

# INFS 3017 WEB SYSTEMS DEVELOPMENT

**Credit Points** 10

**Legacy Code** 300583

**Coordinator** Weisheng Si ([https://directory.westernsydney.edu.au/search/name/Weisheng Si/](https://directory.westernsydney.edu.au/search/name/Weisheng%20Si/))

**Description** In this unit 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 units. 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 HECS Band contribution amount via the Fees ([https://www.westernsydney.edu.au/currentstudents/current\\_students/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.

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

### 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/>

### Teaching Periods

## Sydney City Campus - Term 1

### Sydney City

#### Day

**Subject Contact** Mahsa Razavi ([https://directory.westernsydney.edu.au/search/name/Mahsa Razavi/](https://directory.westernsydney.edu.au/search/name/Mahsa%20Razavi/))

View timetable ([https://classregistration.westernsydney.edu.au/even/timetable/?subject\\_code=INFS3017\\_22-SC1\\_SC\\_D#subjects](https://classregistration.westernsydney.edu.au/even/timetable/?subject_code=INFS3017_22-SC1_SC_D#subjects))

## Spring Campbelltown

### Day

**Subject Contact** Weisheng Si ([https://directory.westernsydney.edu.au/search/name/Weisheng Si/](https://directory.westernsydney.edu.au/search/name/Weisheng%20Si/))

View timetable ([https://classregistration.westernsydney.edu.au/even/timetable/?subject\\_code=INFS3017\\_22-SPR\\_CA\\_D#subjects](https://classregistration.westernsydney.edu.au/even/timetable/?subject_code=INFS3017_22-SPR_CA_D#subjects))

## Penrith (Kingswood)

### Day

**Subject Contact** Weisheng Si ([https://directory.westernsydney.edu.au/search/name/Weisheng Si/](https://directory.westernsydney.edu.au/search/name/Weisheng%20Si/))

View timetable ([https://classregistration.westernsydney.edu.au/even/timetable/?subject\\_code=INFS3017\\_22-SPR\\_KW\\_D#subjects](https://classregistration.westernsydney.edu.au/even/timetable/?subject_code=INFS3017_22-SPR_KW_D#subjects))

## Parramatta - Victoria Rd

### Day

**Subject Contact** Weisheng Si ([https://directory.westernsydney.edu.au/search/name/Weisheng Si/](https://directory.westernsydney.edu.au/search/name/Weisheng%20Si/))

View timetable ([https://classregistration.westernsydney.edu.au/even/timetable/?subject\\_code=INFS3017\\_22-SPR\\_PS\\_D#subjects](https://classregistration.westernsydney.edu.au/even/timetable/?subject_code=INFS3017_22-SPR_PS_D#subjects))

## Sydney City Campus - Term 3

### Sydney City

#### Day

**Subject Contact** Antoinette Cevenini ([https://directory.westernsydney.edu.au/search/name/Antoinette Cevenini/](https://directory.westernsydney.edu.au/search/name/Antoinette%20Cevenini/))

View timetable ([https://classregistration.westernsydney.edu.au/even/timetable/?subject\\_code=INFS3017\\_22-SC3\\_SC\\_D#subjects](https://classregistration.westernsydney.edu.au/even/timetable/?subject_code=INFS3017_22-SC3_SC_D#subjects))