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**
Compulsory/ 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				30		50	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 written exam in the April/May exam diet 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 and results obtained to achieve the task.

Written feedback on the report will be provided together with the mark.

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

Examination				**Coursework**		**Practical**		**Project**	
Number	Month(s)	Duration	***Weighting***	Number	***Weighting***	Number	***Weighting***	Number	***Weighting***
1	Apr/May	1 hour	40%					1	60%
*LO1, LO3				*		*		*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*):
Project submission deadline mid/end of April – beginning of April/May exam diet

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

^^Students must contact the module Registrar for project details as soon as they know that they are required to resit this class.

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 before the August 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: 2021/22

Approved:

Course Director Signature: E Henderson
Date of Last Modifications: 08/09/2021

(Updated July 2021-MAE)

MODULE TIMETABLE

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

Brief Description of Assessment:

1 written exam Apr/May exam diet - 40%
1 project submitted beginning of April/May Exam diet - 60%

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
	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	Start Exam Diet/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.	Project Set	Choose an item. Choose an item.	Project Submission Exam