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**COLLEGE OF INFORMATION TECHNOLOGY**

**DEPARTMENT OF INFORMATION TECHNOLOGY**

**COURSE SYLLABUS/ SPECIFICATION**

**Course Code & Title: ITCS 499 – Major Project**

**Weight: (0-6-3)**

**Prerequisite: IERM 498 & ETHC 392**

**NQF Level Allocated: Level 8**

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| **NQF Notional Hours / Credits: 120 notional hours/ 12 NQF credit** |

**Description:** Each student is required to select a theoretical and/or a practical problem related to his major area, and work under the supervision of a faculty member. All stages of project development should be emphasized including problem identification, library search, planning, design and/or construction of equipment upon completion of the project, the student must submit a final written report outlining the various phases of the project and make an oral presentation.

**Objective:**

1. To conduct an independent research project on certain chosen topic in the field of IT that involves formulating a real-world problem, developing its requirements, developing, designing and testing software based solution, and finally writing a report highlight the results of the project.
2. To employ the knowledge of software engineering in the project development of a software solution to a real-world problem.
3. To demonstrate independence, research ethics, academic integrity and originality, critical thinking and problem-solving, practical and written skills, as well as organization and time-management skills.

**Semester:**

**Instructor:**

**Office Telephone: Email:**

**Intended Learning Outcomes (ILOs):**

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| 1. **Knowledge and Understanding** | | **NQF Descriptor/ Level** |
| **A1** | **Concepts and Theories:** | N/A |
| **A2** | **Contemporary Trends, Problems and Research:** Demonstrate an informed and critical awareness of research issues and methods, technological advancements, and current solutions related to some problems in the field of Information Technology. | Knowledge: theoretical understanding  [Level 8] |
| **A3** | **Professional Responsibility:** Demonstrate cognition of and adhere to professional code of conduct as an IT practitioner and researcher. | Knowledge: theoretical  understanding  [Level 8] |

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| 1. **Subject-specific Skills** | | **NQF Descriptor/ Level** |
| **B1** | **Problem Solving:** Solve IT problems; plan, design, and implement their computable solutions. | Knowledge: Practical  Application  [Level 8]  Skills: Communication, ICT  & Numeracy  [Level 8] |
| **B2** | **Modeling and Design:** Design and develop models for computational systems, components, or processes to meet desired needs within realistic constraints. | Knowledge: Practical  Application  [Level 8] |
| **B3** | **Application of Methods and Tools:** Use effective research methods to gather data and demonstrate proficient use of programming languages and software as required for the research being undertaken. | Knowledge: Practical  Application  [Level 8]  Skills: Communication, ICT  & Numeracy  [Level 8] |

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| 1. **Critical-Thinking Skills** | | **NQF Descriptor/ Level** |
| **C1** | **Analytic skills:** Analyze problems; identify the appropriate computational resources (input) needed to solve them and analyze the effectiveness and efficiency of output accordingly generated. | Generic Problem Solving & Analytical skills [Level 8] |
| **C2** | **Synthetic:** Develop computerized solution to real life problem and document it in a well-structured project. | Generic Problem Solving & Analytical skills [Level 8] |
| **C3** | **Creative:** Create new or improve existing ideas, concepts, techniques, methods, tools, and theories in the field of IT | Generic Problem Solving & Analytical skills [Level 8] |

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| 1. **General and Transferable Skills (other skills relevant to employability and personal development)** | | **NQF Descriptor/ Level** |
| **D1** | **Communication:** Communicate ideas cogently, persuasively and effectively, in written and oral form, to a diverse range of audiences and stakeholders. | Communication, ICT and Numeracy Skills  [Level 8] |
| **D2** | **Teamwork and Leadership:** | N/A |
| **D3** | **Organizational and Developmental Skills:** Engage in life-long learning and continuing self-development to hone professional and organizational and time management skills to write a project within certain timeline. | Competence: Autonomy, Responsibility and Context [Level 8] |
| **D4** | **Ethics and Social Responsibility:** Follow research ethics and social responsibility and respond positively to the needs of society by employing effectively the advanced computing and information solutions and technologies. | Competence: Autonomy, Responsibility and Context [Level 8] |

**Course Structure (Outline):**

The course consists of the following components that may span up to two semesters.

1. Writing and submitting project proposal that identify a problem in the field of IT and highlight the research methods and tools to be used.

2. Conducting scientific research and writing project in consultation with the supervisor through regular meetings using Ahlia University’s Undergraduate Project Guidelines XXXX 499. The timeline and the key milestones are typically as follows:

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| **Key Milestones** | **Timeline** |
| **Introduction and Problem Definition**  Propose and study an important research topic/problem  Define research problem, history, motivation, and objectives  Write a draft introduction chapter and seek advice from supervisor  Revise the chapter accordingly | 2 weeks |
| **Literature Review**  Search and gather literature on the research topic/problem  Study research methods and solutions developed for such research problem  Write a draft chapter on Literature Review and discuss with supervisor  Revise the chapter accordingly | 3 weeks |
| **Approach, Conceptual Model, Research Method and Tools**  Select and study conceptual model and effective research methods to be used  Choose and study any other requirements, e.g., programming languages, software and other tools.  Write a draft chapter on Conceptual Model, Research Methods and Tools  Consult with supervisor and revise accordingly | 3 weeks |
| **Software Development, Experiments, Data Gathering and Analysis**   * Solicit any software requirements and specifications if needed * Design, implement and evaluate any software or experiments * Gather and record any required data   Record, study, analyze and interpret findings and raw data  Discuss with supervisor results and conclusions and revise accordingly | 4 weeks |
| **Drafting Main Chapters in Project**   * Describe the development and implementation process of your software and experiments, if any * Summarized your raw findings and data using, e.g., tables and charts * Discuss scientifically and critically your findings, implications and conclusions * Document any limitations and possible future work * Discuss the final chapters with supervise, revise and finalize the dissertation accordingly | 3 weeks |

**Teaching Materials:**

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| **Textbook(s):** | N/A |
| **Handout(s):** | Undergraduate Project Guidelines, Ahlia University. |
| **Reference(s):** | Students are free to choose the references that support their research studies in consultation with their supervisors. |

**Assessments:**

The student research work, written project, oral presentation/defense, and other supplemented documentations or software is evaluated by an examination Committee as mentioned above according to University regulations described in the Project Presentation Guidelines XXXX 499, V. 2, Ahlia University. The student has to defend his/her project in front of the examination committee which consists of three examiners consisting of the supervisor, and two internal examiners. The student work will be evaluated as follows:

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| --- | --- | --- | --- |
|  | **Criteria** | **Marks** | **Total** |
| **Written**  **Project** | Problem Definition | 14 | **70%** |
| Literature Search | 14 |
| Methodology & Analysis | 14 |
| Format | 14 |
| Documentation | 14 |
|  | | | |
| **Oral**  **Presentation** | Organization, Eye Contact,& Delivery | 10 | **30%** |
| Time Management & Presentation Skills | 10 |
| Questions & Answers | 10 |
|  | | | |
| **Total** | | **100** | **100%** |

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| **Ahlia University values academic integrity. Therefore, all students must understand the meaning and consequences of cheating, plagiarism and other academic offences under the Code of Student Conduct and Disciplinary Procedures (see** [www.ahlia.edu.bh/integrity](http://www.ahlia.edu.bh/integrity) **for more information).** |