



MODULE DESCRIPTION FORM

DEPARTMENT OF MECHANICAL AND AEROSPACE ENGINEERING

ME957 Satellite Applications for Sustainable Development Goals

Module Registrar: Astrid A. Werkmeister astrid.werkmeister@strath.ac.uk	Taught To (Course): MSc Satellite Applications (with Data Science) for whom class is compulsory		
Other Lecturers Involved: Dr Suki Dauda Sule, Prof Malcolm MacDonald	Credit Weighting: 10	Semester: 2	
Assumed Prerequisites: ME954 Introduction to Satellite Applications and CS989 Big Data Fundamentals	Compulsory class	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
20		30					40	30	100

Educational Aim

This module aims to impart an understanding of the theoretical and operational principles underlying satellite data in connection to the United Nations' Sustainable Development Goals. The emphasis is on practical computer lab-based coding exercises.

Learning Outcomes

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

- LO1 Communicate clearly the different satellite data sources, their capabilities and which problems can be addressed.
- LO2 Generate and adapt Python codes for satellite data product retrieval and derivation.
- LO3 Present a new business plan including the use of satellite data to support one or more Sustainable Development Goals

Syllabus

The module will teach the following:

- Introduction to the 2030 Agenda and the Sustainable Development Goals (SDGs)
- Terrestrial, Marine/maritime, and atmospheric applications of satellite data for the SDGs

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

C1 Communicate clearly the different satellite data sources within assignments

C2 Communicate clearly the different satellite systems, their instruments, which instruments produce which data and how this data can be linked to support the Sustainable Development Goals

LO2

- C1 Successfully apply procedures to manipulate satellite data
 C2 Submitted technical reports should set out relevant code details and results
 C3 Produce short codes in order to retrieve specific products (such as cloud coverage, atmospheric pollution etc) from raw satellite data

LO3

- C1 Understand how to generate new approaches to use existing satellite data to support Sustainable Development Goals
 C2 Clear written communication of business idea, connection to Sustainable Development Goals and expected challenges

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/>)

At the end of each lecture, the students are given an exercise on retrieving a specific product from satellite data, that the students can work on until the next computer lab. During the computer lab, we will demonstrate how to solve the problem together and give further details, guidelines, and tutorials.

The course work will be returned to students with comments on performance and common problems will be addressed in the tutorials.

The projects' feedback will be provided right after the individual/group presentation. The written project report feedback will be returned with comments on performance.

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

Examination				Coursework		Practical		Project	
Number	Month(s)	Duration	Weighting	Number	Weighting	Number	Weighting	Number	Weighting
				2	25% each			1	50%
*				*LO1		*		*LO1 LO2 LO3	

* **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):

First coursework deadline week 5, second coursework deadline week 10, Mondays at noon via Myplace.

Project assessment: 5 min project pitch + project report. The report must be submitted Monday 12pm noon week 11 on Myplace. The oral assessment of the project pitch will be performed during the second half of week 11.

During week 6 there will be a formative review of project progress.

Resit Assessment Procedures:

Submission of alternate 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-assessed before the August exam diet. This re-assessment will consist entirely coursework. No marks from any previous attempts will be transferred to a new resit attempt.

As soon as a student knows that they require a resit assessment for this class, they should contact the class registrar to confirm these resit requirements and deadlines.

Recommended Reading

*****Purchase recommended **Highly recommended reading *For reference (do NOT purchase)**

**(*) Introduction to Satellite Remote Sensing by Emery and Camps (Online version available for free at Library)

** An Introduction to Ocean Remote Sensing by Seelye Martin (2nd Edition)

** Principles of Applied Remote Sensing by Siamak Khorram, Cynthia F. van der Wiele, Frank H. Koch, Stacy A. C. Nelson, Matthew D. Potts

Additional Student Feedback

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

Date	Time	Room No
		Check timetable webpages for details

Session: 2019/20

Approved:

Course Director Signature: *E Henderson*

Date of Last Modifications: 27/08/2019

(Updated July 2019)

MODULE TIMETABLE

Module Code:

ME 957

Module Title:

Satellite Applications for Sustainable Development Goals

Brief Description of Assessment:

Two reports to be submitted in week 5 and 10 about the datasets and exercises done in class. At the end of semester: oral (5min pitch) and written (5-10-pages) presentations of own business proposal on satellite data for sustainable development goals. During week 6 there will be a formative review of project progress.

Assessment Timing:

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. 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.	Project Set Course work Set	Choose an item. Choose an item.	Choose an item. Choose an item.	Choose an item. Choose an item.	Choose an item. Choose an item.	Course work Submit Course work Set	Choose an item. Choose an item.	Choose an item. Choose an item.	Choose an item. Choose an item.	Choose an item. Choose an item.	Course work Submit	Project Submission Presentation