Linnæus University

Course syllabus

Faculty of Technology
Department of Computer Science

1DV023 Serverbaserad webbprogrammering, 7,5 högskolepoäng
Server-based Web Programming, 7.5 credits

Main field of study
Computer Science

Subject Group
Informatics/Computer and Systems Sciences

Level of classification
First Level

Progression
G1F

Date of Ratification
Approved by Faculty of Technology 2015-06-09
The course syllabus is valid from spring semester 2016

Prerequisites
Clientbased Web Programming (1DV022), and Web Technology 1 (1ME321) or
equivalent

Objectives
After completing the course the student should be able to:

- Describe the task of the web server in diffrent kinds of web applications. (1)
- Describe the purpose of the HTTP-protocol in diffrent kinds of web applications
  and its pros and cons in this context. (2)
- Create web applications with the plattform Node.js.(3)
- Create web applications for handling persistent data where data can be saved,
  updated and deleted. (4)
- Describe and have a practical understanding of diffrent security problem that can
  occur in web applications. (5)
- Create web applications with, for the context, suitable architecture. (6)
- Create server-based realtime applications. (7)
- Plan and to perfom publishing of web applications created for the Node.js-
  plattform in production enviroment. (8)

Content
The purpose of the course is that students will develop basic skills for web programming
in the web server.

- The web server (diffrent kinds and ways of working)
- The relationship between client and server in a web application

- HTTP
- The Node.js-plattform and the asynchronous program modell
- Template engines for for server based HTML generation
- Attack vectors in a web application like CSRF, XXS and diffrent types of injection attacks
- RESTful architecture for web applications
- Persistant storage in document databases through a ODM (Object Document Mapper)
- Publishing of web applications in production enviroment for the Node.js-plattform
- Server side cookies and JSON Web Token
- Caching on the web server
- Web Sockets

Type of Instruction
Teching is in the form of lectures with different forms of learning activities and labs. Theory combined with practical applications in problem solving oriented towards construction of client-based web applications. The course can be studied at campus or remotely. The studies requires own access to a computer, headset, webcam and internet connection.

Examination
The course is assessed with the grades Fail (U), Pass (G) or Pass with Distinction (VG).
Test 1 (1 credit):Goal 1-3 is examined through oral examination of a programming problem. The grades Fail (U), Pass (G) is applied.

Test 2 (3 credits): Goals 3-6 are examined through oral examination of a programming problem. The grades Fail (U), Pass (G) or (VG) is applied.

Test 3 (3.5 credits): Goals 6-8 are examined through oral examination of a programming problem. The grades Fail (U), Pass (G) or (VG) is applied.

The grades Fail (U), Pass (G) and (VG) is applied in the final grade.
To pass the course requires a minimum Pass on each sample moments. A Pass with distinction is required Distinction for the test items second and third.

Students at Linnaeus University have the right to get their grades translated into the seven grade ECTS scale. In order to get their grades translated must submit a request to the course management at the start of the course.

Course Evaluation
During the course or in close connection to the course, a course evaluation is to be carried out. The result and analysis of the course evaluation are to be communicated to the students who have taken the course and to the students who are to participate in the course the next time it is offered. The course evaluation is carried out anonymously. The compiled report will be filed at the Faculty.

Other
The teaching is mainly in Swedish, but English components are recurring in the form of, for example, English literature. Course learning resources are open through the course's public website.

Required Reading and Additional Study Material
Recommended learning resources

- Marijn Haverbake, Eloquent JavaScript, No Starch Press, latest edition, pages 472
- Ethan Brown, Web Development with Node & Express, latest edition. pages 330
- Web-based resources specified on the web site of the course