



T-213-VEFF

VEFFORRITUN

6 ECTS

	<i>Námskeiðið er kennt í tölvunarfræðideild</i>
Ár:	4. ár.
Önn:	Vorönn.
Stig námskeiðs:	1. Grunnám, grunnnámskeið.
Tegund námskeiðs:	Skyldunámskeið fyrir allar 5-ára námsbrautir í Verkfræði MSc með tölvunarfræði BSc.
Undanfarar:	Forritun (T-101-PROG, T-201-FOR1 eða sambærilegt grunnnámskeið).
Skipulag:	Upplýsingar verða birtar í kennslukerfinu Canvas í upphafi annar.
Umsjónarkennari:	Grischa Liebel.

Lærdómsviðmið: This course will introduce the basics of web development. The course will cover basic network terminology to understand how web applications function. Furthermore, essentials in frontend and backend development will be covered. In addition, important topics in web development, such as web security, testing and debugging, and social role of web applications will be touched upon.

Knowledge and comprehension

- define and contrast client-side and server-side web applications
- summarise the content of HTTP requests and responses
- list different HTTP methods and explain their purpose
- explain the features of the different HTTP methods
- define and explain key language concepts of HTML, CSS, and JavaScript
- define accessibility for web applications and give examples for accessible/not accessible code
- predict the behaviour and look of a web application based on its source code
- predict the behaviour of asynchronous JavaScript code
- discuss web application testing and contrast different testing techniques
- summarise the different constraints of REST in relation to RESTful APIs
- discuss the correctness of HTTP response status codes for different endpoints of a RESTful API
- list and explain the most important web security threats according to the OWASP TOP 10

Application and analysis

- develop basic client-side web applications using HTML, CSS, and JavaScript
- make use of AJAX to enrich web applications with asynchronous behaviour
- debug and test basic client-side web applications
- analyse web application source code for errors
- choose the correct HTTP request method for different REST endpoints
- build a RESTful backend application
- make use of a database to persist data in a backend application
- analyse an existing RESTful API and point out shortcomings
- deploy a server-side application to an online cloud provider
- test and debug server-side applications
- develop tests for common web security threats
- inspect web application source code for potential security threats

Synthesis and evaluation

- propose improvements to web application source code
- improve existing web application source code
- assess existing code for errors and security vulnerabilities

Birt með fyrirvara um breytingar.



- compare different testing techniques for web applications
- design a RESTful API according to given requirements
- convert a backend API so that it conforms to the REST style
- debate the importance of testing and debugging for web application development
- debate the societal role of web applications and the ethical impact this has on web development.

Lýsing:

Námskeiðið mun kynna grunnatriði við gerð vefkerfa og hönnunarmynstra tengdum þeim. Áherslan verður á samskiptamáta og staðla sem eru sameiginlegir með öllum vefkerfum, ásamt þeim grunnatriðum úr hlutbundinni forritun sem eru notuð við útfærslu vefkerfa. Nemendur munu einnig læra að auka öryggi vefkerfa, hvernig meðhöndla skuli villur, læra grunnatriðin í hvernig eigi að skrifa og nota vefþjónustur, og um bestu venjur við útfærslur þeirra. Þá munu nemendur læra hvernig tengjast skuli gagnagrunnum og öðrum gagnageymslum. Að lokum mun framtíðin í vefforritun verða skoðuð.

Lesefni, kennsluaðferðir, námsmat: Upplýsingar verða birtar í kennslukerfinu Canvas í upphafi annar.

Tungumál: Enska.