DEREE COLLEGE SYLLABUS FOR:

ITC 2197 OBJECT ORIENTED PROGRAMMING TECHNIQUES **3/1.5/3**
(Updated Fall 2021) **UK LEVEL: 4**
UK CREDITS: 15

<table>
<tr><td><b>PREREQUISITES:</b></td><td>ITC 2088 Introduction to Programming</td></tr>
<tr><td><b>COREQUISITES:</b></td><td>None.</td></tr>
<tr><td><b>CATALOG DESCRIPTION:</b></td><td>Object-oriented concepts and problem-solving techniques. GUI components; event handling, collections framework and data structures, data persistence, performance, and efficiency issues.</td></tr>
<tr><td><b>RATIONALE:</b></td><td>The purpose of the course is to introduce a wide range of object- oriented features; students will apply previously acquired knowledge in programming constructs, with design patterns that will be covered in the course.</td></tr>
<tr><td><b>LEARNING OUTCOMES:</b></td><td>As a result of taking this course, the student should be able to:
1. Demonstrate understanding of the properties of data structures and select the appropriate one to solve a computing problem.
2. Demonstrate understating of UMLs and relate programming solution requirements.
3. Explain and apply key principles of object-oriented programming such as abstraction, data hiding, inheritance, polymorphism.
4. Develop modular and well documented object-oriented code.</td></tr>
<tr><td><b>METHOD OF TEACHING AND LEARNING:</b></td><td>In congruence with the teaching and learning strategy of the college, the following tools are used:
• Classroom lectures, laboratory practical sessions using various tools and progress meetings.
• Office hours held by the instructor to provide further assistance to students.
• Use of the Blackboard Learning platform, where instructors post lecture notes, assignment instructions, timely announcements, as well as additional resources.</td></tr>
<tr><td><b>ASSESSMENT:</b></td><td><b>Summative:</b>
<table>
<tr><td>1st assessment: Coursework
Programming problems, report</td><td><b>30%</b></td></tr>
<tr><td>2nd assessment: Portfolio of student work and oral assessment</td><td><b>10%</b></td></tr>
<tr><td>Final assessment: Final exam
Short programming problems and/or short essay questions</td><td><b>60%</b></td></tr>
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<b>Formative:</b>
<table>
<tr><td>Short programming exercises</td><td><b>0%</b></td></tr>
<tr><td>Online Quizzes</td><td><b>0%</b></td></tr>
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The formative assessments aim to prepare students for the summative assessments and expose them to teamwork.
The 1st summative assessment tests the LOs 1 and 2.
The 2nd summative assessment tests the LOs 1-4.
The final summative assessment tests the LOs 1-4.</td></tr>
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	*The final grade for this module will be determined by averaging all summative assessment grades, based on predetermined weights for each assessment. If students pass the **final summative assessment,** which tests all Learning Outcomes for this module, and the average grade for the module is 40 or above, students are not required to resit any failed assessments.*
INDICATIVE READING:	**REQUIRED READING:** 1. Malik D.S., (2020), *C++ Programming: Program Design Including Data Structures*, Cengage Learning. 2. Charatan Q,. Kans A. (2019), *Java in Two Semesters*, Springer, e-book. 3. Instructor notes. **RECOMMENDED READING:** 1. Kendal S., (2019), Object Oriented Programming using C#, Kindle edition (free eBook for students through bookboon) https://bookboon.com/en/object-oriented-programming-using-c-sharp-ebook 2. B. Eckel, *Thinking in C++*, Prentice-Hall, 2nd edition (free pdf version) http://vergil.chemistry.gatech.edu/resources/programming/pdf/TIC2Vone.pdf 3. Graham, *Learning C++* McGraw-Hill, latest edition.
INDICATIVE MATERIAL: *(e.g. audiovisual, digital material, etc.)*	**REQUIRED MATERIAL**: N/A **RECOMMENDED MATERIAL**: N/A
COMMUNICATION REQUIREMENTS:	Daily access to the course's site on the College's Blackboard CMS. Communication using proper written and oral English. Use of word processor and spreadsheet for documentation of assignments.
SOFTWARE REQUIREMENTS:	Ms-Office JetBrains-IntelliJ Idea JetBrains-CLion Microsoft Visual Studio Microsoft Visio
WWW RESOURCES:	• https://www.tutorialspoint.com/java/index.htm • https://www.guru99.com/cpp-vs-c-sharp.html • https://www.tutorialspoint.com/cplusplus/index.htm • https://www.youtube.com/watch?v=vLnPwxZdW4Y • https://www.tutorialspoint.com/csharp/index.htm • https://www.youtube.com/watch?v=GhQdlIFylQ8 • https://www.oreilly.com/library/view/programming-c/0596001177/pr01s06.html • www.jmis.com • www.acm.com
INDICATIVE CONTENT:	1. Object Oriented Principles 2. Low level vs high level 3. Modelling user requirements with UML 4. Object Life Cycle 5. Abstraction

	6. Exceptions 7. Collections and Data Structures 8. Event Handling 9. Data Persistence 10. Packaging and Deploying Applications