|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Course Title | **Advanced Programming** | | | | | | | | |
| Course Code | **502.711** | | | | | | | | |
| Level | 7 | | | | | | | | |
| Credits | MIT credits | | | 15 | | NQF | N/A | | |
| Course Hours | Lecture directed learning: | | | 51 | | Self-directed learning:  Independent study | | | 99 |
| Total Learning Hours | 150 | | | | | Attendance Requirement | | | N/A |
| Delivery Mode Level | 3 | | | | | Mode of delivery  Intramural, distance, blended | | | Blended |
| Pre requisites | 502.5 (Software Engineering 1b) | | | | | | | | |
| Purpose | * To give the students an understanding of programming for reuse. * To ensure students have the knowledge and experience to effectively learn a new programming language. * To explore pragmatic issues in the craft of programming. * To provide experience with scripting languages and other techniques for integrating software components. * To ensure that students have the knowledge and experience to choose the appropriate mix for a problem, and then develop the solution, implement it, and evaluate it | | | | | | | | |
| **Learning Outcomes** | | **Outline of Content** | **Learning and Teaching Methods** | | **Assessment**  **Valid/Reliable** | | | **Resources Required**  **Text, Web links, Equipment, Computer Labs etc as applicable** | |
| **LO1**  Choose and implement appropriate design patterns  **LO2**  Learn and apply a new programming language  **LO3**  Appropriately identify and apply techniques for integrating software components and frameworks  **LO4**  Evaluate the effectiveness of work, and make recommendations accordingly | | * A scripting language such as Perl, Python, PHP or Ruby * GOF Design Patterns * Component models | Learning and teaching methods will develop specialised technical or theoretical knowledge in one or more field of work or study and generate solutions to unfamiliar and sometimes complex problems using and adapting a range of relevant processes. Students will demonstrate advanced generic and/or specialist knowledge and skills in a professional context or field.  A number of strategies will be used including:   * Group projects * Lectures * Discussion and self-evaluation * Practical computer laboratory sessions * Case studies * Experiential Sessions/Simulation Exercises / Role-plays * Brainstorming, discussion and debate | | **This course will be assessed on an achievement basis and assessment marks will be aggregated.**  Interpreter  10%  LO2  GOF Pattern  10%  LO1  Programming Assignment  20%  LO 3,4  Legacy System  10%  LO 2,3,4  Exam  50%  LO 1-4  **Mandatory and students requires min grade of 50% to pass course.** | | | Gamma, E., Helm, R., Johnson, R. &Vissides, J. (1995) *Design Patterns: elements of reusable object-oriented software.* Reading, MA: Addison-Wesley Publishing Company.  Lurtz, M. (2005) *Python Pocket Reference*(3rd edition). Sebastopol, CA: O’Reilly Media Inc.  **Internet Website(s):**  GOFPatterns<http://www.gofpatterns.com/>  SearchWinDevelopment.com  <http://searchwindevelopment.techtarget.com/> | |