

Tárgytematika / Course Description Web technologies

GKNM_MSTA041

Tárgyfelelős neve /

Teacher's name: dr. Fülep Dávid

Félév / Semester: 2023/24/2

Beszámolási forma /

Assesment: Vizsga

Tárgy heti óraszám /

Teaching hours(week): 2/2/0

Tárgy féléves óraszám /

Teaching hours(sem.): 0/0/0

OKTATÁS CÉLJA / AIM OF THE COURSE

Main topics

The goal of the course is to introduce briefly how the web works, and to teach the basics of web programming and web services. In today's digital age, web technologies form the backbone of our online experiences, from simple web pages to complex web applications. This course delves into the multifaceted world of web technologies, offering participants an in-depth exploration of key concepts, tools, and trends shaping the modern web.

TANTÁRGY TARTALMA / DESCRIPTION

Contents

- Foundation of Web Development
 - Understanding HTML, CSS, and JavaScript: The building blocks of web development.
 - Creating static HTML web page.
 - Introduction to web standards and best practices. History of the internet and the web. Web standards. The fundamentals of HTML5.
 - Principles of web design: Layouts, typography, and responsive design.
 - Cascading Style Sheets CSS
 - Document Object Model (DOM). Making dynamic content. Server side/client side.
- Frontend Development
 - Javascript. JQuery
 - Template engines
 - The JSON format. Data exchange in JSON

- RESTful web services
- Understanding Python based web frameworks: Bottle, Flask, Django
- Bottle example application

- Backend Development
 - Server-side programming languages: Node.js, Python, PHP. (We will concentrate on Python)
 - Database management systems: SQL vs. NoSQL, MySQL, PostgreSQL. SQLite
 - RESTful APIs and microservices architecture.

- Web Application Development
 - Full-stack development: Integrating frontend and backend technologies.
 - Authentication and authorization: OAuth, JWT, and session management.
 - Web security best practices: Cross-site scripting (XSS), Cross-site request forgery (CSRF), and HTTPS.

- Web Performance Optimization
 - Caching strategies and content delivery networks (CDNs).
 - Performance auditing tools and optimization best practices.

- Trends and Future Directions
 - Exploring current trends in web development: Serverless architecture, Jamstack, and beyond.
 - The role of artificial intelligence (AI) and machine learning in web applications.
 - Predicting the future of web technologies and its implications for developers.

Through a combination of lectures, hands-on exercises, and real-world home projects, students will gain practical skills and insights to navigate the ever-evolving landscape of web technologies. This course offers a comprehensive journey into the dynamic world of web development. We will get to know some of the above-mentioned topics only briefly, and others in depth.

SZÁMONKÉRÉSI ÉS ÉRTÉKELÉSI RENDSZERE / ASSESMENT'S METHOD

Project work to be done during the semester. At the end of the semester, that work has to be introduced personally.

KÖTELEZŐ IRODALOM / OBLIGATORY MATERIAL

Teaching materials are provided at szelearning.sze.hu

AJÁNLOTT IRODALOM / RECOMMENDED MATERIAL