



Ministry of Higher Education and  
Scientific Research - Iraq  
Al-Nahrain University  
College of Science  
Computer Science Department



## MODULE DESCRIPTION FORM نموذج وصف المادة الدراسية

Module Information معلومات المادة الدراسية			
Module Title	Programming Fundamentals I		Module Delivery
Module Type	Core		<input checked="" type="checkbox"/> Theory <input type="checkbox"/> Lecture <input checked="" type="checkbox"/> Lab <input checked="" type="checkbox"/> Tutorial <input type="checkbox"/> Practical <input type="checkbox"/> Seminar
Module Code	COMP1101		
ECTS Credits	11		
SWL (hr/sem)	275		
Module Level	1	Semester of Delivery	
Administering Department	Computer Science	College	Science
Module Leader	Dr. Hasnaa Imad Abdulsalam	e-mail	hasnaimad@nahrainuniv.edu.iq
Module Leader's Acad. Title	Lecturer	Module Leader's Qualification	Ph.D.
Module Tutor	Haider Majeed Jaber	e-mail	haidermjaber@gmail.com
Peer Reviewer Name	Dr. Tiba Zaki Abdulhameed	e-mail	<a href="mailto:tiba.zaki@nahrainuniv.edu.iq">tiba.zaki@nahrainuniv.edu.iq</a>
Scientific Committee Approval Date	01/06/2023	Version Number	1.0

Relation with other Modules العلاقة مع المواد الدراسية الأخرى			
Prerequisite module	None	Semester	
Co-requisites module	None	Semester	

## Module Aims, Learning Outcomes and Indicative Contents

### أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية

<b>Module Aims</b> أهداف المادة الدراسية	<ol style="list-style-type: none"><li>1. Think like a programmer.</li><li>2. Algorithmic thinking: being able to formulate the problem into steps using specific instruction.</li><li>3. Learn Java syntax to translate the algorithm steps to java program.</li><li>4. learn how to write, compile, test, fix errors, and run programs in java</li><li>5. Seeking new information.</li></ol>
<b>Module Learning Outcomes</b> مخرجات التعلم للمادة الدراسية	<ul style="list-style-type: none"><li>● <b>Identify the main structure of java programs</b></li><li>● <b>Write simple programs:</b>This includes being able to write programs that solve specific problems.</li><li>● <b>Debug programs:</b>This includes being able to find and fix errors in programs.</li><li>● <b>Test programs:</b>This includes being able to write tests to ensure that programs work correctly.</li><li>● <b>Document programs:</b>This includes being able to write clear and concise documentation for programs.</li><li>● state the steps needed to solve a simple</li><li>● <b>Translate the algorithm steps to a java code.</b><b>Problem-solving skills</b></li></ul> <p>Programming requires students to be able to break down complex problems into smaller, more manageable steps.</p> <ul style="list-style-type: none"><li>● <b>Critical thinking skills</b></li></ul> <p>Programming requires students to be able to think logically and to come up with creative solutions to problems.</p> <ul style="list-style-type: none"><li>● <b>Creativity</b></li></ul> <p>Programming can be a creative outlet for students to express themselves and to solve problems in new and innovative ways.</p> <ul style="list-style-type: none"><li>● <b>Communication skills</b></li></ul> <p>Programmers need to be able to communicate their ideas clearly and concisely to both technical and non-technical audiences.</p> <ul style="list-style-type: none"><li>● <b>Teamwork skills</b></li></ul> <p>Programming is often a team sport, and students need to be able to work effectively with others to achieve common goals.</p>

<p><b>Indicative Contents</b> المحتويات الإرشادية</p>	<p>Indicative content includes the following.</p> <ul style="list-style-type: none"> <li>● <u>Introduction to programming languages</u></li> <li>● <u>Data types and variables</u></li> <li>● <u>Operators and expressions</u></li> <li>● <u>Control flow statement</u></li> <li>● <u>Methods (Functions)</u></li> </ul>
---	--

<p><b>Learning and Teaching Strategies</b> استراتيجيات التعلم والتعليم</p>	
<p><b>Strategies</b></p>	<p>The main way this module will be taught is by encouraging students to participate in exercises, while also improving and expanding their critical thinking skills. This will be accomplished through lectures, interactive tutorials, and simple experiments that are interesting to the students.</p> <p>Here is a more detailed explanation of each point:</p> <ul style="list-style-type: none"> <li>● <b>Encouraging student participation in exercises:</b> This will help students learn by doing and apply the concepts they are learning in a practical setting.</li> <li>● <b>Improving and expanding critical thinking skills:</b> This will help students learn to think more deeply about the material and to come up with their own solutions to problems.</li> <li>● <b>Lectures:</b> Lectures will provide students with the foundation they need to understand the material.</li> <li>● <b>Interactive tutorials:</b> Interactive tutorials and discussions will allow students to practice the concepts they are learning in a safe environment.</li> <li>● <b>Simple experiments:</b> Simple experiments will allow students to see the concepts they are learning in action.</li> </ul>

## Student Workload (SWL)

الحمل الدراسي للطلاب محسوب لـ ١٥ اسبوعا

<b>Structured SWL (h/sem)</b> خلال الفصل للطلاب الحمل الدراسي المنتظم	153	<b>Structured SWL (h/w)</b> للطالب أسبوعيا الحمل الدراسي المنتظم	10.2
<b>Unstructured SWL (h/sem)</b> خلال الفصل الحمل الدراسي غير المنتظم للطلاب	122	<b>Unstructured SWL (h/w)</b> الحمل الدراسي غير المنتظم للطلاب أسبوعيا	8.1
<b>Total SWL (h/sem)</b> الحمل الدراسي الكلي للطلاب خلال الفصل	275		

## Module Evaluation

تقييم المادة الدراسية

		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
<b>Formative assessment</b>	Quizzes	2	10% (10)		All
	Assignments	2	10% (10)		All
	Projects / Lab.	1	20% (20)	Continuous	All
	Report	0			
<b>Summative assessment</b>	Midterm Exam	2 hr	10% (10)		All
	Final Exam	3hr	50% (50)		All
<b>Total assessment</b>			100% (100 Marks)		

## Delivery Plan (Weekly Syllabus)

المنهاج الاسبوعي النظري

	Material Covered
<b>Week 1</b>	Ch1: What is a computer, what is Programming, the hello world program, compiling java program. Displaying two messages
<b>Week 2</b>	Ch1: Formatting source code, using escape sequence, what is computer science?, Debugging programs,
<b>Week 3</b>	Ch2: Declaring Variables, Assigning Variables, Memory Diagrams, Printing Variables, and Arithmetic Operators

<b>Week 4</b>	Ch2: Floating-Point Numbers , Rounding Errors , Operators for Strings , Compiler Error Messages , and Other Types of Errors HW 2.12 Exercises .
<b>Week 5</b>	Ch3:The System Class, The Scanner Class , Language Elements, Literals and Constants, Formatting Output, Reading Error Messages
<b>Week 6</b>	Ch3:Type Cast Operators, Remainder Operator, Putting It All Together, The Scanner Bug HW 3.12 Exercises
<b>Week 7</b>	Mid Term Exam #1
<b>Week 8</b>	Defining New Methods, Flow of Execution, Parameters and Arguments, Multiple Parameters , Stack Diagrams, Math Methods, and Composition
<b>Week 9</b>	Ch4: Return Values , Incremental Development HW 4.11 Exercises
<b>Week 10</b>	Ch5: Conditionals and Logic Relational Operators , The if-else Statement , Chaining and Nesting , The switch Statement , Logical Operators , and De Morgan’s Laws
<b>Week 11</b>	Ch5:Boolean Variables, Boolean Methods , Validating Input, Example Program HW 5.12 Exercises
<b>Week 12</b>	Mid Exam #2
<b>Week 13</b>	Ch6 Loops and Strings The while Statement, Increment and Decrement , and The for Statement .
<b>Week 14</b>	Ch6: Nested Loops
<b>Week 15</b>	<b>review</b>

### Delivery Plan (Weekly Lab. Syllabus)

المنهاج الاسبوعي للمختبر

	<b>Material Covered</b>
<b>Week 1</b>	Lab 1: Introducing IDE Netbeans through “Hello world program like” Drow christmas tree using stars (print and println) <a href="https://www.edureka.co/blog/netbeans-tutorial/amp/">https://www.edureka.co/blog/netbeans-tutorial/amp/</a>
<b>Week 2</b>	Lab 2: compute simple calculations using constants (define length and width and calculate area)

<b>Week 3</b>	Lab 3: (Learning Reinforcement). compute simple calculations using constants (convert temperature from celsius to fahrenheit )
<b>Week 4</b>	Lab 4: Write Java code that computes the total cost and the number of tiles needed for a room of size 4.5x5 m, knowing that each tile is 60 x 60 cm, and the price of a meter square is 12\$.
<b>Week 5</b>	Lab 5: try codes with errors. Read, understand, and fix the errors. print numbers in a formatted style (Write an application Powers.java that prints, in a table like style, the square root, square and cube of the numbers between 2 and 9)
<b>Week 6</b>	Lab 6: practice div , mod ( convert 24 hour system to 12 (am,pm) system)
<b>Week 7</b>	Lab 7: Mid-term Exam
<b>Week 8</b>	Lab 8: method practice (void methods)Flow of Execution, Parameters and Arguments, Multiple Parameters .Method that calls another method.
<b>Week 9</b>	Lab 9: methods (calculator) Write a program to calculate the area and perimeter of a triangle. Your program should include areaCalculation and perimeterCalculation methods. The areaCalculation method has 2 parameters, which are the height and the base of the triangle and must return the area of a triangle. The perimeterCalculation method has 3 parameters
<b>Week 10</b>	Lab 10: The if-else Statement , Chaining and Nesting , The switch Statement.(salesman commission assignment)
<b>Week 11</b>	Lab 11: using boolean flag. validating input.
<b>Week 12</b>	Lab 12: Mid-term Exam
<b>Week 13</b>	Lab 13: while loop, for, (printing multiplication table of n)(validating input with loop)
<b>Week 14</b>	Lab 14: nested loop ( math series)
<b>Week 15</b>	Lab 15: review

## Learning and Teaching Resources

### مصادر التعلم والتدريس

	Text	Available in the Library?
<b>Required Texts</b>	Think Java: How to Think Like a Computer Scientist, 2 nd Edition, Version 7.1.0	free online

	Allen B. Downey and Chris Mayfield	
<b>Recommended Texts</b>	Introduction to Java Programming, Comprehensive Version, 10th Edition, by Y. Daniel Liang Head First Programming Head First Java	free online
<b>Websites</b>	Book's Website: <a href="https://books.trinket.io/thinkjava2/index.html">https://books.trinket.io/thinkjava2/index.html</a> <a href="https://codingbat.com/java">https://codingbat.com/java</a> <a href="https://www.codejava.net/java-se/file-io/how-to-read-and-write-text-file-in-java">https://www.codejava.net/java-se/file-io/how-to-read-and-write-text-file-in-java</a>	

### Grading Scheme

#### مخطط الدرجات

Group	Grade	التقدير	Marks (%)	Definition
<b>Success Group (50 - 100)</b>	<b>A</b> - Excellent	امتياز	90 - 100	Outstanding Performance
	<b>B</b> - Very Good	جيد جدا	80 - 89	Above average with some errors
	<b>C</b> - Good	جيد	70 - 79	Sound work with notable errors
	<b>D</b> - Satisfactory	متوسط	60 - 69	Fair but with major shortcomings
	<b>E</b> - Sufficient	مقبول	50 - 59	Work meets minimum criteria
<b>Fail Group (0 - 49)</b>	<b>FX</b> - Fail	راسب (قيد المعالجة)	(45-49)	More work required but credit awarded
	<b>F</b> - Fail	راسب	(0-44)	Considerable amount of work required

**Note:** Marks Decimal places above or below 0.5 will be rounded to the higher or lower full mark (for example a mark of 54.5 will be rounded to 55, whereas a mark of 54.4 will be rounded to 54. The University has a policy NOT to condone "near-pass fails" so the only adjustment to marks awarded by the original marker(s) will be the automatic rounding outlined above.