



Board of Teacher Education  
Physics

## Syllabus

### Science, technology, visual arts and drama

<b>Course Code:</b>	LPGF04
<b>Course Title:</b>	Science, technology, visual arts and drama <i>Naturvetenskap, teknik, bild och drama</i>
<b>Credits:</b>	30
<b>Degree Level:</b>	Undergraduate level
<b>Progressive Specialisation:</b>	First cycle, has at least 60 credits in first-cycle course/s as entry requirements (G2F)

#### Major Field of Study:

#### Course Approval

The syllabus was approved by the Board of Teacher Education 2017-08-30, and is valid from the Spring semester 2018 at Karlstad University.

#### Prerequisites

Completed courses LPGF01, LPGF02 and the practical placement component of LPF03

#### Learning Outcomes

The aim of the course is that student develop understanding of and skills in play- and theme-based methods involving the interplay of nature and society. Students further develop knowledge in natural science, technology, visual arts and drama, and of preschool children's learning processes in these areas.

Module 1 Introduction to science, technology, visual arts and drama, 7.5 ECTS cr

Upon completion of the module, students should be able to:

1. give an account of central concepts and theories in science, technology, visual arts and drama
2. problematise different aspects of technology and technical developments in interaction with scientific discoveries
3. give an account of how experiments can be conducted safely in accordance with current legislation and how to prevent and handle accidents and incidents in preschool,
4. explain and identify science phenomena and technology in everyday life through laboratory activities, drama, illustration, and conversation
5. give an account of how to awaken children's interest in nature, people and society through a play pedagogy approach
6. give an account of how roleplay and illustrated narratives can be used to develop children's knowledge of science and technology.

Module 2 Body, movement and construction, 7.5 ECTS cr

Upon completion of the module, students should be able to:

1. give an account of the human anatomy and functions from an educational perspective,

2. give an account of the most common infectious diseases among children and measures to prevent them
  3. give an account of some common physical phenomena
  4. give an account of the chemical structure of food and the human digestion process
  5. describe some common materials and their properties
  6. create, design and build with the help of different techniques, materials and tools
  7. give an account of central concepts and theories in the fields of visual art and drama
  8. use sketching, experiments with colours and image interpretation as exploratory methods
  9. give an account of how science and technological knowledge can be visualised by making and using dolls and
- using these to stimulate children's interest in science and technology.

#### Module 3 Practical Placement, 7.5 ECTS cr

Upon completion of the module, students should be able to:

1. act in accordance with the foundational values stipulated in the Swedish Education Act and the national curriculum,
2. under some supervision, plan, carry out and evaluate some activities on the basis of general and subject-specific pedagogy and preschool curricula,
3. with some guidance, plan and implement a conducive learning environment,
4. communicate in a professional way with children, guardians and staff,
5. reflect, with some guidance, on how a norm-critical perspective can be implemented in their teaching, with special focus on equality,
6. observe and document, under some supervision, children's development and social interaction, and discuss how this can be communicated to children, guardians and staff,
7. evaluate their own professional development in relation to the preschool teacher's mandate and identify improvement needs,
8. use digital tools in pedagogical activities under some guidance,
9. identify, under guidance, children's special needs in planning activities, and in cooperation with others handle these needs, and
10. prevent, handle and solve conflicts in preschool under some guidance.

#### Module 4 Children, nature and society, 7.5 ECTS cr

Upon completion of the module, students should be able to:

1. describe the immediate environment as an environment of development and learning for children by using a thematic approach,
2. give an account of thematic learning involving science, technology, visual arts and drama
3. give an account of how ecosystems work globally and locally
4. describe animals and plants in the children's immediate environment and how these can be sorted, categorised and typed
5. give an account of some natural cycles and assess the impact of different technical choices on the individual, society and the environment
6. give an account of different forms of illustrated narration in relation to the subject areas of the course
7. give an account of process drama and how it can be used in relation to the other subject areas of the course
8. demonstrate communicative ability in listening, speaking and writing adequately and functionally in different situations.

#### **Content**

The course integrates knowledge of children' learning and development in science, technology, visual arts and drama thematically and through exploratory, visual and laboratory aspects of the subject areas.

#### Module 1 Introduction to science, technology, visual arts and drama, 7.5 ECTS cr

The module deals with central concepts and theories in science, technology, visual arts and drama and how these subjects can be integrated with visual arts and drama.

The module comprises the following components:

- scientific and exploratory methods
- what is life
- central life processes
- evolution of life and diversity
- the concepts of force, pressure and density
- energy and energy conversion, matter and its division, structure and phase transformation from a particle perspective
- chemical safety
- chemical reactions in everyday life
- the history of and importance of technology and scientific discoveries in society
- technology in children's everyday lives, simple constructions and technical solutions

Module 2 Body, movement and construction, 7.5 ECTS cr

The module explores how to get children interested in science, technology, visual arts and drama.

The module comprises the following components:

- the form and function of the body
- children's thoughts on the body
- contagion in preschool
- common physical phenomena such as magnetism, electricity, sound and light
- the structure of food, types, and its journey and transformation in the body
- common materials and their properties
- mechanics and design
- the basics of visual art: seeing, interpreting, expressing and understanding colour schemes
- sketching, colour experiments and image interpretation as exploratory tools
- four drama pedagogical perspectives
- puppet theatre techniques and the puppet as a communicative tools for children's learning

Module 3 Practical Placement, 7.5 ECTS cr

The module involves planning, organising and testing practical activities related to science, technology, visual arts and drama.

The module comprises the following components:

- planning, organising, implementing and evaluating activities in subject areas of the course
- preschool curricula and local guidelines at the placement workplace
- professional conduct in relation to children, guardians and colleagues

Module 4 Children, nature and society, 7.5 ECTS cr

Aspects of sustainable development are considered throughout the module which treats how children's curiosity, initiative and interests can be put to good use through thematic methods in the areas of science, technology, visual arts and drama.

The module comprises the following components:

- turning outdoor environments into learning environments together with children
- nature and conditions of life in terms of the ecological system
- systems of classification of organisms and interplay
- natural cycles and human impact on them
- environmental and nature preservation issues
- technical systems in and around the preschool
- recycling and reusing for sustainable development
- the causes of seasonal change
- process drama in interaction with the subject areas of the course
- varying forms of illustrated narration in interaction with science and technology

## **Reading List**

See separate document.

## **Examination**

Assessment is based on the following mandatory components.

### **Module 1**

Learning outcome 1 is assessed on the basis of a written exam and digital quiz.

Learning outcomes 2 and 3 are assessed on the basis of a written exam.

Learning outcome 4 is assessed on the basis of laboratory experiments, construction, and performance

Learning outcome 5 is assessed on the basis of a written reflection.

Learning outcome 6 is assessed on the basis of a seminar

### **Module 2**

Learning outcome 1, 3, 4, 6, 8 and 9 are assessed on the basis of experiment, construction, and performance

Learning outcomes 1 and 2 are assessed on the basis of a digital quiz.

Learning outcome 5 is assessed on the basis of a digital group production.

Learning outcome 7 is assessed on the basis of a written exam

### **Module 3**

Learning outcomes 1-10 are assessed on the basis of completed and documented practical placement.

Learning outcomes 5 and 7 are assessed on the basis of oral and/or written report at the university.

Attendance is required for the introduction to and for the preschool placement component. The occasional day of absence can be completed on agreement with the module convener. Students who fail to attend more than five days will have to retake the whole module, unless special circumstances exist.

The number of examination opportunities for the practical placement component is limited to two.

### **Module 4**

Learning outcomes 1 is assessed on the basis of a group presentation and digital production, and through laboratory experiment, construction and performance.

Learning outcomes 1, 2 and 5 are assessed on the basis of field studies and a written assignment.

Learning outcome 5 is assessed on the basis of a group presentation

Learning outcomes 6 and 7 are assessed on the basis of a performance

Learning outcome 8 is assessed on the basis of an oral presentation and digital production and a written group and individual assignment.

Individual performance must be clearly displayed for assessment in all examination formats.

## **Grades**

One of the grades Distinction (VG), Pass (G) or Fail (U) is awarded in the examination of the course.

## **Quality Assurance**

Follow-up relating to learning conditions and goal-fulfilment takes place both during and upon completion of the course in order to ensure continuous improvement. Course evaluation is partly based on student views and experiences obtained in accordance with current regulations and partly on other data and documentation. Students will be informed of the result of the evaluation and of any measures to be taken.

## **Course Certificate**

A course certificate will be provided upon request.

**Additional information**

Required course for the preschool teacher education programme.

The local regulations for studies at the Bachelor and Master levels at Karlstad University stipulate the obligations and rights of students and staff.

Field studies are season dependent and may take place at other times.