MODULE DESCRIPTION FORM

DEPARTMENT OF MECHANICAL AND AEROSPACE ENGINEERING

ME975 SATELLITE DATA ASSIMILATION AND ANALYSIS

Module Registrar: Dr A Riccardi annalisa.riccardi@strath.ac.uk	**Taught To (Course): MSc. Satellite Data for Sustainable Development for whom the class is compulsory**	
Other Lecturers Involved:	**Credit Weighting: 10**	**Semester: 2**
Elective class	**Academic Level: 5**	**Suitable for Exchange: N**

Required prerequisites

Note: It is the responsibility of ALL students to ensure that they satisfy the prerequisite knowledge for this module BEFORE adding as part of curriculum selection. If unsure, please contact the Module Registrar or discuss with your Programme/Year Adviser of Studies.

None

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

Lecture	Tutorial	Laboratory	Groupwork	External	Online	Project	Assignments	Private Study	**Total**
10		10	5		5		30	40	100

Educational Aim

This class is designed to provide students with an understanding on available satellite datasets, their characteristics, processing and visualisation methods and tools, descriptive analytics methods. The class is designed to provide theoretical foundations as well as hands on exercises.

Learning Outcomes

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

LO1 Assess and determine the different type of satellite data, their representations, distortions and errors

LO2 Access and process satellite data of different format and from different sources

LO3 Analyse satellite data to extract and visualise relevant information

Syllabus

The module will teach the following:

- What is remote sensing
- Electromagnetic spectrum
- Atmospheric and Earth's surface interactions
- Payloads
- Data characteristics
- Radar imaging
- Hyper/Multi spectral imaging
- Imaging data processing
- Available satellite datasets processing and visualisation tools

Assessment of Learning Outcomes

Criteria

LO1
C1 Communicate clearly the different satellite data sources analysed and used within assignments
C2 Communicate clearly and handle source of error and distortion in the satellite data processed during the assignments

LO2
C1 Successfully apply procedures to load and manipulate satellite data
C2 Produce short code to retrieve and visualise the data

LO3
C1 Successfully apply procedures to compute descriptive statistics on specific product concentrations (atmospheric pollution, vegetation index, …)
C2 Produce short code to retrieve, analyse and visualise specific product concentrations (atmospheric pollution, vegetation index, …)

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/professionalservices/staff/policies/academic/)

Students are assessed with a set of untimed online quizzes, a group presentation and an individual project.
For the individual project, a specific task on satellite data information retrieval and processing is set and students are requested to write a report describing the procedure, the results obtained to achieve the task and discussion.

Written feedback on the report will be provided together with the mark.
Feedback on group presentation will be provided verbally at the end of the presentation and on in Myplace together with the mark.

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

Examination (online untimed quiz)				**Coursework**		**Practical**		**Project**	
Number	Month(s)	Duration	***Weighting***	Number	***Weighting***	Number	***Weighting***	Number	***Weighting***
5	February March April		20%	1 (group presentation) 1 (group report)	20% 60%				
*LO1				*LO1-3		*			

* ***L/Os:*** *Indicate which Learning Outcomes (L01, L02, etc) are to be assessed by exam/coursework/practical/project as required.*

Coursework / Submissions deadlines (*academic weeks*):
All online quizzes must be completed before the end of the teaching week in which the quiz has been released
Group Presentation – end of teaching weeks (week 11 semester 2)
Coursework submission deadline mid/end of April – beginning of April/May exam diet

Resit Assessment Procedures:
Submission of alternate ^^coursework prior to commencement of the July/August exam diet.

^^Students must contact the module Registrar for details as soon as results confirm that a resit is required.

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-assessed prior to the July/August exam diet. This re-assessment will consist entirely of a project. No marks from any previous attempts will be transferred to a new resit attempt.

Recommended Reading

Relevant material provided on Myplace module page

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

Date	Time	Room No
		Check timetable webpages for details

Session: 2024/25

Approved:

Programme Lead/Director Signature: Dr A McLaren
Date of Last Modifications: 06/09/2024

(MAE template updated July 2024)

MODULE TIMETABLE

Module Code:	**ME975**	**Module Title:**	**Satellite Data Assimilation and Analysis**

Brief Description of Assessment:

5 online quizzes (type: untimed quizzes) - 20% (quizzes equally weighted – 4% each)
1 group presentation – 20%
1 coursework submitted beginning of April/May Exam diet - 60%

Assessment Timing

Indicated on the table below are the start/submission dates for each assignment/project and the timing of each exam/assessment.

Please note: Timings could change during unforeseen periods of disruption; 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
	Choose an item. Choose an item.	Choose an item. Choose an item.	Choose an item. Choose an item.	Choose an item. Choose an item.	Choose an item. Choose an item.	Choose an item. Choose an item.	Choose an item. Choose an item.	Choose an item. Choose an item.	Choose an item. Choose an item.	Choose an item. Choose an item.	Choose an item. Choose an item.	Choose an item. Choose an item.	Choose an item.

Semester Two	C&D Wk	WK1	WK2	WK3	WK4	WK5	WK6	WK7	WK8	WK9	WK10	WK11	Exam Period
	Choose an item. Choose an item.	Choose an item. Choose an item.	Choose an item. Choose an item.	Online Test	Online Test	Online Test	Choose an item. Choose an item.	Choose an item. Choose an item.	Online Test	Online Test	Project Set	Presentation	Coursework Submit