

EP305-15 Introduction to Secondary Physics Teaching

24/25

Department

Centre for Teacher Education

Level

Undergraduate Level 3

Module leader

Holly Heshmati

Credit value

15

Module duration

10 weeks

Assessment

100% coursework

Study location

University of Warwick main campus, Coventry

Description

Introductory description

This module takes place in term 2 and is specially designed to introduce you to Science- Physics curriculum and pedagogy in the Secondary school age range. You will explore your subject from a new perspective through engaging sessions at university led by teaching fellows and visiting teachers. Practical workshops will examine the content of Secondary Science- Physics National Curriculum and how to address barriers to learning in Science- Physics through the development of effective teaching approaches and resources.

The module is hosted by the Centre for Teacher Education (currently rated 'Outstanding' by OFSTED). Anyone who completes the module is automatically eligible for an interview for the Postgraduate Certificate in Education (PGCE) initial teacher training course (providing all entry requirements for Initial Teacher Training are met).

[Module web page](#)

Module aims

1. To develop knowledge of Science- Physics teaching in the UK education system and some of the approaches to learning that support secondary students in the subject.

2. To develop knowledge and understanding of Science- Physics education and the secondary curriculum.
3. To develop key transferable skills through engagement with 11-18 education.
4. To develop skills in personal reflection on professional practice.
5. To relate educational theory to education practice.

Outline syllabus

This is an indicative module outline only to give an indication of the sort of topics that may be covered. Actual sessions held may differ.

The theory which underpins the practice of Science- Physics teaching is explored through seminars led by CTE Teaching Fellows. The seminars begin by discussing the current context of the UK education system and national curriculum before exploring a range of key themes in education such as how students learn, how ideas develop in the school curriculum and using assessment for learning and specific aspects of pedagogy relating to the teaching of Science- Physics.

As part of the module you engage in Science- Physics education through developing materials, resources and teaching approaches to support learning in Science- Physics. You will develop your practical understanding of the teaching of Science- Physics . Indicative activities might include: developing learning resources, providing exemplar materials to a professional brief, producing online learning resources.

To prepare for and support you for this you will participate a series of workshops at the university. These are highly interactive, practice based sessions, delivered by visiting teachers from local secondary schools. Sessions cover topics such as pitching and sequencing resources to support learning, overcoming barriers to learning and effective questioning.

Learning outcomes

By the end of the module, students should be able to:

- LO1 Critically analyse and reflect on key issues in Science- Physics education in school.
- LO2 Critically reflect on practice in teaching Science- Physics in school.
- LO3 Apply learning theory to school Science- Physics teaching practices.
- LO4 Demonstrate professional skills in supporting learning in Science- Physics.

Indicative reading list

Student Guide to Literacy in Science

ASE guide to secondary science education

Exploring young people's views on science education

Successful science: strengths and weaknesses of school science teaching

Teaching secondary physics

Starting science ... again?: making progress in science learning

What successful science teachers do: 75 research-based strategies

Science formative assessment: 75 practical strategies for linking assessment, instruction, and

learning

Five easy lessons: strategies for successful physics teaching

Teaching science: developing as a reflective secondary teacher

Good practice in science teaching: what research has to say

Teaching secondary physics

Teaching secondary science using ICT

How science works: exploring effective pedagogy and practice

Science learning, science teaching

Interdisciplinary

Through exploring the teaching and pedagogy of your subject you will consider and build connections between your subject, educational theory, the psychology of learning and cognition and also consider elements of policy, society and sociology. You will develop your written communication skills in producing both academic and professional evidence-informed rationales for practice.

Subject specific skills

You will develop skills relevant for teaching and the development of practice such as communication, peer and professional collaboration and reflection. You will also develop skills relevant to the academic study of education such as analysis and critique. The module will also develop your skills in the pedagogy of your subject.

Transferable skills

Critical Thinking

Reasoning and Problem Solving

Active Lifelong Learning

Communication (verbal and written)

Teamwork and working effectively with others

Information literacy (research skills)

ICT Literacy

Citizenship (local and global)

Ethical Values

Inter-cultural learning and diversity awareness

Professionalism

Organisational awareness

Study

Study time

| Type | Required |
|-------------------|----------------------------|
| Lectures | 2 sessions of 1 hour (1%) |
| Seminars | 7 sessions of 2 hours (9%) |
| Practical classes | 7 sessions of 2 hours (9%) |
| Assessment | 120 hours (80%) |
| Total | 150 hours |

Private study description

No private study requirements defined for this module.

Costs

No further costs have been identified for this module.

Assessment

You must pass all assessment components to pass the module.

Assessment group A2

| | Weighting | Study time |
|---|------------------|-------------------|
| A critical review on an issue in Science-Physics Education | 50% | 60 hours |
| A short planning and reflection piece (500 words) on a chosen issue in Science-Physics Education followed by a group video presentation discussing the issue and implications for teaching Science-Physics. | | |
| Poster | 50% | 60 hours |
| A poster presentation of a learning resource, artefact or materials designed to support children's learning in Science- Physics with a supporting rationale relating to , secondary physics curriculum, learning or pedagogic theory. | | |

Feedback on assessment

Formative: During the course of the module students will have the opportunity to submit one critical review entry.

Summative: A written feedback sheet and in-text comments will be provided on each component.

Availability

Courses

This module is Core for:

- Year 2 of UESA-H161 BEng Biomedical Systems Engineering

This module is Optional for:

- Year 2 of UESA-H335 BEng Automotive Engineering
- Year 2 of UESA-H216 BEng Civil Engineering
- Year 2 of UESA-H63W BEng Electronic Engineering
- Year 2 of UESA-H113 BEng Engineering
- Year 2 of UESA-HH75 BEng Manufacturing and Mechanical Engineering
- Year 2 of UESA-HH35 BEng Systems Engineering
- UESA-H112 BSc Engineering
 - Year 2 of H112 Engineering
 - Year 2 of H112 Engineering
- Year 2 of UESA-H336 MEng Automotive Engineering
- Year 2 of UESA-H163 MEng Biomedical Systems Engineering
- Year 2 of UESA-H217 MEng Civil Engineering
- Year 2 of UESA-H63X MEng Electronic Engineering
- Year 2 of UESA-H114 MEng Engineering
- Year 2 of UESA-HH76 MEng Manufacturing and Mechanical Engineering
- UESA-H316 MEng Mechanical Engineering
 - Year 2 of H316 Mechanical Engineering MEng
 - Year 2 of H316 Mechanical Engineering MEng
- UESA-HH31 MEng Systems Engineering
 - Year 2 of HH31 Systems Engineering
 - Year 2 of HH35 Systems Engineering
- Year 2 of UESA-H605 Undergraduate Electrical and Electronic Engineering
- Year 2 of UESA-H606 Undergraduate Electrical and Electronic Engineering MEng
- UPXA-GF13 Undergraduate Mathematics and Physics (BSc)
 - Year 2 of GF13 Mathematics and Physics
 - Year 2 of GF13 Mathematics and Physics
 - Year 3 of GF13 Mathematics and Physics
 - Year 3 of GF13 Mathematics and Physics
- UPXA-FG31 Undergraduate Mathematics and Physics (MMathPhys)
 - Year 2 of FG31 Mathematics and Physics (MMathPhys)
 - Year 2 of FG31 Mathematics and Physics (MMathPhys)
 - Year 3 of FG31 Mathematics and Physics (MMathPhys)
 - Year 3 of FG31 Mathematics and Physics (MMathPhys)
- UPXA-F300 Undergraduate Physics (BSc)
 - Year 2 of F300 Physics
 - Year 2 of F300 Physics
 - Year 2 of F300 Physics
 - Year 3 of F300 Physics
 - Year 3 of F300 Physics

- Year 3 of F300 Physics
- UPXA-F303 Undergraduate Physics (MPhys)
 - Year 2 of F300 Physics
 - Year 2 of F303 Physics (MPhys)
 - Year 3 of F300 Physics
 - Year 3 of F303 Physics (MPhys)
- UPXA-F3F5 Undergraduate Physics with Astrophysics (BSc)
 - Year 2 of F3F5 Physics with Astrophysics
 - Year 2 of F3F5 Physics with Astrophysics
 - Year 3 of F3F5 Physics with Astrophysics
 - Year 3 of F3F5 Physics with Astrophysics
- UPXA-F3FA Undergraduate Physics with Astrophysics (MPhys)
 - Year 2 of F3FA Physics with Astrophysics
 - Year 3 of F3FA Physics with Astrophysics