning experience for students from across the faculty of engineering. Students will gain experience of engaging with a diverse range of stakeholders including external organisations, industry mentors, school pupils and foundation years (1st and 2nd year) university students. They will apply their engineering knowledge and wider skills to primarily develop and deliver a tutoring and mentoring programme to support individuals from groups typically under-represented in engineering education gain access to, and achieve their full potential in, university engineering education. In addition, participants will work in a small team organise, design, develop and deliver a short, practical, engaging STEM outreach activity within a community setting.

Learning Outcomes

On completion of the module the student is expected to be able to

LO1 Ability to organise and manage engagement with a diverse range of stakeholders including school management, teachers, pupils, foundation year engineering students, university staff, industry mentors, local community groups etc.
LO2 Ability to work in a small team to design, develop and deliver a short, practical, engaging engineering outreach activity within a community such as a school, college, youth group, voluntary organisation etc.
LO3 Ability to develop and deliver a weekly programme of tutoring and mentoring activities which recognise and meet the needs of the school pupil(s) or foundation year student(s) and their understanding, applying were appropriate knowledge and skills of maths, physics, engineering principles and other STEM subjects within the broader context of engineering.
LO4 Effective team-working, interpersonal/interdisciplinary and presentation skills, to enhance overall personal planning and development.
LO5 Ability to reflect and make recommendations for improvement and effectively communicate the findings.

Syllabus

This module provides a multi-faceted learning experience for students from across the faculty of engineering through the experience of engaging with under-represented senior secondary school pupils or foundation years engineering students (1st and 2nd year) to develop and deliver a STEM tutoring and mentoring programme over a sustained period. Students will collaborate with a diverse range of stakeholders including school management, teachers, pupils, foundation year engineering students, university staff, industry mentors, local community groups to identify mentoring and tutoring opportunities. Students will then plan, prepare, deliver and reflect upon a programme of mentoring and tutoring activities supporting school pupil(s) or foundation year engineering student(s) in developing their understanding, skills and application of maths, physics, foundation engineering principals and other STEM subjects within the broader context of engineering. In addition, participants will work in a small team to organise, design, develop and deliver a short, practical, engaging STEM outreach activity within a community setting. Students will work individually and in small teams within a support network to apply and transfer existing and new knowledge in a different context.

Assessment of Learning Outcomes

Criteria

For each of the Module Learning Outcomes the following criteria will be used to make judgements on student learning:

LO1 Ability to organise and manage engagement with a diverse range of stakeholders including school management, teachers, pupils, foundation year engineering students, university staff, industry mentors, local community groups

C1 Collaborate with a diverse range of stakeholders including school management, teachers, pupils, foundation year engineering students, university staff, industry mentors, local community groups to agree a suitable schedule and format for tutoring and mentoring sessions that best meets the requirements of the pupil(s) and student(s)
C2 Gain an understanding of the individual tutoring and mentoring requirements of the pupil(s) or student(s) together with an understanding of their individual learning styles and approaches.
C3 Communicate with appropriate staff at university to ensure the schedule and tutoring/mentoring requirements are appropriate.

LO2 Ability to work in a small team to design, develop and deliver a short, practical, engaging STEM outreach activity within a community such as a school, college, youth group, voluntary organisation etc.

C1 Within a small team identify a community such as a school, youth group etc that will benefit from engaging with a STEM outreach activity.
C2 Communicate and collaborate with the community identified to understand and identify the practical and educational requirements for the STEM outreach activity to best meet the needs of the community.
C3 Design, develop and deliver the STEM outreach activity with the community.

LO3 Ability to develop and deliver a weekly programme of tutoring and mentoring activities which recognise and meet the needs of the school pupil(s) or foundation year student(s) and their understanding. Applying where appropriate knowledge and skills of maths, physics, engineering principles and other STEM subjects within the broader context of engineering.

C1 Understand the individual requirements of the pupil(s) or foundation year students(s) i.e. goals, current knowledge and ability, knowledge gaps that require filling.
C2 Develop a weekly tutoring and mentoring programme to meet the individual needs of the pupil(s) or foundation year student(s).
C3 Implement the programme on a weekly basis evaluating effectiveness at key points C4 Reflect on the evaluation and adapt the programme as necessary.

LO4 Effective team-working, interpersonal/interdisciplinary and presentation skills, to enhance overall personal planning and development.

C1 Work within a small team to discuss, develop, deliver, evaluate and improve the programme delivered over a sustained period of 4/5 months
C2 Identify, and focus on personal development of new and existing skills i.e. negotiation, interpersonal, planning, team working, communication etc. be able to reflect and communicate how these have developed through a written report and verbally as a presentation

LO5 Ability to reflect and make recommendations for improvement and effectively communicate the findings

C1 Reflect on the overall experience including personal, team and class effectiveness
C2 Make recommendations for improvement at each level i.e. personal, team and overall class experience
C3 Communicate reflection through a written report and presentation

The standards set for each criterion per Module Learning Outcome to achieve a pass grade are indicated on the assessment sheet for all assessment.

Principles of Assessment and Feedback
(within Assessment and Feedback Policy at: https://www.strath.ac.uk/staff/policies/academic/)

Please state briefly how these are incorporated in this module.

The assessment activities align with the learning outcomes, providing an opportunity to demonstrate personal development, reflection and communication skills. These are timely and aligned with the overall delivery of the external activities. Feedback is available through workshops and will be provided on submitted planning documents. General oral feedback will given at the end of the oral presentation session and individual feedback will be provided in written form after the session. Individual written feedback will be provided for submitted courseworks.

Assessment Method(s) Including Percentage Breakdown and Duration of Exams

	Examinations				Courseworks		Projects	
	Number	Month(s)	Duration	***Weighting***	Number	***Weighting***	Number	***Weighting***
					3	100		
L/Outcomes					LO 1, 2, 3 & 4			

Indicate which learning outcomes (L01, L02 etc) are to be assessed by exam/coursework/project as required.

Coursework / Submissions deadlines (*academic weeks*):
Coursework 1 - A logbook detailing a sustained programme of STEM tutoring and mentoring together with the design, development and delivery of the STEM outreach activity verified by school management, community and/or foundation year students submitted in Examination Diet of semester 2
Coursework 2 - An individual reflective presentation and critique which will take place during the Examination Diet of Semester 2
Coursework 3 - An individual reflective report submitted in the Examination Diet of Semester 2.

Resit Assessment Procedures:
Resubmission of coursework(s) prior to commencement of the August exam diet.

PLEASE NOTE:
Students must gain a summative mark of 40% to pass the module. Students who fail the module at the first attempt will be re-examined during the August diet. This re-examination will consist entirely of an individual presentation and report. No marks from any previous attempts will be transferred to a new resit attempt.

Recommended Reading

Online class material.

Additional Student Feedback
(Please specify details of when additional feedback will be provided)

Date	Time	Room No
Semester 1 Wednesday Week 9	14:00-15:30	JW606
Semester 2 Wednesday Week 6	14:00-15:30	JW606

Session: 2023_24

Approved:

Course Director Signature: Gordon Flockhart

Date of Last Modifications: 6/11/2023

(Updated May 2018)

MODULE TIMETABLE

Module Code:	**EF500**	**Module Title:**	**STEM Engagement and Support**

Brief Description of Assessment:
Coursework 1 - A logbook detailing a sustained programme of STEM tutoring and mentoring together with the design, development and delivery of the STEM outreach activity verified by school management, community and/or foundation year students submitted in Examination Diet of semester 2
Coursework 2 - An individual reflective presentation and critique which will take place during the Examination Diet of Semester 2
Coursework 3 - An individual reflective report submitted in the Examination Diet of Semester 2.

Assessment Timing:-

Indicate on the table below the start/submission dates for each assignment/project and the timing of each exam/assessment using the dropdowns provided. Dropdowns can be left blank. Add extra notes below the dropdowns.

Please note: Timings can and will change, this should only be used as a guide.

Semester One	W&D Wk	WK1	WK2	WK3	WK4	WK5	WK6	WK7	WK8	WK9	WK10	WK11	Exam Period
							Description of courseworks 1, 2 and 3 and submission dates provided.						

Semester Two	C&D Wk	WK1	WK2	WK3	WK4	WK5	WK6	WK7	WK8	WK9	WK10	WK11	Exam Period
													Coursework 1 - Detailed logbook submission Coursework 2 - Individual reflective presentation and critique Coursework 3 - Individual reflective report submission