

INFS 3017 WEB SYSTEMS DEVELOPMENT

Credit Points 10

Legacy Code 300583

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Description In this subject students further develop their theoretical and practical skills in designing and developing web based information systems using systems analysis, programming, database, human computer interaction and web technologies skills that they have learnt in previous subjects. Current web development technologies and/or frameworks will be utilised to build a complex web information system in a collaborative web development team. Techniques of porting web systems to mobile platforms will also be explored.

School Computer, Data & Math Sciences

Discipline Computer Science, Not Elsewhere Classified.

Student Contribution Band HECS Band 2 10cp

Check your fees via the Fees (https://www.westernsydney.edu.au/currentstudents/current_students/fees/) page.

Level Undergraduate Level 3 subject

Pre-requisite(s) COMP 2020

Equivalent Subjects LGYA 5737 Advanced Web Site Development

Assumed Knowledge

- Fundamental web development skills such as HTML, CSS, Javascript and PHP.
- Principles of relational database design and development, practical skills in SQL.
- Principles of systems analysis and design including the specification of end-user requirements and a good knowledge of the SDLC and its application to solving computer system related problems.

Learning Outcomes

On successful completion of this subject, students should be able to:

1. Design and create dynamic data driven web based information systems incorporating appropriate client and server data validation.
2. Explain and implement techniques of maintaining state in a stateless http environment.
3. Describe and apply essential page design principles to create and manage the overall layout and appearance of web systems using techniques such as templates, master pages, and style sheets.
4. Explain and implement advanced techniques of user interaction with client devices (eg, AJAX).
5. Design and implement an authentication and access control system for web based information systems.
6. Demonstrate necessary technical and theoretical skills and knowledge to work as a member of a project team to successfully develop complex web based information systems.
7. Describe appropriate methods of improving web system performance.
8. Port web based systems to mobile devices.
9. Apply CSS framework to lay out and style website
10. Apply LINQ to construct database queries

11. Apply Entity Framework Core to bind objects with database records
12. Implement both client-side and server-side data validation
13. Implement dynamic webpages with Razor syntax
14. Apply MVC framework to develop web systems
15. Implement user authentication and authorization for web systems
16. Apply collaborative skills to work in a team in developing complex web systems

Subject Content

Presentation and interface design and development
 Client and server-side data validation
 Database connectivity and dynamic page creation
 Authentication and access control
 Maintaining state
 Collaborative Web Development
 Advanced techniques of user interaction with client devices
 Improving Web Systems Performance
 Porting web based systems to mobile devices using current tools and techniques

1. Cascading Style Sheet (CSS) framework such as Bootstrap
2. Language Integrated Query (LINQ)
3. Object to relational database mapping: Entity Framework Core
4. Client-side and server-side data validation
5. Razor pages programming
6. Model-View-Controller (MVC) programming framework: ASP.NET Core
7. Authentication and authorisation
8. Collaborative web development

Assessment

The following table summarises the standard assessment tasks for this subject. Please note this is a guide only. Assessment tasks are regularly updated, where there is a difference your Learning Guide takes precedence.

| Type | Length | Percent | Threshold | Individual/ Group Task | Mandatory |
|------------|---|---------|-----------|---------------------------|-----------|
| Practical | 50 and 60 hours to complete over a period of 12 weeks | 50 | N | Individual | N |
| Practical | 30 to 40 hours to complete over a period of 13 weeks | 25 | N | Group | Y |
| Final Exam | 1 hour | 25 | N | Individual | Y |

Prescribed Texts

- Microsoft Docs (2017). ASP.NET Core. <https://docs.microsoft.com/en-us/aspnet/core/>
- Microsoft Docs (2017). Entity Framework Core. <https://docs.microsoft.com/en-au/ef/core/>