



Prifysgol Cymru
Y Drindod Dewi Sant
University of Wales
Trinity Saint David

Yr Athrofa
Centre for Education
Addysg i Gymru | Education for Wales

MODULE HANDBOOK

ECAD5017

Deepening Practice: Science and Technology

BA (Hons) Primary Education with Qualified Teacher Status

Level 5

20 Credits

Yr Athrofa

2024-2025

Revalidated October 2023 for first intake September 2024

1. Point of contact

Module Lead: Lilian Martin l.martin@uwtsd.ac.uk

2. Our Expectations

We hope you enjoy the module and programme. We are here to help.

You should:

- Make good use of the University facilities and resources
- Attend and participate in sessions
- Act responsibly
- Meet assignment deadlines
- Engage and participate in all sessions

Please read the University [Regulations for Students](#) and the Athrofa Engagement Policy.

3. Aims and Learning Outcomes

AIM(S)

To provide student-teachers with a deepened understanding of progression in learning outlined in the Curriculum for Wales framework and the knowledge of theory, research and good practice to enable them to effectively lead learning and collaborate with colleagues in this area.

LEARNING OUTCOMES

Upon the successful completion of this module, the student-teacher should be able to:

- identify the role and responsibilities of an evidenced based practitioner;
- show a deepened understanding of the complex nature of the learning environment in order to deliver effective teaching and learning;
- secure an understanding of transformative practice through evaluating their own pedagogical practices in collaboration.

INDICATIVE CONTENT

- Exploration of the skills needed to plan, deliver and evaluate creative and innovative learning experiences which facilitate pupils' progression through the Area of Learning and Experience(s).
- Integration of the key aspects of the CfW framework e.g., integral skills and cross-curricular skills into the Area of Learning and Experience(s).
- A deeper consideration of pedagogical content knowledge.
- Opportunities to connect and collaborate with Partnership schools and other agencies to deepen practical/applied knowledge and develop innovative pedagogies within a specialist area.
- An opportunity to investigate effective teaching and learning, within Science and Technology, when considering different approaches to support an inquiring mind. For example, recognising when, and why, enquiry-based approaches are appropriate for specific learning intentions.
- A consideration of the skills needed to teach for and with creativity in Science and Technology e.g. developing a deeper understanding of innovative teaching approaches.

4. Research Dispositions

Throughout each of the BA Programme, the work of Orchard and Winch (2015)¹ has been adapted and distilled into four research dispositions. These are illustrated with examples of knowledge, skills, understandings and behaviours which exemplify the disposition in the table below:

Disposition	Knowledge, skills, understandings and behaviours	RD
<i>Being sceptical</i>	To understand empirical evidence in a contested terrain: • Being aware of the political, economic and social drivers for, and implications of, 'evidence'.	
<i>Being ethical</i>	To understand the ethical base of inquiry in a complicated workplace: • Knowing ethical principles of research; • Understanding positionality within research; • Recognising own beliefs and assumptions about the world.	
<i>Being a skilled researcher</i>	To understand the principles of social science research, and to know the different kinds of methods that are used and why: • Understanding qualitative methods and the nature/status of findings; • Understanding quantitative methods and the nature/status of findings; • Understanding pragmatic designs. To understand how to construct an argument based on evidence and warrant in educational research: • Employing critical reading skills; • Taking a sceptical approach to 'evidence'. To critically appreciate the degree of support that may or may not exist for popular and influential theories in such areas as child development and the nature of learning: • Taking a sceptical approach to 'innovation' (policy and practice) or the 'next big thing'. To understand how to apply empirical evidence in their classrooms and evaluate its effectiveness: • Being clear about what is intended and why; • Defining the parameters for evaluation of effectiveness.	
<i>Being part of an inquiring profession</i>	To contribute to a community of inquiring practitioners: • Knowing whether, when and how to share outcomes of classroom inquiry; • Pro-actively contributing to a range of audiences; • Actively engaging with the inquiry and findings of others.	

¹ Orchard J. & Winch C. (2015) *Philosophical Perspectives on Education Policy. What training do teachers need? Why theory is necessary to good teaching.* IMPACT no.22

5. Assessment information

STUDY TIME ALLOCATION

There are 30 scheduled learning hours for this module.

ASSESSMENT

Assessment Component 1

☐ Written exam ☒ Coursework ☐ Practical

Mode of assessment	Volume	Weighting
Journal	1375 words	50%

Assessment Component 2

☐ Written exam ☒ Coursework ☐ Practical

Mode of assessment	Volume	Weighting
Individual Presentation	10 minutes	50%

ASSESSMENT SUMMARY

Activity type	Percentage
Written exam	
Coursework	50%
Practical	50%
TOTAL	100%

6. Module Content

Session Number	Day	Date	Period	Content	Scheduled Learning	RD
1	Mon	20/01/2025	1	Introduction to Module and CREST Award Project Overview.	Overview of CREST award categories, criteria, and exemplar projects.	
2	Mon	20/01/2025	2	CREST Project Planning and Initial Research	Begin research and planning for the CREST project.	
3	Fri	24/01/2025	1	Introduction to Science Safety.	An interactive workshop on safety considerations in science teaching.	
4	Fri	24/01/2025	2	CREST Project Practical Session	Carry out the practical aspects of their CREST project.	
5	Tue	04/03/2025	1	Engaging with External Science Bodies (ASE, RSC, IOP)	Networking, resource exploration, and discussions with representatives.	
6	Tue	04/03/2025	2	Reflective Practice and Pedagogy	Reflect on various pedagogical approaches.	
7	Tue	29/04/2025	1	Understanding and Utilising Science Capital	Activities to conceptualise and apply science capital in teaching practices.	
8	Tue	29/04/2025	2	Addressing Misconceptions in Science Education	Workshop on designing lessons that address common misconceptions.	
9	Thu	01/05/2025	1	Curriculum Design and Inclusion	Analyse and modify curriculum materials to be more inclusive. Representation in STEM subjects – gender and racial diversity.	
10	Thu	01/05/2025	2	Integration of Science in Everyday Context	Discuss and present how CREST projects relate to the Pedagogical Principles and, specifically, authentic contexts.	

11	Tue	06/05/2025	1	CREST Project Finalisation and Peer Review	Peer assessment and feedback on CREST projects.	
12	Tue	06/05/2025	2	Project Support	Time to research and define the project. Use the journal to document the choices made and why.	
13	Tue	06/05/2025	3	Science and Technology in Society	Group discussions on the role of science and technology in society, ethical implications, and the future of STEM.	
n/a	Mon	12/05/2025	All Day	CREST Project Presentations	Presentation of CREST projects to the class and guests.	

19 May – Submission of part 1.

7. Assessment Tasks and Guidance

Please see the Assessment Specification for this module that can be found in Moodle under "Assessment Information".

8. INDICATIVE READING LIST

Please use Leganto for the most up-to-date list.

[Leganto: ECAD5017C](#)

Module Code	ECAD5017	
Module Title	Deepening Practice: Science and Technology	
Classification	Reading List entry	Electronic*
Essential	Loxley, P. et al. (2017) <i>Teaching Primary Science, Promoting Enjoyment and Developing Understanding</i> (3 rd ed.). Oxon: Routledge	☐
Essential	Turvey, K. et al (2018). <i>Primary Computing and Digital Technologies : Knowledge, Understanding and Practice</i> (7 th ed.) . London: Learning Matters.	☐
Further	Harlen, W. & Qualter, A. (2018) <i>The Teaching of Science in Primary Schools</i> (7 th ed.) .Oxon: Routlage	☐
Further	Weavers, G. (2012). <i>Look, think, talk</i> . Sandbach : Millgate House Publishers https://whel-primo.hosted.exlibrisgroup.com/permalink/f/8jmhd5/44UWTSD_ALMA21164163830002421	☒
Further	Naylor, S. & Keogh, B. (2000) <i>Science Concept Cartoons Set 1</i> (Revised ed.). Sandbach: Millgate House Publishers	☐