MODULE DESCRIPTION FORM

DEPARTMENT OF CIVIL AND ENVIRONMENTAL ENGINEERING

CL935 Hydrogeology

Module Registrar: Christopher Gallacher	**Taught To (Course): MSc**		
Other Lecturers Involved: Gareth Johnson	**Credit Weighting: 10**	**Semester: 1**	
Assumed Prerequisites:	**Compulsory/ optional/ elective class**	**Academic Level: 5**	**Suitable for Exchange: Y**

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

Lecture	Tutorial	Laboratory	Groupwork	External	Online	Project	Assignments	Private Study	**Total**
20	20						20	40	100

Educational Aim

This class aims to guide the student

- To gain an understanding of Hydrogeology as a discipline,
- To discuss and explore the physical mechanisms of water movement in the subsurface,
- Undertake practical written exercises to demonstrate key principals of groundwater science.
- To explore hydrogeological issues based on case studies.

Learning Outcomes

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

LO1 The student will be able to understand the movement of groundwater in the subsurface and how to conceptualise groundwater movement as a resource in the subsurface

LO2 The student will be able to understand the role of hydrogeology within water resources management and the importance hydrogeology as a discipline

LO3 The student will have the ability to interpret hydrogeological parameters and evaluate groundwater within an integrated water resources management framework.

Syllabus

The module will teach the following:

Introduction to Hydrogeology and the Hydrological Cycle
Hydrogeological Terms and Darcy's Law
Elements of Groundwater Flow and Contaminant Transport
Case Studies of Applied Hydrogeology
Laboratory Study of Water Flow in Porous Media
Groundwater Development Essentials

Assessment of Learning Outcomes

Criteria

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

Assessment of learning outcomes will be in the form of assignments (LO1, LO2 & LO3), review quizzes and a final exam that will challenge the learning throughout the semester (LO1, LO2 & LO3).

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/)

Tutorial classes will be undertaken in preparation for each of the two assignments. Assignments will be marked within 3 weeks of submission of all reports. Each assignment is worth 20% of the final grade.

Weekly quizzes will be multiple choice on MyPlace and are worth 10% of the final grade.

The final exam (50% weighting) will assess the range of knowledge the student has incorporated during the semester.

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

	Examinations				**Courseworks**		**Projects**	
	Number	Month(s)	Duration	***Weighting***	Number	***Weighting***	Number	***Weighting***
	1	Dec	2.5 hours	50	2	40		
L/Outcomes	LO1 LO2 LO3				LO1 LO2 LO3			

Indicate which learning outcomes (LO1, LO2 etc) are to be assessed by exam/coursework/project as required.

Coursework / Submissions deadlines (*academic weeks*):
Assignment 1 – Week 7
Assignment 2 – Week 10

Resit Assessment Procedures:
2.5 hr examination in August diet / Resubmission of coursework(s) prior to commencement of the August exam diet.

PLEASE NOTE:
Students must gain a summative mark of 50% 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 exam / coursework.

Recommended Reading

All Notes and links to information required for the module are provided on MyPlace

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

Date	Time	Room No

Session:

Approved:

Course Director Signature:

Date of Last Modifications: 30/08/2021

ASSESSMENT TIMETABLE

Module Code	CL935	Module Title	Hydrogeology

Indicate in the tables below the Hand-Out (H), Submission (S) and Feedback (F) week number for each assignment (lab report/coursework/project etc) and the timing of each Exam (E), Class Test (CT) or Quiz (Q)

Semester 1

Assessment type (& title)	LOs	Weight (%)	Individual / Group	WK1	WK2	WK3	WK4	WK5	WK6	WK7	WK8	WK9	WK10	WK11	Exam Period
Weekly Quizzes	LO1 LO2 LO3	10%	Individual	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10		
Assignment 1	LO1 LO2 LO3	20%	Individual				H			S			F		
Assignment 2	LO1 LO2 LO3	20%	Individual							H			S		F
Class Exam	LO1 LO2 LO3	50%	Individual												E (2.5 hours)

Appendix

Mapping Module Learning Outcomes to AHEP

Assessment Title	**Engineering Council AHEP competencies**
LO1	**Science and Mathematics, Engineering analysis, Engineering practice**
LO2	**Science and Mathematics, Engineering analysis, Engineering practice**
LO3	**Science and Mathematics, Engineering analysis, Engineering practice**

Programme Threads

	Assessment Title		
Thread	**Primary**	**Secondary**	**Contributory**
Design			
Health, Safety & Risk Assessment			**x**
Sustainability		**x**	
Professionalism, Ethics, Diversity and Inclusion			
Application of Maths to solve engineering problems			
Industrial Engagement & Site Visits			
Digital Technologies			