Module Specification

1. Factual information			
Module title	**MS102: Physics**	**Level**	**1**
Module tutor	TBA	**Credit value**	**10**
Module type	Taught	**Notional learning hours**	**3**

2. Rationale for the module and its links with other modules
An understanding of the physical phenomena underlying the operation of devices involved in information processing and transmission can lead to better understanding of those devices. In addition, software developers of computer games frequently require knowledge of the behavior of physical objects in order to produce realistic games. Finally, as a fundamental science, a good understanding of physics and its techniques will help students develop a better understanding of nature and how to approach studying it. The module has implicit links to computer communication and software development modules, in addition to the final year project.

3. Aims of the module
• To impart knowledge and understanding of fundamental concepts of physics likely to be needed by the students for later modules and future careers. • To develop an appreciation of physics' tools and techniques for understanding the real world. • To develop transferrable problem-solving skills that can be applied in other areas.

4. Pre-requisite modules or specified entry requirements
This is 4-credit hour level 1 module and no pre-requisite is required for its study beyond basic high school math. Students are also expected to have English proficiency in reading and writing equivalent to EL111.

5. Intended learning outcomes	
A. Knowledge and understanding	**Learning and teaching strategy**
Upon completing this module, students will be able to: **A1.** Explain the various important units of physics and the concept of dimensional analysis and the representation and manipulation of physical quantities **A2.** Outline the laws of classical mechanics **A3.** Contrast and differentiate among the different types of waves and summarize their properties **A4.** Explain electric forces and fields and summarize their properties **A5.** Illustrate and explain basic passive electric circuits	• 25% face-to-face tutorial sessions • TMA work • Module learning text book and support material • Group discussions

B. Cognitive skills	**Learning and teaching strategy**
Upon completing this module, students will be able to: **B1.** Identify concepts and quantities in physics precisely beyond what is used in everyday language. **B2.** Apply strategies for solving problems in physics in different situations. **B3.** Use vector algebra to the study of mechanics in two dimensions. **B4.** Analyze passive electric circuits. **B5.** Analyze wave propagation in different materials.	• 25% face-to-face tutorial sessions • TMA work • Module learning textbook and support material • Group in-class practice

C. Practical and professional skills	**Learning and teaching strategy**
Upon completing this module, students will be able to:	• 25% face-to-face tutorial sessions • TMA work • Module learning textbook and support material • Group problem solving

C. Practical and professional skills	Learning and teaching strategy
C1. Use and interpret different types of graphs to display the relationship between variables **C2.** Analyze the forces of static and dynamic bodies in simple mechanical systems **C3.** Calculate the velocity and acceleration of bodies in different types of plane motion **C4.** Determine basic parameters of waves propagating in different materials **C5.** Calculate voltages and currents in passive electric circuits	

D. Key transferable skills	Learning and teaching strategy
Upon completing this module, students will be able to: **D1.** Use the learning Management System (LMS) effectively to improve own learning performance. **D2.** Demonstrate active participation and contribution to classroom discussions. **D3.** Improve own learning and performance through self-reflection. **D4.** Demonstrate effective communicate about technical matters.	• 25% face-to-face tutorial sessions • TMA work • Module learning booklets and support material • Interactions with and through the LMS

6. Indicative content.
• General introduction • Force • Acceleration and Newton's second law of motion • Motion with constant acceleration • Circular motion • Linear momentum • Waves

6. Indicative content.
• Electric forces and fields • Electric current and circuits • Diffraction and refraction

7. Assessment strategy, assessment methods and their relative weightings
TMA Work: 20% MTA: 30% Exam: 50%

8. Mapping of Assessment Tasks to learning outcomes

	Learning outcomes																		
Assessment tasks	**A 1**	**A 2**	**A 3**	**A 4**	**A 5**	**B 1**	**B 2**	**B 3**	**B 4**	**B 5**	**C 1**	**C 2**	**C 3**	**C 4**	**C 5**	**D 1**	**D 2**	**D 3**	**D 4**
TMA	✓	✓	✓			✓	✓	✓			✓	✓	✓			✓		✓	✓
MTA	✓	✓	✓			✓	✓	✓			✓	✓	✓			✓		✓	✓
Final Exam		✓	✓	✓	✓		✓	✓	✓	✓		✓	✓	✓	✓				✓

9. Teaching staff associated with the module	
Tutor's name and contact details	Contact hours
TBA	Email: nkamel@aou.edu.eg

10. Key reading list

Author	Year	Title	Publisher	Location
Giambattista, A., Richardson, B. M., Richardson, R. C.	2013	**College Physics**	McGrawHill	USA
Narciso Garcia and Arthur Damask	1991	**Physics for Computer Science Students**	Springer Link	USA
Hugh D. Young, Roger A. Freedman and A. Lewis Ford	2011	**University Physics with Modern Physics**	Addison Wesley	USA
David Halliday, Robers Resnick and Jearl Walker	2010	**Fundamentals of Physics,**	Wiley	USA

11. Other indicative text (e.g. websites)
https://lms.arabou.edu.kw/ http://highered.mcgraw-hill.com/sites/0073512141/information_center_view0/