Module title
Building Modern Web Applications & Services using Node.js

<table>
<thead>
<tr>
<th>Module code</th>
<th>Level</th>
<th>Hours per week</th>
<th>ECTS credits</th>
<th>Duration</th>
</tr>
</thead>
<tbody>
<tr>
<td>DMAS</td>
<td>Bachelor (B.Sc.)</td>
<td>4</td>
<td>5</td>
<td>2 weeks block course + virtual lectures</td>
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Module instructor
Eamonn De Leastar, Waterford Institute of Technology

Lecture type
Lectures + Guided Lab Sessions

Prerequisite(s)
Intermediate Programming Ability

Grading
Single Programming Assignment

Objectives

This course will introduce the principles, practices and tools for the designing, construction and deployment of modern web applications and services using the node.js ecosystem.

On completion of the course the students will be able to:

- **Knowledge & Understanding**: Understand the structure and patterns required to implement a robust web application & service. In particular, apply these principles to the node.js ecosystem.
- **Skills & Abilities**: Implement, in a test driven manner, a node.js web application and web service using modern (ES6) features, including appropriate persistence (database) layer + a simple Single Page Application (SPA) client layer.
- **Judgement & Approach**: Evaluate the chosen tool set and relate these to other frameworks, libraries & approaches within the Node ecosystem.

The course will consist of a series of lectures interspersed with guided laboratories. The laboratories will apply the principles introduced in the lectures via the construction of a small number of interesting applications. These applications will further develop aspects of the material covered in the lectures.

Students will be asked to extend one of the applications with a range of features, implementing these features using TDD methods. This will constitute the single assignment for the module.

Content

- Modern Javascript (ES6)
- Node.js principles and practices
- Developing Node.js Web Applications & Services in HAPI.js
- Implementing a model using Mongo DB + a suitable mapper (Mongoose)
- Validation, sessions & security
- Introduction to Front End Development via Single Page Applications frameworks (SPA)
- Testing & deployment.

Textbook/teaching material (for reference purposes)

- Programming JavaScript Applications, Elliot, O’Rielly, 2013
- Hapi.js in Action, Harrison, Manning, 2015
- Mongoose for Application Development, Holmes, Packt, 2013

Note: this is not the official course descriptor according to the “Studien- und Prüfungsordnung” (SPO)