Module Code	CSU44000
Module Name	Internet Applications
ECTS Weighting[1]	5 ECTS
Semester taught	Semester 1
Module Coordinator/s	Prof. Donal O'Mahony
Module Learning Outcomes	On successful completion of this module, students will be able to: LO1. Understand the context from which Internet Applications emerged and evolved LO2. Develop a familiarity with the architectural elements that make up typical internet applications LO3. Acquire the ability to construct a rudimentary Internet Application using common tools and Frameworks (such as Javascript and Vue) LO4. Understand how Cloud Computing can be used to deploy internet applications along with the cost trade-offs involved LO5. Understand the techniques and tools used to scale internet applications to serve variable and very high user loads LO6. Make use of appropriate documentation and reference material. LO7. Consider the ethical and engineering issues regarding data security, integrity and sovereignty.
Module Content	[Note that this course is running in this new format for the first time in 2019/20 and content may be adjusted slightly as the course progresses] What is an Internet Application and how have these evolved? Key Technologies: Javascript, Node Package Managers Execution Environment: Client Side (Browser) and Server Using Node.JS, NPM and support tools Cloud Computing Architectures –SaaS, IaaS, PaaS, Serverless Computing A simple Cloud-based Internet Application Web Frameworks: Angular, React and Vue – The Model-View-Controller paradigm Web Based Development – Git & Github Database Services Load Balancing, Scaling & Monitoring

[1] TEP Glossary

Teaching and Learning Methods

A mix of lectures involving slides and video materials. A small number of supervised labs will be held.

Assessment Details[2]

Assessment Component	Brief Description	Learning Outcomes Addressed	% of total	Week set	Week due
Assignment1	Simple Internet Application Development	L1-L3	10%	2	3
Assignment 2	Deployment of Internet Application in a Cloud Context	L3,L4	10%	4	5
Assignment3	Development of a Simple REST service	All	40%	6	8
Assignment4	Experimentation with Scaling	L04,L05	20%	10	12

Reassessment Details

The assessment of this course will be 100% by continuous assessment. Attendance at key lab sessions will be recorded. Practical assignments will be set, some individual and some group-based.

Contact Hours and Indicative Student Workload

Contact Hours (scheduled hours per student over full module), broken down by:	**33 hours**
lecture	22 hours
laboratory	11 hours
Independent study (outside scheduled contact hours), broken down by:	**77 hours**
preparation for classes and review of material (including preparation for examination, if applicable)	36 hours
completion of assessments (including examination, if applicable)	41 hours
Total Hours	**100 hours**

Recommended Reading List

Module Pre-requisites

Prerequisite modules

Student's are expected to be competent programmers in some block-structured language and capable of learning Javascript without special instruction. A basic knowledge of UNIX command line usage will be assumed as will a strong profiency in basic internet technology (socket communications, web protocols etc)

Module Co-requisites

Module Website

https://www.scss.tcd.ie/~omahony/cs4400/

Last Update

31/07/2019 by Prof. Donal O'Mahony

[2] TEP Guidelines on Workload and Assessment