BUSINESS ACADEMY AARHUS
SCHOOL OF APPLIED SCIENCES

CURRICULUM

for

Bachelor in Web Development

Part III: The electives' catalogue.

Valid from 01.02.2022

Content

This curriculum is part of the national curriculum and the institutional part and they must be used together. The national part of the curriculum is the same for all academies that offer this programme, while the institutional part of the curriculum and the electives' catalogue are specific to Business Academy Aarhus.

1. The electives' catalogue.

On the programme the electives are weighted 20 ECTS. Elective elements, learning objectives and the criteria for assessment are described in this elective's catalogue.

The following electives are offered:

- Content Management Systems (10 ECTS)
- XR Development 1 (5 ECTS)
- XR Development 2 (5 ECTS)
- Progressive Web Apps (10 ECTS)
- Concept development for mobile devices (10 ECTS)

Students may also follow electives at other institutions provided that they pay for their own transportation, overnight accommodation, etc.

Summer and winter school
It is also possible to choose a summer school or winter school as an elective. The selected summer or winter school must be approved by the programme's head of department before you leave so that prior credit approval can be obtained. Upon approval of the prior credit approval, the programme element is considered completed if it is passed according to the rules of the programme.

The International Office can be contacted for further information.

2. Elective exams

When starting on a programme element, semester, etc., the students will automatically be registered for the relevant exams. Registration for an exam means that one exam attempt has been used. This does not apply to students who are unable to attend the examination due to a documented illness or maternity/paternity leave.

It is always the responsibility of the student to ensure that they have internet access during the exam and that their computer is functional.

{0>All exams are held in English.<0} For all international programmes, all exams are conducted in English.

2.1. Completion of the exams

In general, the following applies for all programmes in relation to when an exam has been completed or an exam attempt has been used. If there are deviations for a specific exam, they will appear in the individual exam descriptions below.

Pass / fail exams
If a student has not achieved the mark 02 or higher for an oral or written exam or a combination of this, the exam will not be passed and one exam attempt will have been used.

If exam project was prepared by one student and not passed, the student can choose to work further on the existing project or prepare a new project.

In the event of one student, as part of a group project, not achieving the mark 02 or above, the student can rewrite their section of the joint project, provided the exam is individualised. The student can also choose to write a new project alone, where the rules for the scope and guidelines for individually produced projects apply.

Project not handed in/written answers
If a student does not hand-in their exam project or a written report, one exam attempt will have been used.

The student can choose to work further on their existing project or prepare a new project.

Not participated in the exam/oral examination
If a student hands in their exam project or written answers, but doesn't participate in the oral exam, one exam attempt will have been used.

A new oral exam will be scheduled as soon as possible and the student will be examined in the previously handed in project.

Sickness and re-examinations
The specific deadlines can be seen in each exam description.

Information about the time and place of sick/re-exams can be found on Study Update. This may be the same as the next regular exam. The student is responsible for finding out when the sick and re-exams take place.

Sick exams
A student who has been prevented from taking an examination due to a documented illness or another unforeseen circumstance will be given the opportunity to take a (illness) exam as soon as possible. If it is an exam that is scheduled in the programme's last examination period, the student will be given the opportunity to retake the exam in the same examination period or as soon as possible after.

The illness must be documented by a doctor's certificate. The Academy must receive the doctor's certificate no later than three working days after the examination. Students who become acutely ill during an exam must prove that they have been ill on that day.

If the illness is not documented according to the above rules, the student will have used one examination attempt. The student must pay the cost of the doctor's certificate. Requirements for the doctor's certificate can be found on Study Update 'Worth knowing about exams'.

Re-examination

With a failed exam, or failure to appear for an exam, the student is automatically registered for the re-examination, provided that the student has an exam attempt left. The student is registered to take the exam the next time it is scheduled. The re-examination may be the same as the next regular exam.

The programme may grant an exemption from the automatic registration to an exam provided this is justified by exceptional circumstances, including documented disabilities.

3. Electives on the programme

3.1. Content Management Systems (CMS)

Content

The subject element contains techniques and tools for developing different types of Content Management based web applications and deals with criteria for selecting CMS.

Learning objectives for Content Management Systems (CMS)

Knowledge

The student will gain:

- developmental knowledge of practices and applied theory and methods within Content Management Systems including different types of Content Management Systems as well as their basic system architecture
- and an understanding of the practice, applied theory and methodology for selecting Content Management Systems and can reflect on the profession's practice and the application of theory and methods within Content Management Systems.

Skills

The student will get the skills to:

- use Content Management Systems for application development
- evaluate practice-orientated and theoretical issues within modelling of content, establish and administer content and justify and choose appropriate solutions
- evaluate and select a Content Management System for a given development task
- present content in accordance with a given design request
- expand the system with additional functionality
- communicate practical and academic problems and solutions to partners and users concerning the choice of the Content Management System.

Competencies
The student will learn to:

- manage and perform content tasks including users and the assignment of user rights
- independently engage in academic and interdisciplinary cooperation within web-based Content Management Systems and assume responsibility within the framework of professional ethics
- identify your own learning needs and acquire new knowledge and skills in web-based Content Management Systems.

ECTS weight
The subject element Content Management Systems (CMS) is weighted 10 ECTS credits.

The exam form and organisation including any formal requirements
The exam is an individual oral examination on the basis of a question set which is drawn by the student.

The oral exam takes 60 minutes, which includes 30 minutes of preparation of a question that the student draws immediately before the 30 minutes oral examination (this includes a discussion of the assessment). The oral exam lasts 30 minutes and includes:

- About 5-10 minutes in which the student presents the topic/question
- About 15-20 minutes of examination in the subject element's learning objectives
- About 5 min for the assessment

Criteria for assessment and co-examiner
The assessment criteria for the elective elements are the same as the learning objectives for the subject element. The exam is assessed according to the 7-point scale and has an internal co-examiner.

3.2. XR Development 1

Content
The subject element includes techniques and tools to develop simple, contemporary X Reality (XR) applications, including virtual reality (VR), mixed reality (MR) and augmented reality (AR).

The subject element also works with programming paradigms in contemporary XR tools and frameworks. In addition, the subject element includes an introduction to interaction design, which is necessary to produce experiences in XR environments.

Learning objectives for XR Development 1

Knowledge
The student will gain:

- knowledge and understanding of contemporary standards of XR applications and the hardware it runs on
- an understanding of programming tools and frameworks for XR application development
- an understanding of production tools for creating and managing content in XR applications
- knowledge and an understanding of the embodiment and interactive design used in the production of user experiences for XR applications

Skills
The student will get the skills to:

- apply XR hardware and development software and use the strengths and limitations of XR hardware and development software
- use data tools to analyse users and usage situations where XR is introduced
- evaluate the relevance of introducing XR experiences in complex use situations

Competencies
The student will learn to:

- manage the development of simple functional XR applications

ECTS weight
The subject element XR Development is weighted 1 ECTS credits.

The exam form and organisation including any formal requirements
The exam is an individual written exam without any aids and assistance, and takes about an hour. The exam takes place in Wiseflow.

Criteria for assessment and co-examiner
The assessment criteria for the elective elements are the same as the learning objectives for the subject element. The exam is assessed according to the 7-point scale and has an internal co-examiner.

3.3. XR Development 2 .....

Content
This subject element works with the use of theory, methods and tools from the subject element XR development 1 to solve a specific problem??? 1 or 2

The XR Development field is expanding and changes rapidly. To maintain relevance and an updated course curriculum, external lecturers representing private companies working with XR will be invited to take part in the lessons.

Learning objectives for XR Development 2

Knowledge
The student will gain:

- development based knowledge about practice and applied theory and methods within XR Development
- and an understanding of the practice, theory and methodology for XR Development and can reflect on the practice and the application of theory and methods within XR Development.

Skills
The student will get the skills to:

- produce content for XR applications using common production methods
- use the strengths and limitations of XR hardware and development software
- balance interactive design to facilitate the right user experience
- evaluate practice-orientated and theoretical issues within the development of XR applications, including analysing users and usage situations where XR will be introduced
- use the subject's methods and tools within XR Development and will master the skills related to employment within XR Development
- evaluate practice-orientated and theoretical issues, as well as justify and choose relevant solutions, including analysing and choosing the right hardware and software for the development of XR solutions
- communicate practical and academic problems and solutions to partners and users within XR Development.

Competencies
The student will learn to:

- manage complex and development-orientated situations and take part in the development and design of XR applications, including analysing and designing relevant content for applications to deliver the right user experience
- independently engage in academic and interdisciplinary cooperation within the development of XR Development and assume responsibility within the framework of professional ethics
- identify their own learning needs and develop their own knowledge, skills and competencies in relation to the XR Development.

ECTS weight
The subject element XR Development 2 is weighted 5 ECTS credits.

Exam form and organisation
The exam is an individual oral examination based on a product prepared in groups. The product is prepared on the basis of a case.

The individual oral exam lasts 30 minutes and includes:

- About 10 minutes in which the student presents the product
- About 15 minutes of examination in the subject element's learning objectives
- About 5 min for the assessment

Prerequisites for the exam – active attendance and submission requirements
It is a prerequisite for taking the oral exam that students confirm with their signature that they participated in the preparation of the product . The hand-in via the Academy's system acts as the student's signature.

Criteria for assessment and co-examiner
The assessment criteria for the elective elements are the same as the learning objectives for the subject element. The exam is assessed according to the 7-point scale and has an internal co-examiner.
The assessment will be based on an overall assessment of the product and oral performance.

3.4. Progressive Web Apps (PWA)

Content
The subject element deals with installable web applications, service worker, caching and web performance – which are necessary to develop a progressive web app.
The second part of the element includes the development of progressive web apps focusing on advanced features such as push notifications and background sync etc. to solve a specific problem.

Learning objectives for Progressive Web Apps (PWA)

Knowledge
The student will gain:

- knowledge of key principles in the development of PWA, including relevant web technologies and software libraries
- an understanding of how PWA can be made so that it works in securely and protects the user's data, and can reflect on the practice of the profession and the application of the theory and method within PWA.
- knowledge and understanding of theories and methods on how to implement and integrate manifest, service workers and caching and can reflect on the practice and application of PWA theory and methodology
- knowledge of how push notifications and background sync work in a PWA, theoretically and in practice.

Skills
The student will get the skills to:

- use PWA methods and tools and master the skills associated with employment within PWA, including creating apps with a responsive design that fit a wide range of screen sizes, cache the necessary data needed for the app to be less dependent on networks, and implement offline behaviour in apps so that it can be used without a network connection
- evaluate practice-orientated and theoretical issues including evaluating existing web apps according to the requirements that progressive web apps consolidate existing knowledge on web app development with future trends related to the development of PWA as well as justifying and selecting relevant solutions within PWA
- communicate practical and academic problems and solutions to partners and users within PWA
- use methods and tools within advanced PWA and master the skills associated with employment within PWA including implementing and deploying a progressive web app, push notifications as well as implementing background sync in a PWA
- evaluate practice-orientated and theoretical issues, as well as justify and select relevant solutions within advanced PWA, including analysing the usability of a progressive web app, and analysing different ways to develop the features and behaviour required to fully implement a progressive web app.

Competencies
The student will learn to:

- independently engage in academic and interdisciplinary cooperation within the development of PWA and assume responsibility within the framework of professional ethics
- identify their own learning requirements and develop their own knowledge, skills and competencies in relation to PWA
- manage complex and development-orientated situations within the development and implementation of advanced PWA.

ECTS weight
The subject element Progressive Web Apps is weighted 10 ECTS credits.

The exam form and organisation including any formal requirements
The exam is an individual oral examination based on a product prepared in groups. The product is prepared on the basis of a case.

The individual oral exam lasts 30 minutes and includes:

- About 10 minutes in which the student presents the product
- About 15 minutes of examination in the subject element's learning objectives
- About 5 min for the assessment

Criteria for assessment and co-examiner
The assessment criteria for the elective elements are the same as the learning objectives for the subject element. The exam is assessed according to the 7-point scale and has an internal co-examiner.
The assessment is an overall assessment of the product and the oral performance.

3.5. Concept development for mobile devices

Content
The subject element includes programming techniques, user interface development and web integration for the development of applications for mobile devices. The focus is on the entire process from idea to fully developed, ready-to-distribute application on one (or more) selected platforms.

Learning objectives for Concept development for mobile devices

Knowledge
The student will gain:

- knowledge of the development of mobile applications on a selected platform
- knowledge of different types of applications in mobile software
- knowledge of various programming techniques that can be used in the development of mobile applications
- development-based knowledge concerning the profession and industry in practice and applied theory and methods
- and an understanding of the practice, theory and methodology and can reflect on the profession's practice and the application of theory and methods.

Skills
The student will get the skills to:

- use different programming techniques for developing mobile applications on a selected platform and will master the skills associated with employment in mobile applications, including constructing user interfaces for mobile applications, using data for viewing in a mobile application, integrating with web services or cloud services, and integrating a mobile solution with the surroundings, for example via sensors (e.g. camera, GPS, etc)
- evaluate practice-orientated and theoretical issues and justify and choose relevant solutions, including evaluating the suitability of different business methods for a specific mobile application (e.g. in-app billing, subscriptions, freemium, etc.)
- communicate practice-orientated and academic problems and solutions to partners and users within mobile applications

Competencies
The student will learn to:

- address complex and development-orientated situations in mobile applications including constructing mobile applications for a selected platform, as well as constructing different types of UI designs on mobile devices
- independently engage in academic and interdisciplinary cooperation within mobile applications assume responsibility within the framework of professional ethics
- identify their own learning needs and develop their own knowledge, skills and competencies in relation to mobile applications.

ECTS weight
The subject element concept development of mobile devices is weighted 10 ECTS credits.

Exam form and organisation
The exam is an individual written exam in the form of a report with maximum of 15 pages including images, which is prepared on the basis of a group project.

Prerequisites for the exam – active attendance and submission requirements
The written report must: be handed-in on time, according to the activity plan on Study Update and have credible content

Non-compliance with one or more of these conditions means that the student cannot participate in the exam, and one exam attempt will have been used.

Criteria for assessment and co-examiner
The assessment criteria for the elective elements are the same as the learning objectives for the subject element. The exam is assessed according to the 7-point scale and has an internal co-examiner.
The assessment is based on an overall assessment of both the group project and the individual report.

4. The use of aids and assistance

During exams, all aids and assistance, including electronic devices, are allowed, unless a ministerial order or curriculum for the specific programme specifies restrictions for use.

Any rules for limitations in the use of aids will be apparent from the description of the individual exam.

5. Commencement

This elective catalogue is valid for students who choose electives after 1 February 2022.