**Module Descriptor**

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| **Title** | Interactive Software Design | | |
| **Session** | 2025/26 | **Status** | Published |
| **Code** | COMP11124 | **SCQF Level** | 11 |
| **Credit Points** | 20 | **ECTS (European Credit Transfer Scheme)** | 10 |
| **School** | **Computing, Engineering and Physical Sciences** | | |
| **Module Co-ordinator** | Shahriar Al-Ahmed | | |

**Summary of Module**

Object oriented programming is an industry standard programming technique and is a vital skill for employability. This module builds programming skills, focussing on the concept of object orientation.

To develop object-oriented programming skills, the module also covers the fundamental differences between object orientation and procedural programming, and how the design process differs between the two programming paradigms.

This module helps students understand and apply the techniques and tools for designing implementing, testing, and debugging object-oriented programs in applicable languages such as C# and Java

In this module, students will learn how to apply the principles and concepts of object-oriented programming to a given problem, gaining individual confidence in developing computer programs, students will be able to identify and utilise available resources to implement a solution using object-oriented programming in an applicable programming language, and students will gain an understanding of sustainable coding practices.

This module will work to develop a number of the key 'I am UWS' Graduate Attributes to make those who complete this module.

Universal: critical thinker; ethically-minded; and research-minded Work Ready: problem-solver; effective communicator; and ambitious Successful: autonomous; resilient; and driven

| Module Delivery Method | On-Campus[1] ☒ | Hybrid[2] ☐ | Online[3] ☐ | Work -Based Learning[4] ☐ |
|---|---|---|---|---|
| **Campuses for Module Delivery** | ☐ Ayr<br>☐ Dumfries | ☐ Lanarkshire<br>☒ London<br>☒ Paisley | ☐ Online / Distance Learning<br>☐ Other (specify) | |

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| **Terms for Module Delivery** | Term 1 | ☒ | Term 2 | ☒ | Term 3 | ☒ |
| **Long-thin Delivery over more than one Term** | Term 1 – Term 2 | ☐ | Term 2 – Term 3 | ☐ | Term 3 – Term 1 | ☐ |

| **Learning Outcomes** | |
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| **L1** | Appraise and critically evaluate object-oriented programming compared to other programming paradigms |
| **L2** | Design and implement programs that demonstrate appropriate use of object-oriented design principles |
| **L3** | Select and use appropriate data structures for a given problem |
| **L4** | Propose object-oriented solutions using an appropriate modelling language (such as UML) |
| **L5** | N/A |

| **Employability Skills and Personal Development Planning (PDP) Skills** | |
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| **SCQF Headings** | **During completion of this module, there will be an opportunity to achieve core skills in:** |
| **Knowledge and Understanding (K and U)** | **SCQF 11**<br>Knowledge and understanding of the scope and defining features of object- orientated programming, and an integrated knowledge of its main areas and boundaries. A critical understanding of the principles, principal theories, concepts and terminology associated with object-orientated programming. |
| **Practice: Applied Knowledge and Understanding** | **SCQF 11**<br>Use the principle skills, techniques and practices related to object-orientated programming. Practise routine methods of enquiry to practise in a range of contexts that include a degree of unpredictability. |

[1] Where contact hours are synchronous/ live and take place fully on campus. Campus-based learning is focused on providing an interactive learning experience supported by a range of digitally-enabled asynchronous learning opportunities including learning materials, resources, and opportunities provided via the virtual learning environment. On-campus contact hours will be clearly articulated to students.

[2] The module includes a combination of synchronous/ live on-campus and online learning events. These will be supported by a range of digitally-enabled asynchronous learning opportunities including learning materials, resources, and opportunities provided via the virtual learning environment. On-campus and online contact hours will be clearly articulated to students.

[3] Where all learning is solely delivered by web-based or internet-based technologies and the participants can engage in all learning activities through these means. All required contact hours will be clearly articulated to students.

[4] Learning activities where the main location for the learning experience is in the workplace. All required contact hours, whether online or on campus, will be clearly articulated to students

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| **Generic Cognitive skills** | **SCQF 11**<br>Undertake critical analysis, evaluation and/or synthesis of ideas, concepts, information and issues in object-orientated programming. Identify and analyse routine professional problems and issues. Draw on a range of sources in making judgements |
| **Communication, ICT and Numeracy Skills** | **SCQF 11**<br>Use a wide range of skills in support of established practices. Present or convey, formally and informally, information about topics to informed audiences; Interpret, use and evaluate data |
| **Autonomy, Accountability and Working with Others** | **SCQF 11**<br>Exercise autonomy and initiative in activities. Manage complex ethical and professional issues in accordance with ethical codes or practices |

| **Prerequisites** | **Module Code** | **Module Title** |
|---|---|---|
| | **Other** | |
| **Co-requisites** | **Module Code** | **Module Title** |

| **Learning and Teaching** | |
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| In line with current learning and teaching principles, a 20-credit module includes 200 learning hours, normally including a minimum of 36 contact hours and maximum of 48 contact hours. | |
| **Learning Activities**<br>During completion of this module, the learning activities undertaken to achieve the module learning outcomes are stated below: | **Student Learning Hours**<br>(Note: Learning hours include both contact hours and hours spent on other learning activities) |
| Lecture / Core Content Delivery | 12 |
| Laboratory / Practical Demonstration / Workshop | 36 |
| Independent Study | 152 |
| Please select | |
| Please select | |
| Please select | |
| **TOTAL** | |

| **Indicative Resources** |
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| **The following materials form essential underpinning for the module content and ultimately for the learning outcomes:**<br>Head First Design Patterns<br>Eric Freeman, Elisabeth Robson, Bert Bates & Kathy Sierra*<br>Head First Object-Oriented Analysis and Design: A Brain Friendly Guide to OOA&D Brett McLaughlin, Gary Pollice & David West* |

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| Object-Oriented Thought Process Matt Weisfeld*<br>Elegant Objects Yegor Bugayenko*<br>Clean Code: A Handbook of Agile Software Craftsmanship Robert C. Martin* |
| **(N.B. Although reading lists should include current publications, students are advised (particularly for material marked with an asterisk*) to wait until the start of session for confirmation of the most up-to-date material)** |

| **Attendance and Engagement Requirements** |
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| **In line with the Student Attendance and Engagement Procedure, Students are academically engaged if they are regularly attending and participating in timetabled on-campus and online teaching sessions, asynchronous online learning activities, course-related learning resources, and complete assessments and submit these on time.**<br>**For the purposes of this module, academic engagement equates to the following:**<br>The School of Computing, Engineering and Physical Sciences considers attendance and engagement to mean a commitment to attending, and engaging in, timetabled sessions. You will scan your attendance via the scanners each time you are on-campus and you will login to the VLE several times per week. Where you are unable to attend a timetabled learning session due to illness or other circumstance, you should notify the Programme Leader that you cannot attend. Across the School an 80% attendance threshold is set. If you fall below this, you will be referred to the Student Success Team to see how we can best support your studies. |

| **Equality and Diversity** |
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| **The University's Equality, Diversity and Human Rights Procedure can be accessed at the following link: UWS Equality, Diversity and Human Rights Code.**<br><br>Aligned with the University's commitment to equality and diversity, this module supports equality of opportunity for students from all backgrounds and learning needs. Using the VLE, material will be presented electronically in formats that allow flexible access and manipulation of content. This module complies with University regulations and guidance on inclusive learning and teaching practice. This module has lab-based teaching and as such you are advised to speak to the Module Co-ordinator to ensure that specialist assistive equipment, support provision and adjustment to assessment practice can be put in place, in accordance with the University's policies and regulations. |
| **(N.B. Every effort will be made by the University to accommodate any equality and diversity issues brought to the attention of the School)** |

**Supplemental Information**

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| **Divisional Programme Board** | **Computing** |
| **Overall Assessment Results** | ☐ **Pass / Fail** ☒ **Graded** |
| **Module Eligible for Compensation** | ☐ **Yes** ☒ **No**<br>**If this module is eligible for compensation, there may be cases where compensation is not permitted due to programme accreditation requirements. Please check the associated programme specification for details.** |
| **School Assessment Board** | Business & Applied Computing |
| **Moderator** | Raja Majid Ujjan |
| **External Examiner** | R Khusainov |

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| **Accreditation Details** | |
| **Module Appears in CPD catalogue** | ☐ **Yes** ☒ **No** |
| **Changes / Version Number** | 1.1 |

| **Assessment (also refer to Assessment Outcomes Grids below)** |
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| **Assessment 1** |
| A class test (practical) under strict examination conditions. The class test (practical) is intended to assess the student's understanding of the principles underpinning the technologies and frameworks studied in the module. The class test (practical) is worth 50% of the overall mark. |
| **Assessment 2** |
| A portfolio of practical work demonstrating the practical application of web development technologies and frameworks in producing a web-based solution to a problem. The portfolio of practical work is worth 50% of the overall mark |
| **Assessment 3** |
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| (N.B. (i) Assessment Outcomes Grids for the module (one for each component) can be found below which clearly demonstrate how the learning outcomes of the module will be assessed.<br>(ii) An indicative schedule listing approximate times within the academic calendar when assessment is likely to feature will be provided within the Student Module Handbook.) |

| **Component 1** | | | | | | | |
|---|---|---|---|---|---|---|---|
| **Assessment Type** | **LO1** | **LO2** | **LO3** | **LO4** | **LO5** | **Weighting of Assessment Element (%)** | **Timetabled Contact Hours** |
| Class test (practical) | ☒ | ☐ | ☐ | ☐ | ☐ | 50 | 3 |

| **Component 2** | | | | | | | |
|---|---|---|---|---|---|---|---|
| **Assessment Type** | **LO1** | **LO2** | **LO3** | **LO4** | **LO5** | **Weighting of Assessment Element (%)** | **Timetabled Contact Hours** |
| Portfolio of practical work | ☐ | ☐ | ☐ | ☐ | ☐ | 50 | 0 |

| **Component 3** | | | | | | | |
|---|---|---|---|---|---|---|---|
| **Assessment Type** | **LO1** | **LO2** | **LO3** | **LO4** | **LO5** | **Weighting of Assessment Element (%)** | **Timetabled Contact Hours** |
| | ☐ | ☐ | ☐ | ☐ | ☐ | | |
| **Combined total for all components** | | | | | | 100% | hours |

**Change Control**

| What | When | Who |
|---|---|---|
| Attendance, EDI and External Examiner updated | 22/01/2025 | A Adamson |
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