# H8AWA: Advanced Web Application Development

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| **Module Code:** | H8AWA |
| **Long Title** | Advanced Web Application Development APPROVED |
| **Title** | Advanced Web Application Development |
| **Module Level:** | LEVEL 8 |
| **EQF Level:** | 6 |
| **EHEA Level:** | First Cycle |
| **Credits:** | 5 |
| **Module Coordinator:** | Mikhail Timofeev |
| **Module Author:** | Mikhail Timofeev |
| **Departments:** | |
| **Specifications of the qualifications and experience required of staff** | |

| **Learning Outcomes** | |
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| *On successful completion of this module the learner will be able to:* | |
| **#** | **Learning Outcome Description** |
| LO1 | Utilise frameworks, tools, languages, and controls available for developing a Rich Internet Application (RIA). |
| LO2 | Demonstrate proficiency in the development of user interface controls, animation, and streaming media to create an interactive application or media experience. |
| LO3 | Develop user interface informed by industry standard design strategies. |
| LO4 | Design and develop RIA solutions to access and consume services over SOA/SaaS. |
| LO5 | Explain the concept of data security in a RIA and justify the use of error handling, testing and debugging techniques. |

| **Dependencies** |
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| ***Module Recommendations*** |
| No recommendations listed |
| ***Co-requisite Modules*** |
| No Co-requisite modules listed |

| ***Entry requirements*** | |
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# H8AWA: Advanced Web Application Development

## Module Content & Assessment

| Indicative Content |
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| **Rich Internet Applications (10%)**<br>• Evaluate state of the art Rich Internet Applications Frameworks. • Differentiate how alternative RIA frameworks may be positioned within a distributed model. |
| **RIA User Interface Design (30%)**<br>• Analyse application design patterns and principles for UI design (Web and Mobile interface design). • Differentiate between RIA mark-up languages. • Solve user interface design tasks (using RIA frameworks and HTML5 APIs to build responsive applications on mobile/desktop). • Experiment with animations to solve interaction design tasks. • Integrate streaming multimedia: stream and encode media to create enriched interactive applications. |
| **RIA within the Application Architecture (15%)**<br>• Critically analyse the position of RIA within the MVC Architecture. • Create and evaluate applications using event handling to call services. • Evaluate portability strategies to support “write once, run anywhere”. |
| **Access and Consumption of Data and Services (25%)**<br>• Investigate networking protocols to enable communication and consumption of services (consumption of RESTful applications). • Examine the position of RIAs within the Service Oriented Architecture (SOA) and Software as a Service (SaaS) applications. • Experiment with consumption of serialised/digitised documents (JSON v XML). • Summarise syndication protocols (RSS, ATOM). • Evaluate the limitations on local data storage for applications running in a browser sandbox. |
| **Security Considerations (10%)**<br>• Evaluate strategies for testing for security (URL manipulation, injections, etc.) • Critically review and assess industry standard solutions for transporting data securely. |
| **Unit Testing and Deployment Strategies (10%)**<br>• Investigate debugging and testing strategies. • Experiment with state of the art tools to compare how testing strategies are applied to web applications. • Evaluate deployment of applications on target platforms. |

| Assessment Breakdown | % |
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| Coursework | 100.00% |

**Assessments**

## Full Time

**Coursework**

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|---|---|---|---|
| **Assessment Type:** | Continuous Assessment (0200) | **% of total:** | 100 |
| **Assessment Date:** | n/a | **Outcome addressed:** | 1,2,3,4,5 |
| **Non-Marked:** | No | | |

**Assessment Description:**
Sample Assessments: Advanced RIA: UI Assessment The task involves creation of a UI for a Rich Internet Application that would be suitable for both Web and Mobile browsing types. The student is required to: • Solve user interface design tasks that depend both on the nature of a RIA (Web + Mobile) and the chosen use-case model [25%] • Integrate streaming multimedia into your RIA [15%] • Design a UI: adhere to UI design principles and incorporate Web/Mobile design patterns [25%] • Illustrate your UI by using appropriate wireframes (page schematic or screen blueprint) [20%] • Explain how you would use JQuery or other JavaScript frameworks for solving user interaction tasks [15%]

No End of Module Assessment

No Workplace Assessment

**Reassessment Requirement**

**Repeat examination**
*Reassessment of this module will consist of a repeat examination. It is possible that there will also be a requirement to be reassessed in a coursework element.*

# H8AWA: Advanced Web Application Development

## Module Workload

**Module Target Workload Hours 0 Hours**

**Workload: Full Time**

| *Workload Type* | *Workload Description* | *Hours* | *Frequency* | *Average Weekly Learner Workload* |
|---|---|---|---|---|
| Lecture | No Description | 2 | Every Week | 2.00 |
| Tutorial | No Description | 2 | Every Week | 2.00 |
| Independent Learning | No Description | 17 | Every Week | 17.00 |
| | | | Total Weekly Contact Hours | 4.00 |

**Workload: Part Time**

| *Workload Type* | *Workload Description* | *Hours* | *Frequency* | *Average Weekly Learner Workload* |
|---|---|---|---|---|
| Lecture | No Description | 2 | Every Week | 2.00 |
| Tutorial | No Description | 2 | Every Week | 2.00 |
| Independent Learning | No Description | 17 | Every Week | 17.00 |
| | | | Total Weekly Contact Hours | 4.00 |

## Module Resources

*Recommended Book Resources*

**Purewal, S. (2014), Learning Web App Development, O'Reilly.**

**MacDonald, M. (2013), HTML5: The Missing Manual, 2nd Edition. O'Reilly.**

**Scott, B. & Neil. (2009), Designing Web Interfaces: Principles and Patterns for Rich Interactions, O'Reilly.**

*Supplementary Book Resources*

**Firtman, M. (2013), Programming the Mobile Web, 2nd Edition. O'Reilly.**

**Bidelman, E. (2011), Using the HTML5 Filesystem API, O'Reilly.**

**Sanders, B.. (2011), Smashing HTML5, Smashing Magazine.**

**Tidwell, J.. (2011), Designing Interfaces: Patterns for Effective Interaction Design,, O'Reilly.**

**Governor, J. (2009), Web 2.0 Architectures: What Entrepreneurs and Information Architects Need to Know,, O'Reilly.**

*This module does not have any article/paper resources*

*Other Resources*

**[Website],**
**http://learningwebgl.com/cookbook/**

**[Website], Mozilla Developers Network. (2011),**
**https://developer.mozilla.org/en/Gecko_D OM_Reference**

| **Discussion Note:** | |
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