# *Program Specification of*

**Diploma in Computers and Systems Engineering**

University**: Zagazig** Faculty**: Engineering**

**A - Basic Information**

1. **Program title:** Diploma in Computers and Systems Engineering
2. **Program type:** Single √ Double Multiple Aa
3. **Faculty:** Engineering
4. **Department responsible for the program:** Computers and Systems Engineering
5. **Coordinator(s):** Dr. Hazem Shehata
6. **External evaluator(s):** Prof. Dr. Ali Ali Fahmi
7. **Last date of program specifications approval: / /**

**B - Specialized Information**

**1- Program Attributes:**

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| By the end of the diploma program the students will be able to:

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| --- | --- |
| 1. | Apply the computer and systems engineering knowledge acquired during program to their professional field of expertise.  |
| 2. | Find problems in computers and digital systems and suggest suitable solutions to these problems.  |
| 3. | Use their computer and systems engineering skills in practice. |
| 4. | Communicate with co-workers effectively and lead a team that works on a computer and systems engineering project. |
| 5. | Make informed decisions in practicing computer and systems engineering. |
| 6. | Use available resources of a computer or a digital system efficiently. |
| 7. | Recognize their role in developing the society and preserving the environment. |
| 8. | Behave ethically and professionally as computer and systems engineers, and take responsibility for their decisions and actions. |
| 9. | Realize the importance of self development and continuous learning as computer and systems engineers. |

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**2- Intended learning outcomes (ILO’s):**

**a- Knowledge and understanding:**

The graduates of the diploma program should have ability to:

|  |  |
| --- | --- |
| a1. | Recognize the foundations of computer and systems engineering. |
| a2. | Relate the different aspects of software engineering.  |
| a3. | Identify the main applications of machine intelligence. |
| a4. | Explain the operation of control systems. |
| a5. | Describe the main layers and protocols of computer networks  |
| a6. | Recognize the ethical and legal obligations of computer and systems engineering. |
| a7. | Realize the impact of computer and systems engineering on the society and the environment. |

**b- Intellectual Skills:**

The graduates of the diploma program should be able to:

|  |  |
| --- | --- |
| b1. | Identify and analyze problems in computer and systems engineering. |
| b2. | Provide solutions to computer and systems engineering problems. |
| b3. | Discuss and criticize research topics in computer and systems engineering. |
| b4. | Interpret data produced by a digital system to make informed decisions. |
| b5. | Manage risks expected in computer and systems engineering. |

**c- Professional and practical skills:**

The graduates of the diploma program should have ability to:

|  |  |
| --- | --- |
| c1. | Apply computer and systems engineering skills practically. |
| c2. | Write technical reports. |
| c3. | Use simulation tools to study the behavior of digital systems. |

**d- General and transferable skills:**

The graduates of the diploma program should be able to:

|  |  |
| --- | --- |
| d1. | Communicate effectively with others. |
| d2. | Work in a team as leaders or members. |
| d3. | Leverage information technology to enhance their professional practices. |
| d4. | Evaluate their educational needs and practice self-learning.  |

**3-Academic standards**

**3a External references for standards (benchmarks):**

This program fulfills the Academic Reference Standards (ARS) guidelines of March 2009 for postgraduate programs prepared by the Supreme Council of Universities in Egypt.

**4- Curriculum Structure and Contents:**

**4.a- Program duration:** 2 academic semesters (24 credit hours)

**4.b- Program structure: (**Please refer to table (a) below)

**Table (a) Diploma program structure**

|  |  |  |
| --- | --- | --- |
| **Semester** | **Credit hours** | **Courses available to choose from (each course weights 3 credit hours)** |
|
| **Preparatory** | 9 |  **ENG 5XX level (see table (b) below)** |
| **Second**  | 15 |  **CSE 5XX level (see table (b) below)** |

**5- Program courses**

**Table (b) Courses available in the diploma program**

|  |  |  |
| --- | --- | --- |
| **ILO's** | **Course** | **Code** |
| **General** | **Practical** | **Intellectual** | **Knowledge & Understanding** |
| **d1-d4** | **c1, c3** | **b1, b2** | **a1** | **Advanced Engineering Mathematics** | **ENG 501** |
| **d1-d4** | **c1, c3** | **b1, b2** | **a1** | **Engineering Computational Methods**  | **ENG 502** |
| **d1-d4** | **c1-c3** | **b1, b2** | **a1** | **Engineering Experimental Methods** | **ENG 503** |
| **d1-d4** | **c1-c3** | **b1, b2** | **a1** | **Engineering systems Design and Analysis**  | **ENG 504** |
| **d1-d4** | **c1, c3** | **b1, b2** | **a1, a2, a6, a7** | **Advanced Programming** | **ENG 505** |
| **d1-d4** | **c1-c3** | **b1-b5** | **a1** | **Advanced Operating Systems** | **CSE 508** |
| **d1-d4** | **c1-c3** | **b1-b5** | **a1, a1, a6, a7** | **Database Systems** | **CSE 509** |
| **d1-d4** | **c1-c3** | **b1-b5** | **a1** | **Parallel and Distributed Processing** | **CSE 510**  |
| **d1-d4** | **c1-c3** | **b1-b5** | **a1, a5** | **Computer Networks** | **CSE 511**  |
| **d1-d4** | **c1-c3** | **b1-b5** | **a1, a3, a7** | **Artificial Intelligence** | **CSE 512**  |
| **d1-d4** | **c1-c3** | **b1-b5** | **a1, a3** | **Expert Systems** | **CSE 513**  |
| **d1-d4** | **c1-c3** | **b1-b5** | **a1, a4** | **Optimal Control** | **CSE 514**  |

**6- Program admission requirements**

The applicant to the diploma program must hold a B.Sc. in Engineering from a recognized university in Egypt or an equivalent degree recognized by the supreme council of universities. Applicants form fields other than engineering may be admitted upon a decision from the Faculty council.

**7- Regulations for progression and program completion First Year/ Level/ Semester**

The student must pass all the courses with at least C grade in each course.

|  |  |  |
| --- | --- | --- |
| **%** | **Points** | **Grade** |
| more than 90% | 4.0 | **A** |
| from 88 to less than 90% | 3.7 |  **A-** |
| from 85 to less than 88% | 3.3 |  **B+** |
| from 80 to less than 85% | 3.0 |  **B** |
| from 78 to less than 80% | 2.7 | **B-** |
| from 75 to less than 78% | 2.3 |  **C+** |
| from 70 to less than 75% | 2.0 | **C** |
| from 68 to less than 70% | 1.7 |  **C-** |
| from 65 to less than 68% | 1.3 |  **D+** |
| from 60 to less than 65% | 1.0 | **D** |
| less than 60% | 0.0 | **F** |

**8- Methods and rules of evaluating students attending the Program**

|  |  |
| --- | --- |
| **Target ILO’s Evaluated** | **Method** |
| **General & Transferable skills** | **Professional & Practical Skills** | **Intellectual skills** | **Knowledge & Understanding Skills** |
| **√** | **√** | **√** | **√** | Assignments, quizzes, technical reports |
| **√** | **√** |  | **√** | Presentations |
|  |  | **√** | **√** | Final exams (written) |

**9- Evaluation of Program Intended Learning Outcomes**

|  |  |  |
| --- | --- | --- |
| **Sample** | **Tool** | **Evaluator** |
| **50%** | Meeting Questionnaire | Senior students |
| **5%** | Meeting Questionnaire | Alumni |
| **5** | Meeting Report | Stakeholders (Employers) |
| **2** | Report | External evaluator(s) (External Examiner(s)) |
|  | **NA** | Other |

**Program coordinator:**

**Name:** Dr. Hazem Shehata

**Signature:**

**Acting Department Head: Associate Prof. Dr. Nesreen Ibrahim Ziedan**

**Signature:**

**Date: /**

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| **ANNEX 1:** **The ILO’s (of the Postgraduate Diploma in Computers and Systems Engineering Program) – Course (main ILO’s) matrix.** |
| **Program ILOs** | **Course** |
| **(d)****General & Trans. skills** | **(c) Professional****& Practical Skills** | **(b)****Intellectual Skills** | **(a)****Knowledge & Understanding** | **Course Name** | **Course****Code** |
| **d4** | **d3** | **d2** | **d1** | **c3** | **c2** | **c1** | **b5** | **b4** | **b3** | **b2** | **b1** | **a7** | **a6** | **a5** | **a4** | **a3** | **a2** | **a1** |
| **•** | **•** | **•** | **•** | **•** |  | **•** |  |  |  | **•** | **•** |  |  |  |  |  |  | **•** | **Advanced Engineering Mathematics** | **ENG 501** |
| **•** | **•** | **•** | **•** | **•** |  | **•** |  |  |  | **•** | **•** |  |  |  |  |  |  | **•** | **Engineering Computational Methods**  | **ENG 502** |
| **•** | **•** | **•** | **•** | **•** | **•** | **•** |  |  |  | **•** | **•** |  |  |  |  |  |  | **•** | **Engineering Experimental Methods** | **ENG 503** |
| **•** | **•** | **•** | **•** | **•** | **•** | **•** |  |  |  | **•** | **•** |  |  |  |  |  |  | **•** | **Engineering systems Design and Analysis**  | **ENG 504** |
| **•** | **•** | **•** | **•** | **•** |  | **•** |  |  |  | **•** | **•** | **•** | **•** |  |  |  | **•** | **•** | **Advanced Programming** | **ENG 505** |
| **•** | **•** | **•** | **•** | **•** | **•** | **•** | **•** | **•** | **•** | **•** | **•** |  |  |  |  |  |  | **•** | **Advanced Operating Systems** | **CSE 508** |
| **•** | **•** | **•** | **•** | **•** | **•** | **•** | **•** | **•** | **•** | **•** | **•** | **•** | **•** |  |  |  | **•** | **•** | **Database Systems** | **CSE 509** |
| **•** | **•** | **•** | **•** | **•** | **•** | **•** | **•** | **•** | **•** | **•** | **•** |  |  |  |  |  |  | **•** | **Parallel and Distributed Processing** | **CSE 510**  |
| **•** | **•** | **•** | **•** | **•** | **•** | **•** | **•** | **•** | **•** | **•** | **•** |  |  | **•** |  |  |  | **•** | **Computer Networks** | **CSE 511**  |
| **•** | **•** | **•** | **•** | **•** | **•** | **•** | **•** | **•** | **•** | **•** | **•** | **•** |  |  |  | **•** |  | **•** | **Artificial Intelligence** | **CSE 512**  |
| **•** | **•** | **•** | **•** | **•** | **•** | **•** | **•** | **•** | **•** | **•** | **•** |  |  |  |  | **•** |  | **•** | **Expert Systems** | **CSE 513**  |
| **•** | **•** | **•** | **•** | **•** | **•** | **•** | **•** | **•** | **•** | **•** | **•** |  |  |  | **•** |  |  | **•** | **Optimal Control** | **CSE 514**  |

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| **ANNEX 2:** **Program Attributes versus Program ILOs Matrix** |
| **Program ILOs** |  |
| **(d)****General & Trans. skills** | **(c) Professional****& Practical Skills** | **(b)****Intellectual Skills** | **(a)****Knowledge & Understanding** | **Program Attributes** |
| **d4** | **d3** | **d2** | **d1** | **c3** | **c2** | **c1** | **b5** | **b4** | **b3** | **b2** | **b1** | **a7** | **a6** | **a5** | **a4** | **a3** | **a2** | **a1** |
|  | **•** | **•** | **•** | **•** | **•** | **•** | **•** | **•** | **•** | **•** | **•** | **•** | **•** | **•** | **•** | **•** | **•** | **•** | **1** |
|  |  |  |  |  |  |  | **•** | **•** |  | **•** | **•** |  |  |  |  |  |  |  | **2** |
|  | **•** |  |  | **•** |  | **•** |  |  |  |  |  | **•** |  |  |  |  |  |  | **3** |
|  |  | **•** | **•** |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | **4** |
|  | **•** |  |  |  |  | **•** |  | **•** |  |  |  |  |  |  |  |  |  |  | **5** |
|  | **•** |  |  |  |  | **•** |  |  |  |  |  | **•** |  |  |  | **•** | **•** |  | **6** |
|  | **•** |  |  |  |  |  |  |  |  |  |  | **•** |  |  |  |  |  |  | **7** |
|  |  | **•** | **•** |  |  |  | **•** | **•** |  |  |  |  |  |  |  |  |  |  | **8** |
| **•** |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | **9** |