UNIVERSITY of BRADFORD

Module Descriptor

Archaeological Prospection and Visualisation

Module Code:	ARC7044-B
Academic Year:	2018-19
Credit Rating:	20
School:	School of Archaeological and Forensic Sciences
Subject Area:	Archaeology
FHEQ Level:	FHEQ Level 7 (Masters)

Pre-requisites:

Co-requisites:

Contact Hours

Type	Hours
Lectures	22
Tutorials	4
Laboratory	24
Directed Study	150

Availability Periods

Occurrence	Location/Period
BDA	University of Bradford / Semester 1 (Sep - Jan)

Module Aims

The aim of this module is to introduce and detail digital methods used in modern archaeological practices for visualisation and prospection at a range of scales from the kilometre to the nanometre. These include use of satellite data, aerial photography, geophysics, 3D scanning; and with this will detail methods of acquisition, data evaluation, and presentation to provide a comprehensive summary of modern visualisation and prospection techniques.

Outline Syllabus

The syllabus will cover a wide range of methods and technologies common in modern archaeological practice. This is introduced through traditional methods of prospection and recording, but moves swiftly in to: use of satellite data, aerial photography and lidar, electrical and magnetic methods of remote sensing, ground penetrating radar, marine geophysics, underwater/wetland prospecting and recording, photography and photogrammetry, 3D scanning (to include structured light scanning, and laser scanning), macro-photography and microscopy including 3d recording techniques at fine scales, post-processing, interpretation and analysis techniques (including use of citizen science) and presentation of data from a wide range of visualisation and remote sensing systems.

Module Learning Outcomes

On successful completion of this module, students will be able to...

1 Exhibit knowledge and understanding of the origins and development of the disciplines of visualisation and prospection.

10 Discuss aspects of physical sciences and engineering which underpin scientific techniques and analysis in archaeological visualisation and prospection.

11 Understand the principles, operational requirements and appropriate applications of a range of instrumental analytical techniques relevant to prospection, visualisation and object recording.

12 Critically review the principles and appropriate applications of key scientific approaches employed in Archaeological visualisation and prospection.

13 Practise core fieldwork techniques of recording and developing a prospection strategy.

14 Practise core post-survey/post-acquisition techniques such as data registration, manipulation and visualisation.

15 Practise core techniques of recording, measurement, analysis and interpretation of archaeological material.

16 Discover and recognise the archaeological significance of material remains and landscapes.

17 Interpret spatial data, integrating theoretical models, and traces surviving in present-day landscapes and excavation data.

18 Observe and describe different classes of primary archaeological data related to visualisation and prospection, and objectively record their characteristics; evaluate experimental scientific data.

19 Learn to choose appropriate instrumental techniques and critically evaluate the data within prospection and visualisation

2 Show an understanding of the intellectual vitality of prospection, its theoretical basis, current debates over approaches to interpretation of archaeological data.

20 Problem solve to develop solutions through creative thinking.

21 Produce logical and structured arguments supported by relevant evidence. making effective and appropriate forms of visual presentation.

22 Make effective and appropriate use of relevant information technology.

23 Make critical and effective use of information retrieval skills using paper-based and electronic resources.

24 Collaborate effectively in a team via experience of working in a group, for example, through fieldwork, laboratory and/or project work.

25 Appreciate the importance of health and safety procedures and responsibilities (both personal and with regard to others) in the field and the laboratory; engage with relevant aspects of current broad instrumentalist agendas such as global perspectives, public engagement, employability, enterprise, and creativity.

3 Appreciate the relevance of archaeological visualisation and prospection to other disciplines and the wider public.

4 Appreciate the historical, social, cultural, ethical, and political contexts of archaeological research, management, interpretation, and presentation.

5 Be familiar with the diverse sources of evidence used by archaeologists (including excavated, documentary, figurative, observational, artefactual, environmental and scientific).

6 Be familiar with the basic concepts and specific terminology that underpin the visualisation and prospection.

7 Appreciate the importance of the recovery of primary data and new information through practical experience in the field or through collections-based, records-based, or artefact-based study.

8 Demonstrate critical awareness of methodologies for quantifying, analysing and interpreting primary data.

9 Show an understanding of the concepts and application of scientific methods used in collecting, analysing and interpreting visual and remotely sensing data. Show an appreciation of the fragile and non-renewable nature of the archaeological resource and the need for sustainable approaches to its use and conservation and management. Appreciate the wider public interest in archaeology, as relevant to visualisations, and debates over public-professional engagement.

Learning, Teaching and Assessment Strategy

Formal lectures introduce and explore concepts, principles and theories and these are demonstrated in laboratory/practical. Practical skills are developed in laboratory, field, and computing sessions. Cognitive and personal skills are developed in open-ended problem solving exercises, tackled by working in small groups supported by members of academic staff during laboratory, field, and computing sessions. Oral feedback is given during such sessions. Formative written assessment with feedback is used throughout the module allowing you to review and revise your learning. A summative written assessment is used to examine your understanding of the application of practical skills to the knowledge base of the module. Directed study time is available for you to: prepare for lectures and tutorials by

accessing the directed reading material; engage in work with your teams in preparing problem-based exercises; undertake on-going review and revision of lecture and tutorial sessions; prepare for and reflect on the outcome of the formative and summative assessments.

Mode of Assessment

Type	Method	Description	Length	Weighting	Final Assess'
Summative	Coursework	Critique	-500 words	15%	No
Summative	Coursework	Poster	-1000 words	15%	No
Summative	Coursework	Essay	-2500 words	70%	Yes

Legacy Code (if applicable)

Reading List

To view Reading List, please go to **rebus:list**.