



Arab Academy for Science, Technology & Maritime Transport  
College of Engineering & Technology  
Department of Computer Engineering

**University/Academy:** Arab Academy for Science, Technology & Maritime Transport  
**Faculty/Institute:** College of Engineering & Technology  
**Program:** B.Sc. Mechanical Engineering

**Form no. (12)**  
**Course Specification**

**1- Course Data**

|                                         |                                                |                                                                         |                           |
|-----------------------------------------|------------------------------------------------|-------------------------------------------------------------------------|---------------------------|
| Course Code:<br><b>CC 112</b>           | Course Title:<br><b>Structured Programming</b> | Academic Year/Level:<br>1 <sup>th</sup> year / 2 <sup>nd</sup> semester |                           |
| Specialization:<br>Computer Engineering | No. of Instructional Units<br><b>3 Credits</b> | Lecture<br><b>2hrs.</b>                                                 | Practical<br><b>2hrs.</b> |

**2- Course Aim**

To help students develop engineering skills to design and solve problems using C structured programming.

**3- Intended Learning Outcomes**

|                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
|---------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>e- Knowledge and Understanding</b> | <p><b>Through knowledge and understanding, students will be able to:</b></p> <ul style="list-style-type: none"> <li>• An ability to identify, formulate, and solve programming problems(k4)</li> <li>• Describe syntax and semantics of C (k4)</li> <li>• Describe the I/O formatting and Arithmetic(k5)</li> <li>• Describe how to design basic conditional problems(k5)</li> <li>• Describe how to design conditional problems using selection control structures(k5)</li> <li>• Describe how to use repetitions in programs that require looping(k5)</li> <li>• Describe how to use repetitions in programs that require complicated looping(k5)</li> <li>• Describe the use of pre-defined functions in programs(k5)</li> <li>• Describe how to write a user defined function and how to use them in programs(k5)</li> <li>• Describe how to create arrays and process them(k5)</li> <li>• Write more complicated programs that require arrays(k5)</li> <li>• An ability to use the techniques, skills, and tools for engineering practice(k4)</li> <li>• An ability to use the techniques, skills, and tools for engineering practice(k4)</li> <li>•</li> </ul> |
| <b>f- Intellectual Skills</b>         | <p><b>Through intellectual skills, students will be able to:</b></p> <ul style="list-style-type: none"> <li>• None</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| <b>g- Professional Skills</b>         | <p><b>Through professional and practical skills, students will be able to:</b></p> <ul style="list-style-type: none"> <li>• Develop computer programs on professional levels achieving acceptable quality measures. (p1, p6, p15)</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| <b>h- General Skills</b>              | <p><b>Through general and transferable skills, students will be able to:</b></p> <ul style="list-style-type: none"> <li>• None</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |

**4- Course Content**

|                   |                                                                         |
|-------------------|-------------------------------------------------------------------------|
| <b>Week No.1</b>  | Overview of Programming and Problem Solving.<br>C Syntax and Semantics. |
| <b>Week No.2</b>  |                                                                         |
| <b>Week No.3</b>  | I/O Formatting and Arithmetic.                                          |
| <b>Week No.4</b>  | Conditions and Logical Expressions.                                     |
| <b>Week No.5</b>  | Selection Control Structures.                                           |
| <b>Week No.6</b>  | Repetitions (Part 1).                                                   |
| <b>Week No.7</b>  | 7 <sup>th</sup> Week Exam.                                              |
| <b>Week No.8</b>  | Repetitions (Part 2).                                                   |
| <b>Week No.9</b>  | Functions (Part 1).                                                     |
| <b>Week No.10</b> | Functions (Part 2).                                                     |
| <b>Week No.11</b> | Arrays (Part 1).                                                        |
| <b>Week No.12</b> | 12 <sup>th</sup> Week Exam.                                             |
| <b>Week No.13</b> | Arrays (Part 2).                                                        |
| <b>Week No.14</b> | Programming applications – problem solving Tech (Part 1).               |
| <b>Week No.15</b> | Programming applications – problem solving Tech (Part 2).               |
| <b>Week No.16</b> | Presentation of projects and Final Exam.                                |

**5- Teaching and Learning Methods**

- Lectures
- Tutorials
- Reports & sheets
- Laboratories
- Seminars

**6-Teaching and Learning Methods for Students with Special Needs**

- Personalized teaching is available for special needs students and an academic advisor is appointed to follow up with these students and to monitor progress.

**7- Student Assessment**

|                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                  |                                   |                                   |                                    |                        |                        |                  |                                          |                       |      |               |      |       |      |
|-----------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------|-----------------------------------|-----------------------------------|------------------------------------|------------------------|------------------------|------------------|------------------------------------------|-----------------------|------|---------------|------|-------|------|
| <b>a-Procedures used</b>          | 1-Written Examinations to assess The Intended Learning Outcomes.<br>2-Class Activities (Reports, Discussions, -----) to assess The Intellectual Skills.                                                                                                                                                                                                                                                                                                                                      |                                  |                                   |                                   |                                    |                        |                        |                  |                                          |                       |      |               |      |       |      |
| <b>b- Schedule:</b>               | <table style="width: 100%; border: none;"> <tr> <td style="width: 50%;">Assessment 1</td> <td style="width: 50%;">7<sup>th</sup> Week Written Exam</td> </tr> <tr> <td>Assessment 2</td> <td>12<sup>th</sup> Week Written Exam</td> </tr> <tr> <td>Assessment 3</td> <td>Continuous Assessments</td> </tr> <tr> <td>Assessment 4</td> <td>16<sup>th</sup> Week Final Written Exam</td> </tr> </table>                                                                                        | Assessment 1                     | 7 <sup>th</sup> Week Written Exam | Assessment 2                      | 12 <sup>th</sup> Week Written Exam | Assessment 3           | Continuous Assessments | Assessment 4     | 16 <sup>th</sup> Week Final Written Exam |                       |      |               |      |       |      |
| Assessment 1                      | 7 <sup>th</sup> Week Written Exam                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                  |                                   |                                   |                                    |                        |                        |                  |                                          |                       |      |               |      |       |      |
| Assessment 2                      | 12 <sup>th</sup> Week Written Exam                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                  |                                   |                                   |                                    |                        |                        |                  |                                          |                       |      |               |      |       |      |
| Assessment 3                      | Continuous Assessments                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                  |                                   |                                   |                                    |                        |                        |                  |                                          |                       |      |               |      |       |      |
| Assessment 4                      | 16 <sup>th</sup> Week Final Written Exam                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                  |                                   |                                   |                                    |                        |                        |                  |                                          |                       |      |               |      |       |      |
| <b>c- Weighing of Assessment</b>  | <table style="width: 100%; border: none;"> <tr> <td style="width: 50%;">7<sup>th</sup> Week Examination</td> <td style="width: 50%;">25 %</td> </tr> <tr> <td>12<sup>th</sup> Week Examination</td> <td>15 %</td> </tr> <tr> <td>Final-term Examination</td> <td>40 %</td> </tr> <tr> <td>Oral Examination</td> <td>00 %</td> </tr> <tr> <td>Practical Examination</td> <td>10 %</td> </tr> <tr> <td>Semester Work</td> <td>10 %</td> </tr> <tr> <td>Total</td> <td>100%</td> </tr> </table> | 7 <sup>th</sup> Week Examination | 25 %                              | 12 <sup>th</sup> Week Examination | 15 %                               | Final-term Examination | 40 %                   | Oral Examination | 00 %                                     | Practical Examination | 10 % | Semester Work | 10 % | Total | 100% |
| 7 <sup>th</sup> Week Examination  | 25 %                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                  |                                   |                                   |                                    |                        |                        |                  |                                          |                       |      |               |      |       |      |
| 12 <sup>th</sup> Week Examination | 15 %                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                  |                                   |                                   |                                    |                        |                        |                  |                                          |                       |      |               |      |       |      |
| Final-term Examination            | 40 %                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                  |                                   |                                   |                                    |                        |                        |                  |                                          |                       |      |               |      |       |      |
| Oral Examination                  | 00 %                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                  |                                   |                                   |                                    |                        |                        |                  |                                          |                       |      |               |      |       |      |
| Practical Examination             | 10 %                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                  |                                   |                                   |                                    |                        |                        |                  |                                          |                       |      |               |      |       |      |
| Semester Work                     | 10 %                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                  |                                   |                                   |                                    |                        |                        |                  |                                          |                       |      |               |      |       |      |
| Total                             | 100%                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                  |                                   |                                   |                                    |                        |                        |                  |                                          |                       |      |               |      |       |      |

**8- List of References:**

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|----------------------------------------|-----------------------------------------------------------------------------------------|
| <b>a- Course Notes</b>                 |                                                                                         |
| <b>b- Required Books (Textbooks)</b>   | J.Hanly and E. Koffman,"C Program Design for Engineers", Addison Wesley, latest edition |
| <b>c- Recommended Books</b>            |                                                                                         |
| <b>d- Periodicals, Web Sites, etc.</b> |                                                                                         |

Course coordinator:

Program Manager: