

MODULE	PRC2 – Programming Concepts 2											
SEMESTER	1	CREDITS (ECTS)	5	VALID AS OF	2019-02-07							
LECTURES / WEEK	1	PRACTICAL HOURS / WEEK	5	TOTAL EFFORT	140 hours							
AUTHORS	P. van den Hombergh, R. van den Ham											
CREDENTIALS												
INTRODUCTION AND MOTIVATION												
<p>This module continues the introduction to Object Oriented Programming for beginning programmers. Focus is on fundamental programming principles and concepts, instead of on the details of the Java language itself. The module has been set up in an iterative way, which means that important concepts are discussed early in an abstract manner, and will be discussed again and again in a more detailed way. As development approach we focus on Test Driven Development, to the extend that code is only done when accompanied by appropriate tests, written using the test driven cycle. Tools used are the Java JDK and NetBeans IDE and various frameworks to make life of the programmer easier. Being able to understand, use and develop frameworks is key in modern software development. The lectures have a highly practical character. Example programs are developed on the fly. During the practical work, students work on several assignments to practise and hone their skills.</p>												
LEARNING GOALS: THE STUDENT ...												
LG 1	Understands the value of writing tests first.											
LG 2	Knows, understands and can apply principles of Object Oriented Programming.											
LG 3	Knows, understands and can apply basics of programming language concepts.											
LG 4	Knows and understands the basics of quality of programs and program components, and is able to apply quality standards											
LG 5	Can implement simple programs with graphical and non graphical interaction											
LG 6	Understands the value of and can write API documentation											
TOPICS												
<ul style="list-style-type: none"> • Testing, in particular test driven development • Inheritance, Polymorphism, Exception handling • Enums and Generics • Lambda expressions • Collection Framework • Searching and application of lambda expressions • Serialization, File IO and Restful API • Java Database Connectivity (JDBC) • Threads and sockets • Bindings (Java Beans, FX Properties) • Java FX • RESTful API and JSON 												
CONTRIBUTION TO FINAL COMPETENCE PROFILE (SEE OER)												
Learning Goal	Architectural Layers (enter "X", max 1 one per LG)					Activities (enter niveaus "1" .. "3", max 1 per LG)					(enter "X")	
	<i>User Interface</i>	<i>Business Processes</i>	<i>Infra-structure</i>	<i>Software</i>	<i>Hardware Interfacing</i>	<i>Manage</i>	<i>Analyse</i>	<i>Advice</i>	<i>Design</i>	<i>Realise</i>	<i>Professional Behaviour</i>	<i>Research Skills</i>
LG 1									1	2		
LG 2							1			1		
LG 3									1	1		

LG 4										1		
LG 5									1	1		
LG 6							2		1	2		
MODULE ASSESSMENT												
Learning Goal	Type of Assessment (enter "X", at least one per LG)					Grade for (enter "X", one per LG)		Grade (ad ds up)				
	Written Exam	Oral Exam	Performance Assessment	Presentation incl Defense	Report	Individual	Group					
			X			x						
TEACHING MATERIAL												
<ul style="list-style-type: none"> - Online java tutorials, mainly the Oracle Java site. - NetBeans IDE <p>For selected topics, (links to) further material will be published on the module site.</p>												
PRIOR KNOWLEDGE												
<p>Knowledge of the basics of Object Oriented Programming and Principles. In case you didn't pass PRC1, make sure to put additional effort in it (right from the start!!) to get on track. This is will be a key success factor.</p>												
ADDITIONAL INFORMATION (ON GRADING, ASSESSMENTS, RETAKES, PRACTICAL PARTS, ..)												
<p>This module knows two exam types: Theoretical Exam and Performance Assessment. Learning goals 2, 3, and 6 are mainly assessed in the <i>Theoretical Exam</i> producing the grade PRC2T, learning goals 1, 4, and 5 are mainly assessed in the <i>Performance Assessment</i> and consolidated in the grade PRC2P.</p> <p>PRC2T: Written exam:</p> <ul style="list-style-type: none"> • Minimal grade to pass: 5.5 for 2 Credits (40% of final PRC2 grade) <p>PRC2P: Performance Assessment:</p> <ul style="list-style-type: none"> • Minimal grade to pass: 5.5 for 3 Credits (60% of final PRC2 grade) <p>Retakes Each exam type has a retake of one session. Both retakes will take place before summer holidays.</p> <p>Both grades will be registered in Progress. If you only pass one of these two components, the credits for this part will be taken into account in the calculation of the "45-credit rule". The module PRC2 is only passed in its entirety if both parts are passed. Have a look at the Examination Rules and Regulations, paragraph 32.4.</p>												