**Course Specification**

**(CS 112 Programing-1 )**

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| *University:* | Helwan University |
| *Faculty:* | Faculty of Computers & Information |
| *Department:* | ***Computer science*** |

**1. Course Data**

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| --- | --- |
| **Code:** | **CS 112** |
| **Course title:** | Programming -1 |
| **Level:** | 1 |
| **Specialization:** | Computer Science |
| **Credit hours:** | 3 hours |
| **Number of learning units (hours):**  | (3) theoretical (2) practical |

**2. Course Objective**

Structured program development: problem solving decision structure, repetition structures. Top-down and stepwise refinement. Subprograms: Procedures and functions. Structured data types: one–dimension arrays, sets, records, files: text files, random handling files. Dynamic data structures (pointers).

**3. Intended Learning Outcomes:**

 **A- Knowledge and Understanding:**

 A3. Describe and model Mathematical Problems.

A6. Describe the Modeling Problems.

A7. Define the basics of Computer Systems

A8. Apply Programming to solve Problems.

 **B- Intellectual Skills**

B9. Design and implement Programming methods.

 **C- Professional and Practical Skills**

C1. Choose the appropriate Programming Language.

 C10. Develop computer-based systems.

**D- General and Transferable Skills**

D3. Use different Problem Solving techniques.

 D4. Follow Analytical Thinking.

 D5. Follow Creative Thinking.

**4. Course contents**

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| --- | --- | --- | --- |
| **Topic** | **No. of hours** | **Lecture** | **Tutorial/ Practical** |
| [A First Program](http://einstein.drexel.edu/courses/CompPhys/General/C_basics/)  | 3 | 1 | 1 |
| [Let's Compute](http://einstein.drexel.edu/courses/CompPhys/General/C_basics/)  | 3 | 1 | 1 |
| [Loops](http://einstein.drexel.edu/courses/CompPhys/General/C_basics/)  | 3 | 1 | 1 |
| [Symbolic Constants](http://einstein.drexel.edu/courses/CompPhys/General/C_basics/)  | 3 | 1 | 1 |
| [Conditionals](http://einstein.drexel.edu/courses/CompPhys/General/C_basics/)  | 3 | 1 | 1 |
| [Pointers](http://einstein.drexel.edu/courses/CompPhys/General/C_basics/)  | 6 | 2 | 2 |
| [Arrays](http://einstein.drexel.edu/courses/CompPhys/General/C_basics/)  | 3 | 1 | 1 |
| [Character Arrays](http://einstein.drexel.edu/courses/CompPhys/General/C_basics/)  | 3 | 1 | 1 |
| [I/O Capabilities](http://einstein.drexel.edu/courses/CompPhys/General/C_basics/)  | 3 | 1 | 1 |
| [Functions](http://einstein.drexel.edu/courses/CompPhys/General/C_basics/)  | 6 | 2 | 2 |
| [Command-line Arguments](http://einstein.drexel.edu/courses/CompPhys/General/C_basics/)  | 3 | 1 | 1 |
| [Graphical Interfaces: Dialog Boxes](http://einstein.drexel.edu/courses/CompPhys/General/C_basics/) | 3 | 1 | 1 |

**Mapping contents to ILOs**

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| --- | --- |
| Topic | Intended Learning Outcomes (ILOs) |
| Knowledge and understanding | Intellectual Skills | Professional and practical skills | General and Transferable skills |
| [A First Program](http://einstein.drexel.edu/courses/CompPhys/General/C_basics/)  | A6,A7,A8,A3 |  | C1 | D4, D3 |
| [Let's Compute](http://einstein.drexel.edu/courses/CompPhys/General/C_basics/)  |  A6 |  | C1 | D3 |
| [Loops](http://einstein.drexel.edu/courses/CompPhys/General/C_basics/)  | A6 |  | C1 | D3 |
| [Symbolic Constants](http://einstein.drexel.edu/courses/CompPhys/General/C_basics/)  | A6 | B9 | C1 | D3 |
| [Conditionals](http://einstein.drexel.edu/courses/CompPhys/General/C_basics/)  | A6, A7 | B9 | C1 | D3,D5 |
| [Pointers](http://einstein.drexel.edu/courses/CompPhys/General/C_basics/)  | A6, A7 | B9 | C1,C10 | D3 |
| [Arrays](http://einstein.drexel.edu/courses/CompPhys/General/C_basics/)  | A6,A7 | B9 | C1,C10 | D3 |
| [Character Arrays](http://einstein.drexel.edu/courses/CompPhys/General/C_basics/)  | A6, A7 | B9 | C1,C10 | D3 |
| [I/O Capabilities](http://einstein.drexel.edu/courses/CompPhys/General/C_basics/)  | A6, A8 | B9 | C1,C10 | D3 |
| [Functions](http://einstein.drexel.edu/courses/CompPhys/General/C_basics/)  | A6,A7,A8 |  | C1,C10 | DD3 |
| [Command-line Arguments](http://einstein.drexel.edu/courses/CompPhys/General/C_basics/)  | A6 |  | C1,C10 | None |
| [Graphical Interfaces: Dialog Boxes](http://einstein.drexel.edu/courses/CompPhys/General/C_basics/) | A8,A3 |  | C1,C10 | None |

**5. Teaching and Learning Methods**

Class Lectures

 Highly lab-based courses

**6. Teaching and Learning Methods for students with limited capability**

 Using data show

 e-learning management tools

**7. Students Evaluation**

**a) Used Methods**

Lab exam

Assignments

Lab work

Programming projects

**b) Time**

Assessment 1: Test 1 Week 4

Assessment 2: Test 2 Week 7

Assessment 3: Midterm Exam Week 10

Assessment 4: Practical Exam Week 14

Assessment 5: final written exam Week 16

**c) Grades Distribution**

Mid-term Examination 20 %

Final-Year Examination 50 %

Semester Work 20 %

Practical Exam 10%

 Total 100%

 Any formative only assessments

**List of Books and References**

**a) Notes**

Course Notes

- Handouts

**b) Mandatory Books**

 **Title:** The C Programming Language, Second Edition

 **Author(s)**: [Brian W. Kernighan](http://www.cs.bell-labs.com/~bwk) and [Dennis M. Ritchie](http://www.cs.bell-labs.com/~dmr)

 **Publisher**: Prentice Hall, Inc, 2004

 **ISBN:** 0-13-110362-8

**c) Suggested Books**

**d) Other publications**

**Course Coordinator:**  Dr. Hala Abdel-Gelil

**Chairman of the Department:** Prof. dr. Iraqy Khalif