

Dette er en oversettelse av den fastsatte læreplanteksten. Læreplanen er fastsatt på Bokmål

Laid down as a regulation by the Norwegian Directorate for Education and Training on 3 April 2006, as delegated in a letter of 26 September 2005 from the Ministry of Education and Research pursuant to the Act of 17 July 1998 no. 61 relating to primary and secondary education (Education Act) Section 3-4 first paragraph.

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Utdanningsdirektoratet

Purpose

Information technology has had great significance for developments in society the last few decades. Technology has changed society's patterns and modes of communication in a very short time and created new jobs as well as new arenas for learning and research. Society needs people who understand, utilize and can further develop information technology, but it also needs people with an awareness of and critical attitude to the way technology affects human beings and society. Information technology establishes the opportunity for creating entirely new products and services through creativity and cooperation across professional borders, thus contributing to technological innovation.

The programme subject shall give training in creative thinking, problem-solving, as well as help formulate precise descriptions and discover common patterns. The programme subject shall help pupils gain insight into how automated information – in the form of numbers, texts, graphics, film, sound and animations – can be structured and managed in the form of data, and gain insight into the demands established for computer performance and performance with other digital equipment. In this programme subject, pupils shall gain experience in the use of modern technology and relevant developmental tools, and how the merging of computing, sound and image technology can enable the creative use of the technology itself.

The subject emphasizes the creation and construction of solutions within information technology, and for this reason information technology in many ways is a discipline that focuses on practical work. The programme subject shall arrange for communication and cooperation. The programme subject Information technology is based in natural sciences and mathematics, but it also has direct connections to the fields of Media, Social Sciences, Economics, Languages and Arts, Crafts and Design. The programme subject can therefore give a good basis for studies in many subject areas and for further development of competences and expertise in working life.

Structure

Information technology comprises two programme subjects: Information technology 1 and Information technology 2. These subjects are built up so that the subjects can be chosen independently of one another.

These programme subjects have been structured into main subject areas, for which competence aims have been formulated. The main subject areas complement each other, and should be viewed in relation to one another.

Overview of the main subject areas:

Programme subject	Main subject areas		
Information technology 1	Our digital age	Website and multimedia	Databases
Information technology 2	Planning and documentation	Programming	Multimedia development

Main subject areas

The main subject area is concerned with how digital equipment functions, and how standards, software and interfaces make interaction possible between computers and other equipment. The subject also deals with how technology influences and is influenced by society, and how the individual encounters technology in everyday life. Knowledge of current rules and ethical norms for the use of information technology is a central theme in this subject. Data security is also included in the main subject area.

The main subject area is concerned with designing, implementing and evaluating websites containing text, sound, images, video and animations. A prominent theme in the main subject area is the organization and overall graphic design of websites so that these are made more accessible to various user groups. It also is concerned with the use of standard solutions for specific developments in resolving IT issues.

The main subject area is concerned with modelling and creating databases and developing IT solutions with a point of departure in the databases themselves. It also is concerned with how databases can be made more accessible from websites with the help of server-side query languages and software.

The main subject area is concerned with planning IT solutions and the development of these according to specifications for satisfying user needs. It also is concerned with documentation and evaluation of specific developments for resolving IT issues. The main subject area also covers designing, documenting and evaluating solutions related to the guidelines that have been established for user interfaces.

The main subject area is concerned with how formal language can be used to formulate structures and devise instructions that can be carried out by computers. Key themes in this main subject area are experimentation and problem-solving. Object-oriented programming is also covered.

The main subject area concerns designing, structuring, implementing and evaluating multimedia applications that contain text, sound, images, video and animation. It also covers applications for local use and publication on the Internet.

Teaching hours

Teaching hours are given in 60-minute units:

Information technology 1: 140 teaching hours per year

Information technology 2: 140 teaching hours per year

Basic skills

Basic skills are integrated into the competence aims for this course in areas where they contribute to the development of and are a part of the basic subject competence. In the Information technology programme subject, basic skills are understood as follows:

Being able to express oneself orally and in writing in Information technology involves planning and describing IT solutions and preparing instruction manuals and documentation. Furthermore, this means that one needs to formulate precise instructions for computers in programming language. It also means being able to express oneself in a clear and precise manner.

Being able to read in Information technology involves interpreting descriptions, instruction manuals, diagrams, models, symbols and programming codes in a precise manner. It also means understanding specific technical jargon in written texts.

Numeracy in Information technology involves doing simple calculations, or expressing formulas in a programming language. It also means being able to use simple mathematical logic to express a condition in a precise manner.

Being able to use digital tools is "stock in trade" and a fundamental principle in information technology. This involves using IT solutions in efficiently, and using digital tools in planning and documentation processes.

Competence aims

Our digital age

The aims of the studies are to enable pupils to

- describe the different types of digital equipment, and explain the main features of how these work
- explain how physical signals in computer equipment can be interpreted as binary numbers, character sets, graphic presentations, picture elements and sound
- give an account of standards for communication between different forms of digital equipment, and between programs
- give an account of the challenges and opportunities the digital world may bring to linguistic and cultural minorities
- give an account of and argue for the necessity of rules and ethical norms in the use of information technology
- describe, elaborate on and discuss information technology's potential and consequences
- describe and suggest measures that can be taken against threats arising in the digital world

Websites and multimedia

The aims of the studies are to enable pupils to

- give an account of standards and principles that make the Internet possible
- plan websites that contain multimedia components
- develop websites according to plan, and evaluate if requirements for user interfaces have been satisfied
- edit websites by using standardized mark-up language
- organize and give grounds for the file structure(s) of websites
- set up demands for, and evaluate, websites

Databases

The aims of the studies are to enable pupils to

- give an account of the concepts primary key, candidate key, foreign key and atomic key
- develop normalized data models based on problems, and give grounds for the choices made
- create databases according to given data models
- develop, present and give grounds for database applications
- create dynamic websites that use a database with the help of query language and server side software

Planning and documentation

The aims of the studies are to enable pupils to

- specify and give grounds for functional demands for planned IT solutions
- choose and use relevant techniques and tools for planning and developing IT solutions
- create instruction manuals for IT solutions
- give an account of how IT solutions are developed in collaborations between individuals, and what this requires in terms of the planning and developmental processes
- explain the purpose of technical documentation, and create this kind of documentation for IT solutions, with a particular emphasis on documenting interfaces between different subsystems

Programming

The aims of the studies are to enable pupils to

- read and use documentation and code
- define variables and choose appropriate data types
- allocate statements for variables
- do programming with simple and indexed variables or other variable collections
- do programming using choices and repetitions
- create their own, and use other people's functions or methods with parameters
- program functions or methods that are triggered by events
- develop and compose subprograms
- test and find errors in programs by using the most common techniques
- give an account of the purpose of object-oriented development and the concepts class, object and inheritance

Multimedia development

The aims of the studies are to enable pupils to

- plan and develop multimedia applications by combining their own and other people's multimedia elements of the types text, image, sound, video and animations
- use programming language in multimedia applications
- evaluate and use relevant file formats for text, image, sound, video and animations
- evaluate multimedia products with the purpose of evaluating user interface and functionality

Assessment

Provisions for final assessment:

Overall achievement grades

Programme subject	Provision
Information technology 1	The pupils shall have an overall achievement mark.
Information technology 2	The pupils shall have an overall achievement mark.

Examination for pupils

Programme subject	Provision
Information technology 1	The pupils may be selected for an oral-practical exam. The oral exam is prepared and marked locally.
Information technology 2	The pupils may be selected for a written or an oral-practical exam. The written exam is prepared and marked centrally. The oral-practical exam is prepared and marked locally.

Examination for external candidates

Programme subject	Provision
Information technology 1	The external candidates shall sit for an oral-practical exam. The oral exam is prepared and marked locally.
Information technology 2	The external candidates shall sit for a written and an oral-practical exam. The written exam is prepared and marked centrally. The oral-practical exam is prepared and marked locally.

The provisions for assessment are stipulated in the regulations of the Norwegian Education Act.

Utgått