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| **Programme** | **Information Technology** | | | | |
| **Course Code** | **COMP503** | | | | |
| **Course Title** | **Fundamentals of Computer Programming** | | | | |
| **NZQF Level** | **5** | | | | |
| **Credits** | **15** | | | | |
| **Prerequisites** | **None** | | | | |
| **Co-requisites** | **None** | | | | |
| **Restrictions** | **None** | | | | |
| **Course Aims** | This course introduces students to the fundamental principles of computing logic and the development of problem solving skills using structured programming techniques. The student will acquire basic competence in the chosen programming language and will apply this language to simple tasks using good programming techniques. It includes requirements for problem solving using given tools, steps and strategies, problem analysis, program development and testing. Students will be able to demonstrate an understanding of different programming language features. | | | | |
| **Learning**  **Outcomes** | **The learners will be able to:** | | | | |
| **LO 1** | Understand and construct structured programming designs for a given business requirement including basic elements of computer programming such as variables, data and error types, statements, expressions, operators and graphical user-interface. | | | |
| **LO 2** | Understand and apply the simple and nested selection/decision control structure when writing program code to make a decision. | | | |
| **LO 3** | Apply the knowledge of pre & post tested loop/repetitive control structure when writing program code to process same sequence of tasks/activities. | | | |
| **LO 4** | Familiarise with the concept of divide & conquer, and use the technology of “method” for writing effective, efficient and reusable computer program. | | | |
| **LO 5** | Demonstrate an understanding of static & dynamic arrays, single & multi-dimensional arrays which are frequently used in writing program code for searching and sorting data. | | | |
| **LO 6** | Demonstrate an understanding of text file operation (reading/writing) and develop the appropriate program code for such operation including exception handling and data validation. | | | |
| **LO 7** | Develop workplace soft-skills including working in groups, writing formal reports, carrying out individual research and/or delivering oral presentations | | | |
| **Average**  **Learning** | **Teaching Hours** | | **Self-directed Hours** | **Total Hours** | **Total**  **Weeks**  **(where appropriate)** |
| 75 | | 75 | 150 | 14 |
| **Summative Assessment** | **Description** | | | **Weight** | **Learning Outcomes** |
| Assignment 1 | | | 15% | 1, 2, 3, 4, 7 |
| Mid-Semester Test | | | 20% | 1, 2, 3, 4, 5 |
| Assignment 2 | | | 15% | 1, 2, 3, 4, 5, 6, 7 |
| Examination | | | 50% | 1, 2, 3, 4, 5, 6 |
| **Content** | * Variables and Data Types * Operators, Expressions & Statements * Data Type Conversion * Decision Control Structure: Simple & nested structures * Loop control structures: for and while loops * Lists and arrays * String and text processing * Functions and arguments * Tuples and dictionaries * File handling * Exception handling * Introduction to OOP * GUI forms * GUI controls * Sorting and searching * Good programming practices | | | | |
| **Delivery Methods** | Face-to-face  Moodle  Email | | | | |