

H8SDEV: Software Development

Module Code:	H8SDEV
Long Title	Software Development APPROVED
Title	Software Development
Module Level:	LEVEL 8
EQF Level:	6
EHEA Level:	First Cycle
Credits:	10
Module Coordinator:	Adriana Chis
Module Author:	Adriana Chis
Departments:	School of Computing
Specifications of the qualifications and experience required of staff	Master's and/or PhD degree in computer science or cognate discipline. May also have industry experience.
Learning Outcomes	
<i>On successful completion of this module the learner will be able to:</i>	
#	Learning Outcome Description
LO1	Implement the core syntax and semantics of an object oriented programming language
LO2	Identify and utilise good principles of algorithm design and programming
LO3	Demonstrate a comprehensive range of specialised knowledge in Object Oriented programming
LO4	Apply theoretical concepts to a range of contexts and real-world problem domains
LO5	Develop responses (algorithms or classes) to well defined abstract problems
LO6	Apply effective debugging throughout the development process
Dependencies	
Module Recommendations	
No recommendations listed	
Co-requisite Modules	
No Co-requisite modules listed	
Entry requirements	

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Module Content & Assessment			
Indicative Content			
Introduction to Programming • Types of programming languages • Introduction to object oriented programming languages • Programming environment • Problem solving approaches • Program correctness – types of errors (e.g. syntax, logic, and run-time errors)			
Variables and Data Types • Variables • Data Types • Arithmetic expressions • Constants			
Object Oriented Programming Basics • Declaring variables of class data types • Object creation • Message sending • Program components • Comments • Import statement • Class declaration • Method declaration • Input/Output			
Instantiable Classes • Declaring instantiable classes • Arguments/Data/Parameter passing • Return values • Access modifiers: public, private and protected • Instantiable classes and constructors • Overloading constructors • Variable Scope			
Selection Statements • The if statement • Boolean expressions and variables • Nested if statements • The switch statement			
Repetition Statements • The while statement • The do while statement • The for statement • Nested for statements • Counter-control loop statements • Sentinel-control loop statements			
Characters and Strings • Characters • Strings • Primitive versus reference types • StringBuffers • Passing objects as arguments to methods • Returning objects from methods			
Arrays • Array basics • Arrays of objects • Two-dimensional arrays • Passing arrays to methods, and returning arrays from methods			
Inheritance and Polymorphism • Declaring classes using inheritance • Overriding methods • Using classes with polymorphism • Inheritance and member accessibility • Inheritance and constructors • Abstract super classes and abstract methods • Interfaces			
Assessment Breakdown			%
Coursework			50.00%
End of Module Assessment			50.00%
Assessments			
Full Time			
Coursework			
Assessment Type:	Continuous Assessment	% of total:	30
Assessment Date:	n/a	Outcome addressed:	1,2,3,4,5,6
Non-Marked:	No		
Assessment Description: Continuous assessments aim to evaluate students' ability to integrate and apply new programming concepts with existing knowledge as the semester progresses. Students will be assessed both on their development skills and their ability to convey understanding of the programming concepts and programs which they have developed.			
Assessment Type:	Project	% of total:	20
Assessment Date:	n/a	Outcome addressed:	3,4,5
Non-Marked:	No		
Assessment Description: A practical project will be used to evaluate students' ability to assess an outline and implement a programming solution to a new problem definition applying the necessary principles and concepts discussed in this module.			
End of Module Assessment			
Assessment Type:	Terminal Exam	% of total:	50
Assessment Date:	End-of-Semester	Outcome addressed:	1,2,3,4,5,6
Non-Marked:	No		
Assessment Description: End-of-Semester Final Examination			
No Workplace Assessment			
Reassessment Requirement			
Repeat examination <i>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.</i>			
Reassessment Description Reassessment of this module will be via repeat examination which evaluates all learning outcomes.			

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Module Workload				
Module Target Workload Hours 0 Hours				
Workload: Full Time				
Workload Type	Workload Description	Hours	Frequency	Average Weekly Learner Workload
Lecture	No Description	24	Per Semester	2.00
Tutorial	No Description	24	Per Semester	2.00
Independent Learning	No Description	202	Per Semester	16.83
Total Weekly Contact Hours				4.00
Workload: Online				
Workload Type	Workload Description	Hours	Frequency	Average Weekly Learner Workload
Lecture	No Description	12	Per Semester	1.00
Tutorial	No Description	24	Per Semester	2.00
Directed Learning	No Description	12	Per Semester	1.00
Independent Learning	No Description	202	Per Semester	16.83
Total Weekly Contact Hours				4.00
Workload: Part Time				
Workload Type	Workload Description	Hours	Frequency	Average Weekly Learner Workload
Lecture	No Description	24	Per Semester	2.00
Tutorial	No Description	24	Per Semester	2.00
Independent Learning	No Description	202	Per Semester	16.83
Total Weekly Contact Hours				4.00

Module Resources	
<i>Recommended Book Resources</i>	
Paul Deitel,Harvey Deitel. (2017), Java How to Program, Early Objects, 11th Edition. Pearson, p.1296, [ISBN: 9780134743356].	
<i>Supplementary Book Resources</i>	
Herbert Schildt. (2018), Java: The Complete Reference, 11th Edition. McGraw-Hill Education, p.1344, [ISBN: 1260440230]. Walter Savitch. (2017), Java: An Introduction to Problem Solving and Programming, 8th Edition. Pearson, [ISBN: 0134462033]. Wu, C.T. (2009), An Introduction to Object Oriented Programming with Java, 5th Edition. McGraw-Hill. Bruce Eckel. (2006), Thinking in Java, 4th Edition. Pearson Education, p.1482, [ISBN: 0131872486].	
<i>This module does not have any article/paper resources</i>	
<i>This module does not have any other resources</i>	
Discussion Note:	