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School of Science and Computing
+353 (0)51 302037
Eleanor.Reade@setu.ie
www.wit.ie/schools/science_computing

Ollscoil Teicneolaíochta an Oirdheiscirt

South East Technological University

Module Descriptor

Web App Development 2 (Computing and Mathematics)

Web App Development 2 (A13727)

Short Title: Web App Development 2
Department: Computing and Mathematics
Credits: 5 **Level:** Advanced

Description of Module / Aims

This module approaches web application development from an apps and services perspective, as opposed to the monolithic, server-side rendering model. Services will be formulated as REST APIs (Representational State Transfer Application Program Interface), while multiple service consumer forms will be considered, including Single Page Apps (SPA) and other services. The principles and patterns underpinning the design of both components (SPA and REST API) will be examined as well as the fine-grained aspects of the underlying communication protocol. Their will be an emphasis on development, including the use of application frameworks, workflow automation tools and cloud deployment platforms. The module's scope will also encompass the techical aspects of both realtime API communication and isomorphic web apps.

Programmes

		stage/semester/status
COMP-0611	BSc (Hons) in Applied Computing (International) (WD_KACCM_BI)	3 / 6 / M
COMP-0611	BSc (Hons) in Applied Computing (WD_KACCM_B)	3 / 5 / M
COMP-0611	BSc (Hons) in Applied Computing (WD_KCOMP_B)	3 / 5 / M
COMP-0611	BSc (Hons) in Computer Forensics and Security (WD_KCOFO_B)	3 / 5 / M
COMP-0611	BSc (Hons) in Computer Science (WD_KCMSC_B)	3 / 5 / M
COMP-0611	BSc (Hons) in Creative Computing (WD_KCRCO_B)	3 / 6 / M
COMP-0611	BSc (Hons) in Software Engineering (WD_KDEVP_BI)	4 / 7 / M
	BSc (Hons) in Software Systems Development (WD_KCSDV_B)	4 / 1 / M
COMP-0611	BSc (Hons) in Software Systems Development (WD_KDEVP_B)	4 / 7 / M
COMP-0611	BSc (Hons) in Software Systems Practice (WD_KSOFP_B)	1 / 1 / M
COMP-0611	BSc in Multimedia Applications Development (WD_KMULA_D)	3 / 6 / M

Indicative Content

- Fundamentals: Architecture patterns; HTTP (Hypertext Transfer Protocol) protocol; advanced Javascript
- API Design patterns and principles: REST; CQRS (Command Query Responsibility Separation); versioning; vecurity; hypermedia; realtime
- SPA design patterns and principles: MV* (Model View *); Flux; caching; data synchronisation
- Application Frameworks: Web API; Single Page App; Isomorphic app
- Developer tool suite: API modelling; DSL(Domain Specific Language); scaffolding; workflow automation
- Deployment environments: API gatways; containers

Learning Outcomes

On successful completion of this module, a student will be able to:

1. Apply best practice principles and patterns to the design and documentation of a web API.
2. Apply best practice principles and patterns to the design of a medium-sized Single Page Web App.
3. Design an end-to-end web app that supports session management and persistence for a constrained functional requirement set.
4. Utilise and configure related workflow automation tools.
5. Manage a cloud deployed web API using a Gateway intermediary service.

Learning and Teaching Methods

- Combination of lectures and computer-based practicals.
- The lectures will cover the theory and supporting technologies behind web app development.
- The lab-based practicals, building on the theoretical knowledge from lectures, provide exposure to the frameworks, tools and practical skills required to develop and build web apps.
- The practical content will use industry standard technologies, tools and techniques.
- Student will be encouraged to enhance their lab work and assessment submissions using self-directed research and learning into the state-of-the-art for web app development.

Learning Modes

Learning Type	F/T Hours	P/T Hours
Lecture	24	
Lab	24	
Independent Learning	87	

Assessment Methods

	Weighting	Outcomes Assessed
Continuous Assessment	100%	
Project	70%	1,2,3
Practical	30%	4,5

Assessment Criteria

<40%: Unable to interpret and describe key concepts of modern web app development.

40%–49%: Be able to interpret and describe key concepts of modern web app development.

50%–59%: Ability to demonstrate competancy in the tool suite and the ability to develop and delopy small-scale solutions.

60%–69%: Presents implemented solutions to medium-sized problems that demonstrate a good understanding of the main patterns and practices of web app design.

70%–100%: All the above to an excellent level.

Supplementary Material(s)

- "ReactJS." https://facebook.github.io/react/. https://facebook.github.io/react/
- Richardson, L. and M. Amundsen. *RESTful Web APIs*. O'Reilly Media: O'Reilly Media, 2009.

Requested Resources

- Computer Lab: BYOD Lab