

# MODULE DESCRIPTION FORM

## نموذج وصف المادة الدراسية

| Module Information                 |                                            |                      |                                                                                                                                                                                                                                                     |        |
|------------------------------------|--------------------------------------------|----------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------|
| معلومات المادة الدراسية            |                                            |                      |                                                                                                                                                                                                                                                     |        |
| Module Title                       | Computational Thinking for Problem Solving |                      | Module Delivery                                                                                                                                                                                                                                     |        |
| Module Type                        | Core                                       |                      | <input checked="" type="checkbox"/> Theory<br><input checked="" type="checkbox"/> Lecture<br><input type="checkbox"/> Lab<br><input type="checkbox"/> Tutorial<br><input checked="" type="checkbox"/> Practical<br><input type="checkbox"/> Seminar |        |
| Module Code                        | CS102                                      |                      |                                                                                                                                                                                                                                                     |        |
| ECTS Credits                       | 5                                          |                      |                                                                                                                                                                                                                                                     |        |
| SWL (hr/sem)                       | 125                                        |                      |                                                                                                                                                                                                                                                     |        |
| Module Level                       | 1                                          | Semester of Delivery |                                                                                                                                                                                                                                                     | 1      |
| Administering Department           | Type Dept. Code                            | College              | Type College Code                                                                                                                                                                                                                                   |        |
| Module Leader                      | Name                                       |                      | e-mail                                                                                                                                                                                                                                              | E-mail |
| Module Leader's Acad. Title        | Professor                                  |                      | Module Leader's Qualification                                                                                                                                                                                                                       | Ph.D.  |
| Module Tutor                       | Name (if available)                        |                      | e-mail                                                                                                                                                                                                                                              | E-mail |
| Peer Reviewer Name                 | Name                                       |                      | e-mail                                                                                                                                                                                                                                              | E-mail |
| Scientific Committee Approval Date | 2026 – 2025                                |                      | Version Number                                                                                                                                                                                                                                      | 1.0    |

| Relation with other Modules       |      |  |          |  |
|-----------------------------------|------|--|----------|--|
| العلاقة مع المواد الدراسية الأخرى |      |  |          |  |
| Prerequisite module               | None |  | Semester |  |
| Co-requisites module              | None |  | Semester |  |

## Module Aims, Learning Outcomes and Indicative Contents

أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية

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| <b>Module Aims</b><br>أهداف المادة الدراسية                      | <ol style="list-style-type: none"> <li>1. Develop computational thinking skills.</li> <li>2. Enhance problem-solving abilities.</li> <li>3. Foster logical and analytical thinking.</li> <li>4. Promote algorithmic reasoning and design.</li> <li>5. Cultivate creativity and innovation in problem solving.</li> </ol>                                                                                                                                                                                                                                              |
| <b>Module Learning Outcomes</b><br>مخرجات التعلم للمادة الدراسية | <ol style="list-style-type: none"> <li>1. Apply computational thinking techniques to analyze and solve problems.</li> <li>2. Utilize algorithms and logical reasoning to develop efficient solutions.</li> <li>3. Demonstrate proficiency in problem decomposition and pattern recognition.</li> <li>4. Employ abstraction and generalization to model and solve complex problems.</li> <li>5. Cultivate critical thinking and creativity in problem-solving approaches.</li> <li>6. Communicate and collaborate effectively in problem-solving scenarios.</li> </ol> |
| <b>Indicative Contents</b><br>المحتويات الإرشادية                | <p>Indicative content includes the following.</p> <ol style="list-style-type: none"> <li>1. Basics Introduction: number systems, data encoding.</li> <li>2. Problem Solving: Problem definition, decomposition, abstraction.</li> <li>3. Algorithmic Thinking: Flowcharting, selection, repetition.</li> <li>4. Data organization: Lists, arrays, modularization.</li> <li>5. Problem Solving Techniques: Factoring, recursion.</li> </ol>                                                                                                                            |

## Learning and Teaching Strategies

استراتيجيات التعلم والتعليم

|                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
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| <b>Strategies</b> | <ol style="list-style-type: none"> <li>1. Engage students through interactive lectures and discussions.</li> <li>2. Utilize hands-on coding exercises and projects to apply computational thinking concepts.</li> <li>3. Provide real-world examples and case studies to demonstrate the practical application of problem-solving techniques.</li> <li>4. Foster collaborative learning through group activities and problem-solving challenges.</li> <li>5. Offer opportunities for self-paced learning and practice through online resources and coding platforms.</li> <li>6. Provide timely feedback and guidance to support students' progress and improvement in problem-solving skills.</li> </ol> |
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