

## COURSE SYLLABUS FORM

American University of Beirut  
Faculty of Arts and Sciences  
Department of Education

Course Number: EDUC 246

### Title: **Computer Programming at the School Level**

#### **1. Course Learning Outcomes**

The students in the course are expected to produce samples of computer programs that show the ability to use the computer's programming capacity at the school level. More specifically, the students in this course are expected to produce projects, provide solutions to problems, and answer essay questions about:

- The potential role of programming in developing higher order thinking skills such as decision making, creative thinking, and problem solving;
- Using the elements of the adopted programming environment;
- Identifying learning objects that lend themselves to learning topics from the regular school curricula;
- Writing procedures;
- Working with background and page design;
- Turtle Shapes;
- Text Boxes;
- Using multimedia (music, sound, video, and animations);
- Program design;
- Working with multiple objects (Turtles) concurrently;
- Logo Grammar;
- Controlling Objects Properties;
- Using screen coordinates;
- Interactive programming;
- Looping and Animation;
- Working with variables;
- Making decisions;
- Recursive looping;
- Controlling processes
- Procedure with input;
- Procedures with output;
- Working with words and lists;
- Creating objects from procedures; and
- Completing individual projects that generalize the learned problem-solving skills to various areas of the curriculum.

#### **2. Resources Available to Students:**

Education computer Lab;

MicroWorld Multimedia Logo programming package

The Education Bank of Learning Objects

Textbook: MicroWorlds Pro: Hypermedia Project Development and Logo Scripting. SKyIES Publishing. 2420 Olive Street, Eugene OR 97405, USA

### **3. Grading Criteria:**

In addition to showing evidence of completing the applications in class, the projects will be graded at least in two periods in the middle and at the end of the semester according to the following criteria:

1. Proper program design
2. Adequate solution to problem
3. Mastery of the discussed programming techniques
4. Educational effectiveness of produced programs
5. Individual efforts in improving the selected graphics and multimedia elements.
6. Neatness and documentation of programs
7. Practicality of the developed programs.

### **4. Schedule:**

<b>Topic</b>	<b>No of Lectures</b>
<b>Computer Programming, Mental Skills, and Subject Matters</b>	<b>2</b>
<b>Introducing the Programming Software:</b>	<b>1</b>
<b>Programming In the form of Projects (Pages, Turtles, Textboxes, Procedures, Animations, Backgrounds, etc.</b>	<b>3</b>
<b>Starting a Programming Project</b>	<b>2</b>
<b>Controlling the Graphics Environment</b>	<b>2</b>
<b>Programming in the Form of Procedures</b>	<b>2</b>
<b>Controlling Objects Behaviors</b>	<b>1</b>
<b>Project and Processes</b>	<b>1</b>
<b>Improving Program Efficiency</b>	<b>1</b>
<b>Creating Objects Shapes</b>	<b>2</b>
<b>Working with Textboxes</b>	<b>2</b>
<b>Projects with Multiple pages</b>	<b>1</b>
<b>Adding Media Objects</b>	<b>2</b>
<b>Working with Variables</b>	<b>2</b>
<b>Working with Geometry</b>	<b>2</b>
<b>Recursion</b>	<b>1</b>
<b>Working with Logical Operators</b>	<b>1</b>
<b>Working with Conditional Statements</b>	<b>1</b>
<b>Interactive Programming</b>	<b>2</b>
<b>Uploading Projects into Internet Sites</b>	<b>1</b>
<b>Total</b>	<b>32</b>