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| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **CARDIFF SCHOOL OF TECHNOLOGY :** **VERIFICATION OF INTERNAL MODERATION OF ASSESSMENT** | | | | | | | | | | | | | **IV2** |
| **Module Number:**  **CSE4006** | | **Module Name:**  **Object Oriented Programming** | | | | | **Module Leader:**  ***Ms.Upeka Wijesinha*** | | | |  | **Year/Term:**  **2023/24** | |
| **MODULE ASSESSMENT STRATEGY** | | | | **BRIEFING INCLUDES:** | **X** | | **IV’s COMMENTS / RECOMMENDATIONS** | | | | **MODULE LEADER’S ACTION TAKEN** | | |
| **WRIT1** | | ***100%*** | | **Description of Task/Problem/Topic** | **x** | | **Approved** | | | |  | | |
|  | |  | | **Hand in Details** | **x** | |
|  | |  | | **Guidance Notes** | **x** | |
|  | |  | | **Learning Outcomes** | **x** | |
| **Total** | | ***100%*** | | **Assessment Criteria** | **x** | |
| **ASSESSMENT DETAILS** | | | | **Mark/Grade Criteria** | **x** | |
| Amber bakery automated billing system | | | | **Marking Scheme** | **x** | |
| **Feedback Sheet** | **x** | |
| **Assessment type:**  **Report** | | | | **Referencing Requirements Given** | **x** | |
| **Nominated IV:**  ***Mr. Priyanga Siriwardhana*** | | | | | | | **IV Signature:** | | | | | **Date:**  ***2023/01/27*** | |
| **CARDIFF METROPOLITAN LINK TUTOR COMMENTS** | | | | | | | | **EXTERNAL EXAMINER COMMENTS:** | | | | | |
| **X** | **Please check appropriate box below** | | | | | | | **X** | **Please check appropriate box below** | | | | |
|  | **I confirm that I have considered the above draft assignment/exam and I am happy to approve the content.**  **Assessment can now be forwarded to the External Examiner for approval.** | | | | | | |  | **I confirm that I have considered the above draft assignment/exam and I am happy to approve the content.**  **Assessment can now be released to the students.** | | | | |
| **X** | **I confirm that I have considered the above draft assignment/exam and I am happy to approve the content subject to the above amendments.**  **Assessment can be forwarded to the External Examiner once these changes have been implemented and verified.** | | | | | | |  | **I confirm that I have considered the above draft assignment/exam and I am happy to approve the content subject to the above amendments.**  **Assessment can be released to students once these changes have been implemented and verified.** | | | | |
|  | **I confirm that I have considered the above draft assignment/exam and suggest the above amendments.**  **I would like to see the final amended version before I confirm approval.** | | | | | | |  | **I confirm that I have considered the above draft assignment/exam and suggest the above amendments.**  **I would like to see the final amended version before I confirm approval.** | | | | |
| **Cardiff Metropolitan Link Tutor:** | | | **Link tutor signature:** | | | **Date:** | | **External Examiner:** | | **EE Signature:** | | **Date:** | |

Draft Assessment Cover Sheet

Institution Name: ICBT

Programme:

Module:

**Exam**

Exam Title:

Date of Exam:

Duration of Exam:

Open or closed book exam:

Detail any allowable materials in the exam room:

Instructions to candidates included

**Assignment**

Assignment Title:

|  |
| --- |
| **Amber bakery automated billing system** |
|  |

Assignment Hand out date: 15/03/2023

Marking Scheme included -yes

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| Module Title | | | | | **Module Number** | | | | **JACS Subject Code(s) and % of each subject** | | | | **ASC Category(ies)** | | |
| Object Oriented Programming | | | | | CSE4006 | | | | I322 | | | | 6 | | |
| **Level (3 to 8)** | **Credits** | | **ECTS Credit** | | | **Module Value (1=20 credits)** | | | | **% Taught in Welsh** | | | | **Module Type** | |
| 4 | 15 | | 7.5 | | | 0.75 | | | | 0% | | | | Taught | |
| **Teaching Period (Term/Semester)** | | | | | | | **Pre-requisites** | | | | | | | | |
| Semester 2 | | | | | | | CSE4002, CSE4004 | | | | | | | | |
| **Module Leader** | | | | **School(s)** | | | | | | | | **Campus** | | | |
| Upekha Wijesinhge | | | | Cardiff School of Technologies | | | | | | | | ICBT | | | |
| Assessment Methods | | | | | | | | | | | | | | | |
| Assessment Code and  Method | | Duration/Length of  Assessment Method | | | | | | Weighting of Assessment | | | **Threshold** | | | | Approximate Date  of Submission |
| WRIT1-Coursework | | 3000 words equivalent | | | | | | 100% | | | 1 | | | | End Semester |
| Rationale for Assessment and Opportunity for Feedback – This field is optional. | | | | | | | | | | | | | | | |
| Writ1-Assignment is providing opportunity assess the students understanding of concepts of Object-oriented programming. Also assess the ability to design and develop Object oriented program. | | | | | | | | | | | | | | | |
| **Aim(s)** | | | | | | | | | | | | | | | |
| Through this module student can gain sound understand about the Object-Oriented program with their technical concepts and how that can be applied for real time development industry. | | | | | | | | | | | | | | | |

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| **Learning Outcomes** | | | |
| On successful completion of this module, students should be able to:   * Explain the fundamentals of Object-Oriented Programming concepts * Design Object-Oriented based applications * Develop Object-Oriented applications | | | |
| **Learning and Teaching Delivery Methods** | | | |
| **Method** | **Rationale** | **Type of Contact (scheduled/ guided independent study/placement)** | **Total hours** |
| Lecture | Introduction to module - essential information & guidance for students - module guidelines and identification of the learning outcomes associated with the module | SCHEDULED | 30 |
| Seminars/ Labs | To allow exploration of all aspects of module content (knowledge, understanding, skills & other attributes) in an interactive group setting | SCHEDULED | 30 |
| Student Centred Learning hours | Research on the related technologies. Development and testing of the applications and preparation for Viva. | NON-CONTACT | 90 |
| Total |  |  | 150 |
| **Indicative Content** | | | |
| Basic Principles of object-oriented programming:   * + Class, Objects   + Features: Abstraction, inheritance, polymorphism, encapsulation.   Object Oriented Concepts using UML:   * + USE Case diagram, Class Diagram, Sequence diagram   Programming basics:   * + Variables and Data Types     - Primitive data types, Derived data types   + Declare and initialize variables   + Operators: E.g.: Arithmetic operators, Relational operators, Logical operators, Increment/Decrement operators, Assignment operators, Bitwise Operators, ternary operator, instance of Operator   + Decision making structures: if, if...else, nested if, switch statement   + Loop Control structures: while, do. while, for     - Loop Control Statements: break statement, continue statement   + Creating and Using Arrays: Declare, instantiate, initialize and use of one-dimensional and multi-dimensional array.   Methods: Create methods, calling methods, Passing Parameters by Value and by Reference, Return types  Constructors: Constructors, Calling Constructors, Parameterized Constructor, this keyword  Object oriented programming implementation:   * + Inheritance:   Types of Inheritance: Single, Multilevel, Hierarchical, Multiple inheritance (Explain the reason not supporting by java)  Keywords: Super, extends, Instance of, Final class,   * + Polymorphism: Method Overloading, Method Overriding   + Abstraction: Abstract class, Interfaces   + Encapsulation:     - access modifiers: private, default, protected, public     - non-access modifiers.: static, abstract     - Get and Set Method   Handling Exceptions:   * + Catching and Handling Exceptions (try, catch blocks), Catching Multiple Exceptions, Throws/Throw Keywords   Threads:   * + Thread class, Runnable interface   GUI Application: Swing and AWT  File handling and I/O: Stream classes, Reading and Writing Files  Java collection framework: ArrayList, Vector, LinkedList, List, Queue, Deque | | | |
| **Required Reading** | | | |
| Murach, J., 2017. *Murach's Java Programming*. [S.L.]: Mike Murach & Associates. | | | |
| Recommended Reading | | | |
| [Kathy, S](https://www.amazon.com/Kathy-Sierra/e/B001H6U55G/ref=dp_byline_cont_book_1)., 2005. Head First Java, 2nd Edition. California: O'Reilly Media. Preece J., Rogers, Y. & Sharp, H. (2015), Interaction Design. 4th ed. New York: Wiley.  Burd, B., 2012. Beginning Programming with Java for Dummies. 3rd ed. John Wiley & Sons.  Tutorialspoint, 2020. Java Tutorial. [ online ] Available at:< <https://www.tutorialspoint.com/java/index.htm> > **[**Accessed 5th April 2019] | | | |
| **Access to Specialist Requirements** | | | |
| J2SE ,NetBeans | | | |

**Assignment Cover Sheet**

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| --- | --- | --- | --- |
| **Qualification** | | **Module Number and Title** | |
| HD in Computing/HD in Software Engineering | | **Object Oriented Programming- CSE4006** | |
| **Student Name & No.** | | **Assessor** | |
|  | |  | |
| **Hand out date** | | | **Submission Date** |
|  | | |  |
| **Assessment type**  WRIT1-Coursework | **Duration/Length of**  **Assessment Type**  3000 wordsequivalent | | **Weighting of Assessment**  100% |

|  |  |
| --- | --- |
| **Learner declaration** | |
| I certify that the work submitted for this assignment is my own and research sources are fully acknowledged. | |
| |  |  |  |  | | --- | --- | --- | --- | | **Marks Awarded** | | | | | First assessor | |  | | | IV marks | |  | | | Agreed grade | |  | | | Signature of the assessor |  | Date |  | |

**Feedback Form**

**International College of Business & Technology**

**Module:**

**Student:**

**Assessor:**

**Assignment:**

**Strong features of your work:**

**Areas for improvement:**

**Marks Awarded:**

Coursework

**Learning outcomes covered**

LO1: Explain the fundamentals of Object-Oriented Programming concepts

LO2: Design Object-Oriented based applications

LO3: Develop Object-Oriented applications

**Scenario and the Task**

**“Colombo institute of Studies”** iscurrentlyhandling employee details manually. Institute plaining to automate the process so that HR manager and the Assistant can manage employee details easily.

**User levels and functionalities are follows**

**HR Manager**

1. Add new departments and designations
2. Add new Employees and allocate them to available departments and designations
3. Search Employee details based on department, designations, name, EPF number etc.

**Admin**

1. Create a new account (HR Manager and HR Assistant)

***You are required to apply OOP concepts for the above scenario. Data need to be saved and retrieved from a File***

**Part A: Report**

**Task 1**.Provide design solution (UML diagrams) for the above mention Scenario. Provide clear explanation for all the diagrams mentioned below. (Provide assumptions if necessary) **(30 marks) (LO2)**

1. Use case Diagram
2. Class Diagram
3. Sequence Diagram

**Task 2:** Develop a suitable system for the above scenario based on the design. Required to use Object Oriented concepts (Object, Class, Abstraction, Inheritance, Encapsulation and Polymorphism) for the development. Document the main functionalities and Object Oriented concepts applied with proper explanation and source code.  **(Marks 20) (LO1, LO3)**

**Task 3:** Provide a user manual for the developed solution **(Marks 10) (LO3)**

**Guidelines for the report format**

Paper A4

Margins 1.5” left, 1” right, top and bottom

Page numbers – bottom, right

Line spacing 1.5

Font

Headings 14pt, Bold

Normal 12pt

Font face- Times New Roman

**Part B: Demonstration**

**Task 4:** System demonstration. System should work according to the expected functionalities. Should be able to demonstrate Object Oriented concepts (Object, Class, Abstraction, Inheritance, Encapsulation, and Polymorphism) applied to the given scenario. **(Marks 40) (LO1, LO3)//60**

**Submission Details**

Please see Moodle for confirmation of the Assessment submission date.

**Any assessments submitted after the deadline will not be marked and will be recorded as a Non-Attempt.**

Report must be submitted to the as a MS word file to the Turnitin.

**SMIS submission: Must submit a .zip file throw the SMIS. Zip file must contain Turnitin** report with project files (contain all the project elements)

Your .zip should be titled with your Student ID Number, module code and assessment id, **e.g. st12345678\_CIS5003WRIT1.zip**

**Assessment Criteria**

|  |  |  |
| --- | --- | --- |
| **This submission will be assessed as follows** | **Total marks Allocated** | **Marks obtained by the student for the answer provided** |
| **Part A: Task 1:** | Out of 30 |  |
| **POOR**  Poor use of Object Oriented Design Methodology  Use case Diagram   * Poor or no identification of use cases * Poor or no Identification of Actors and associations   Class Diagram   * Poor or no identification of associated methods, with correct signatures and attributes in each class * Poor or no identification of relationships   Sequence Diagram   * Poor or no identification of set of use cases as sequence diagrams. | 0-12 |  |
| **SATISFACTORY**  Proper use of Object Oriented Design Methodology  Use case Diagram   * Has identify few of correct use cases * Has identify few correct Actors and associations   Class Diagram   * Identification of associated methods, with correct signatures and attributes in each class * Correct identification of relationships   Sequence Diagram   * Has identified set of use cases (about 3) as sequence diagrams. | 13-18 |  |
| **GOOD**  Use case Diagram   * Accurate use of <<include> <<extend>> stereo types in use case diagram   Class Diagram   * Clear identification of private, public access modifiers & it is visible in the class diagram   Sequence Diagram   * Appropriate use of lifelines, messages and objects in proposed sequence diagrams   Correct use of UML notations with minor mistakes  Evaluation   * Student has given basic description about the design and given a reasonable justification * Effective judgements have been made about the content and levels of information to be included | 19-21 |  |
| **EXCELLENT**  Excellent Design   * Highly detailed diagram * Use of OO concepts clearly visible * Backed by relevant assumptions * Excellent use of UML notation   Evaluation   * Good justification of the design * Judge validity of results * Use critical reflection to evaluate the work and justify with valid explanations   Fluency (Of design)  Evidence of critical analysis on different perspectives covering how all UML diagrams support in designing | 22-30 |  |
| **Task 2:** | Out of 20 |  |
| **POOR**   * No proper standard coding * Insufficient code evidence with no or poor explanation * Poor use of Object oriented concepts no or poor explanation * Poor implementation of the design | **0-8** |  |
| **SATISFACTORY**   * Proper standard coding * Sufficient code evidence with proper explanation * Basic use of Object oriented concepts (at least 3 concepts) with basic explanation * Proper implementation of the design with minor mistakes | **9-12** |  |
| **GOOD**   * Proper use of Object oriented concepts (at least 4 concepts) with proper explanation * Proper implementation of the design with no mistakes | **13-15** |  |
| **EXCELLENT**  Excellent use of Object oriented concepts (all the concepts) with proper explanation | **16-20** |  |
| **Task 3:** | Out of 10 |  |
| **POOR**   * Poor structure no clear explanation and screenshots * Content is not specific and sufficient | 0-4 |  |
| **SATISFACTORY**   * Has provide basic explanation with screenshots * Content is specific and sufficient | **5-6** |  |
| **GOOD**   * Has provide average explanation with screenshots | **7-8** |  |
| **EXCELLENT**   * Excellent , clear and descriptive explanation with screenshots | **9-10** |  |
| **Part B: Task 4:** | Out of 40 |  |
| **POOR**   * System with syntax and logical errors * Poor or not able to explain and demonstrate implementation of the design Poor or not able to explain and demonstrate Object oriented concepts used in the system | 0-16 |  |
| **SATISFACTORY**   * Error free system * Partially able explain, demonstrate and justify the implementation of the design Partially able to explain and demonstrate Object oriented concepts used in the system | 17-24 |  |
| **GOOD**   * Able to explain, demonstrate and justify the implementation of the design * Able to explain and demonstrate Object oriented concepts used in the system | 25-30 |  |
| **EXCELLENT**  Has demonstrate excellent level of understanding of Object oriented concepts | 31-40 |  |
| **Total marks** | **100** |  |