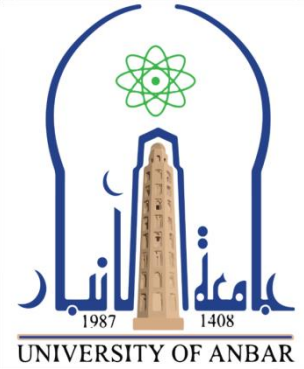


## Name of the University

جامعة الانبار



*First Cycle – Bachelor's Degree (B.Sc.) - Physics*

بكالوريوس – علوم فيزياء



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## 1. Overview

This catalogue is about the courses (modules) given by the program of Physics Department to gain the Bachelor of Science degree. The program delivers (xx) Modules with (6000) total student workload hours and 240 total ECTS. The module delivery is based on the Bologna Process.

نظرة عامة

يتناول هذا الدليل المواد الدراسية التي يقدمها برنامج قسم علوم الفيزياء للحصول على درجة بكالوريوس العلوم. يقدم البرنامج (48) مادة دراسية، على سبيل المثال، مع (٦٠٠٠) إجمالي ساعات حمل الطالب و ٢٤٠ إجمالي وحدات أوروبية. يعتمد تقديم المواد الدراسية على عملية بولونيا.

## 2. Undergraduate Courses 2023-2024

### Module 1

Code	Course/Module Title	ECTS	Semester
PHY-111	Mechanics I	7	1
Class (hr/w)	Lect/Lab./Prac./Tutor	SSWL (hr/sem)	USWL (hr/w)
2	0/2/0/2	94	81
Description			
This section includes a description of the module, 100-150 words			

### Module 2

Code	Course/Module Title	ECTS	Semester
PHY-112	Electricity	7	1
Class (hr/w)	Lect/Lab./Prac./Tutor	SSWL (hr/sem)	USWL (hr/w)
2	0/2/0/1	79	96
Description			
This section includes a description of the module, 100-150 words			

### Module 3

Code	Course/Module Title	ECTS	Semester
PHY-113	Mathematics I	5	1
Class (hr/w)	Lect/Lab./Prac./Tutor	SSWL (hr/sem)	USWL (hr/w)
2	0/0/0/2	63	62
Description			
This section includes a description of the module, 100-150 words			

#### Module 4

Code	Course/Module Title	ECTS	Semester
SCI-101	Computer Programming I	4	1
Class (hr/w)	Lect/Lab./Prac./Tutor	SSWL (hr/sem)	USWL (hr/w)
2	0/2/0/0	64	36
Description			
This section includes a description of the module, 100-150 words			

#### Module 5

Code	Course/Module Title	ECTS	Semester
UNI-103	Human Rights and democracy	4	1
Class (hr/w)	Lect/Lab./Prac./Tutor	SSWL (hr/sem)	USWL (hr/w)
2	0/0/0/0	48	52
Description			
This section includes a description of the module, 100-150 words			

#### Module 6

Code	Course/Module Title	ECTS	Semester
UNI-102	Arabic Language	3	1
Class (hr/w)	Lect/Lab./Prac./Tutor	SSWL (hr/sem)	USWL (hr/w)
2	0/2/1/0	48	27
Description			
This section includes a description of the module, 100-150 words			

**Module 7**

<b>Code</b>	<b>Course/Module Title</b>	<b>ECTS</b>	<b>Semester</b>
PHY-121	Mechanics II	7	1
<b>Class (hr/w)</b>	<b>Lect/Lab./Prac./Tutor</b>	<b>SSWL (hr/sem)</b>	<b>USWL (hr/w)</b>
2	0/2/0/2	94	81
<b>Description</b>			
This section includes a description of the module, 100-150 words			

**Module 8**

<b>Code</b>	<b>Course/Module Title</b>	<b>ECTS</b>	<b>Semester</b>
PHY-122	Magnetism	7	1
<b>Class (hr/w)</b>	<b>Lect/Lab./Prac./Tutor</b>	<b>SSWL (hr/sem)</b>	<b>USWL (hr/w)</b>
2	0/2/0/2	94	81
<b>Description</b>			
This section includes a description of the module, 100-150 words			

**Module 9**

<b>Code</b>	<b>Course/Module Title</b>	<b>ECTS</b>	<b>Semester</b>
PHY-123	Mathematics II	5	1
<b>Class (hr/w)</b>	<b>Lect/Lab./Prac./Tutor</b>	<b>SSWL (hr/sem)</b>	<b>USWL (hr/w)</b>
2	0/0/0/1	48	53
<b>Description</b>			
This section includes a description of the module, 100-150 words			

**Module 10**

<b>Code</b>	<b>Course/Module Title</b>	<b>ECTS</b>	<b>Semester</b>
PHY-124	Computer Programming II	4	1
<b>Class (hr/w)</b>	<b>Lect/Lab./Prac./Tutor</b>	<b>SSWL (hr/sem)</b>	<b>USWL (hr/w)</b>
1	0/0/2/0	72	53
<b>Description</b>			
This section includes a description of the module, 100-150 words			

**Module 11**

<b>Code</b>	<b>Course/Module Title</b>	<b>ECTS</b>	<b>Semester</b>
PHY-125	General Astronomy	3	1
<b>Class (hr/w)</b>	<b>Lect/Lab./Prac./Tutor</b>	<b>SSWL (hr/sem)</b>	<b>USWL (hr/w)</b>
2	0/0/0/1	48	27
<b>Description</b>			
This section includes a description of the module, 100-150 words			

**Module 12**

<b>Code</b>	<b>Course/Module Title</b>	<b>ECTS</b>	<b>Semester</b>
UNI-101	English Language	4	1
<b>Class (hr/w)</b>	<b>Lect/Lab./Prac./Tutor</b>	<b>SSWL (hr/sem)</b>	<b>USWL (hr/w)</b>
4	0/0/0/0	63	37
<b>Description</b>			
This section includes a description of the module, 100-150 words			

**Module 13**

<b>Code</b>	<b>Course/Module Title</b>	<b>ECTS</b>	<b>Semester</b>
PHY-211	Modern Physics I	6	1
<b>Class (hr/w)</b>	<b>Lect/Lab./Prac./Tutor</b>	<b>SSWL (hr/sem)</b>	<b>USWL (hr/w)</b>
2	0/2/0/1	79	71
<b>Description</b>			
This section includes a description of the module, 100-150 words			

**Module 14**

<b>Code</b>	<b>Course/Module Title</b>	<b>ECTS</b>	<b>Semester</b>
PHY-212	Heat and Thermodynamic	6	1
<b>Class (hr/w)</b>	<b>Lect/Lab./Prac./Tutor</b>	<b>SSWL (hr/sem)</b>	<b>USWL (hr/w)</b>
2	0/2/0/1	79	71

Description			
This section includes a description of the module, 100-150 words			

### Module 15

Code	Course/Module Title	ECTS	Semester
PHY-213	Analytical Mechanics I	4	1
Class (hr/w)	Lect/Lab./Prac./Tutor	SSWL (hr/sem)	USWL (hr/w)
2	0/2/0/1	48	52
Description			
This section includes a description of the module, 100-150 words			

### Module 16

Code	Course/Module Title	ECTS	Semester
PHY-214	Analog Electronics	6	1
Class (hr/w)	Lect/Lab./Prac./Tutor	SSWL (hr/sem)	USWL (hr/w)
2	0/2/0/1	79	71
Description			
This section includes a description of the module, 100-150 words			

### Module 17

Code	Course/Module Title	ECTS	Semester
PHY-215	MathematicsIII	4	1
Class (hr/w)	Lect/Lab./Prac./Tutor	SSWL (hr/sem)	USWL (hr/w)
2	0/0/0/1	48	52
Description			
This section includes a description of the module, 100-150 words			

### Module 18

Code	Course/Module Title	ECTS	Semester
PHY-216	Numerical Analytic	4	1
Class (hr/w)	Lect/Lab./Prac./Tutor	SSWL (hr/sem)	USWL (hr/w)

2	0/2/0/0	63	37
<b>Description</b>			
This section includes a description of the module, 100-150 words			

### Module 19

<b>Code</b>	<b>Course/Module Title</b>	<b>ECTS</b>	<b>Semester</b>
PHY-221	Modren Physics II	4	1
<b>Class (hr/w)</b>	<b>Lect/Lab./Prac./Tutor</b>	<b>SSWL (hr/sem)</b>	<b>USWL (hr/w)</b>
2	0/0/0/1	48	71
<b>Description</b>			
This section includes a description of the module, 100-150 words			

### Module 20

<b>Code</b>	<b>Course/Module Title</b>	<b>ECTS</b>	<b>Semester</b>
PHY-222	Heat and Thermodynamic	6	1
<b>Class (hr/w)</b>	<b>Lect/Lab./Prac./Tutor</b>	<b>SSWL (hr/sem)</b>	<b>USWL (hr/w)</b>
2	0/2/0/1	79	71
<b>Description</b>			
This section includes a description of the module, 100-150 words			

### Module 21

<b>Code</b>	<b>Course/Module Title</b>	<b>ECTS</b>	<b>Semester</b>
PHY-223	Analytical Mechanics II	4	1
<b>Class (hr/w)</b>	<b>Lect/Lab./Prac./Tutor</b>	<b>SSWL (hr/sem)</b>	<b>USWL (hr/w)</b>
2	0/0/0/2	63	37
<b>Description</b>			
This section includes a description of the module, 100-150 words			

### Module 22

Code	Course/Module Title	ECTS	Semester
PHY-224	Digital Electronics	6	1
Class (hr/w)	Lect/Lab./Prac./Tutor	SSWL (hr/sem)	USWL (hr/w)
2	0/2/0/1	79	71
Description			
This section includes a description of the module, 100-150 words			

### Module 23

Code	Course/Module Title	ECTS	Semester
PHY-225	MathematicsIII	4	1
Class (hr/w)	Lect/Lab./Prac./Tutor	SSWL (hr/sem)	USWL (hr/w)
2	0/0/0/1	48	52
Description			
This section includes a description of the module, 100-150 words			

### Module 24

Code	Course/Module Title	ECTS	Semester
PHY-226	Geometrical Optics	6	1
Class (hr/w)	Lect/Lab./Prac./Tutor	SSWL (hr/sem)	USWL (hr/w)
2	0/2/0/1	79	71
Description			
This section includes a description of the module, 100-150 words			

### Module 25

Code	Course/Module Title	ECTS	Semester
PHY-311	Physical Optics	6	1
Class (hr/w)	Lect/Lab./Prac./Tutor	SSWL (hr/sem)	USWL (hr/w)
2	0/2/0/1	79	71
Description			
This section includes a description of the module, 100-150 words			



**Module 26**

<b>Code</b>	<b>Course/Module Title</b>	<b>ECTS</b>	<b>Semester</b>
PHY-312	Laser Physics I	6	1
<b>Class (hr/w)</b>	<b>Lect/Lab./Prac./Tutor</b>	<b>SSWL (hr/sem)</b>	<b>USWL (hr/w)</b>
2	0/2/0/1	79	71
<b>Description</b>			
This section includes a description of the module, 100-150 words			

**Module 27**

<b>Code</b>	<b>Course/Module Title</b>	<b>ECTS</b>	<b>Semester</b>
PHY-313	Quantum Mechanics II	4	1
<b>Class (hr/w)</b>	<b>Lect/Lab./Prac./Tutor</b>	<b>SSWL (hr/sem)</b>	<b>USWL (hr/w)</b>
2	0/0/0/2	63	37
<b>Description</b>			
This section includes a description of the module, 100-150 words			

**Module 28**

<b>Code</b>	<b>Course/Module Title</b>	<b>ECTS</b>	<b>Semester</b>
PHY-314	Material Physics I	4	1
<b>Class (hr/w)</b>	<b>Lect/Lab./Prac./Tutor</b>	<b>SSWL (hr/sem)</b>	<b>USWL (hr/w)</b>
2	0/2/0/1	78	22
<b>Description</b>			
This section includes a description of the module, 100-150 words			

**Module 29**

<b>Code</b>	<b>Course/Module Title</b>	<b>ECTS</b>	<b>Semester</b>
PHY-315	Semiconductor	5	1
<b>Class (hr/w)</b>	<b>Lect/Lab./Prac./Tutor</b>	<b>SSWL (hr/sem)</b>	<b>USWL (hr/w)</b>
2	0/0/0/0	49	76
<b>Description</b>			
This section includes a description of the module, 100-150 words			

**Module 30**

<b>Code</b>	<b>Course/Module Title</b>	<b>ECTS</b>	<b>Semester</b>
PHY-316	Mathematical Physics I	5	1
<b>Class (hr/w)</b>	<b>Lect/Lab./Prac./Tutor</b>	<b>SSWL (hr/sem)</b>	<b>USWL (hr/w)</b>
2	0/0/0/0	48	77
<b>Description</b>			
This section includes a description of the module, 100-150 words			

**Module 31**

<b>Code</b>	<b>Course/Module Title</b>	<b>ECTS</b>	<b>Semester</b>
PHY-321	sound and wave motion	4	1
<b>Class (hr/w)</b>	<b>Lect/Lab./Prac./Tutor</b>	<b>SSWL (hr/sem)</b>	<b>USWL (hr/w)</b>
2	0/2/0/1	79	71
<b>Description</b>			
This section includes a description of the module, 100-150 words			

**Module 32**

<b>Code</b>	<b>Course/Module Title</b>	<b>ECTS</b>	<b>Semester</b>
PHY-322	Laser applications	6	1
<b>Class (hr/w)</b>	<b>Lect/Lab./Prac./Tutor</b>	<b>SSWL (hr/sem)</b>	<b>USWL (hr/w)</b>
2	0/2/0/0	79	71
<b>Description</b>			

This section includes a description of the module, 100-150 words

### Module 33

Code	Course/Module Title	ECTS	Semester
PHY-323	Quantum Mechanics II	5	1
Class (hr/w)	Lect/Lab./Prac./Tutor	SSWL (hr/sem)	USWL (hr/w)
2	0/0/0/1	63	62
Description			
This section includes a description of the module, 100-150 words			

### Module 34

Code	Course/Module Title	ECTS	Semester
PHY-324	statistical mechanics I	6	1
Class (hr/w)	Lect/Lab./Prac./Tutor	SSWL (hr/sem)	USWL (hr/w)
2	0/2/0/0	79	71
Description			
This section includes a description of the module, 100-150 words			

### Module 35

Code	Course/Module Title	ECTS	Semester
PHY-325	Mathematical Physics II	5	1
Class (hr/w)	Lect/Lab./Prac./Tutor	SSWL (hr/sem)	USWL (hr/w)
2	0/0/0/0	63	62
Description			
This section includes a description of the module, 100-150 words			

### Module 36

Code	Course/Module Title	ECTS	Semester
PHY-326	Modeling and simulation	4	1
Class (hr/w)	Lect/Lab./Prac./Tutor	SSWL (hr/sem)	USWL (hr/w)
2	0/0/0/0	33	67
Description			
This section includes a description of the module, 100-150 words			

### Module 37

Code	Course/Module Title	ECTS	Semester
PHY-411	Nuclear Physics I	7	1
Class (hr/w)	Lect/Lab./Prac./Tutor	SSWL (hr/sem)	USWL (hr/w)
2	0/2/0/1	94	81
Description			
This section includes a description of the module, 100-150 words			

### Module 38

Code	Course/Module Title	ECTS	Semester
PHY-412	Solid State Physics I	7	1
Class (hr/w)	Lect/Lab./Prac./Tutor	SSWL (hr/sem)	USWL (hr/w)
2	0/2/0/1	94	81
Description			
This section includes a description of the module, 100-150 words			

### Module 39

Code	Course/Module Title	ECTS	Semester
PHY-413	Electromagnetics Theory I	4	1
Class (hr/w)	Lect/Lab./Prac./Tutor	SSWL (hr/sem)	USWL (hr/w)
2	0/0/0/2	63	37
Description			
This section includes a description of the module, 100-150 words			

**Module 40**

<b>Code</b>	<b>Course/Module Title</b>	<b>ECTS</b>	<b>Semester</b>
PHY-414	Nanoscience I	4	1
<b>Class (hr/w)</b>	<b>Lect/Lab./Prac./Tutor</b>	<b>SSWL (hr/sem)</b>	<b>USWL (hr/w)</b>
2	0/0/0/2	63	37
<b>Description</b>			
This section includes a description of the module, 100-150 words			

**Module 41**

<b>Code</b>	<b>Course/Module Title</b>	<b>ECTS</b>	<b>Semester</b>
PHY-415	Nuclear spectrum	4	1
<b>Class (hr/w)</b>	<b>Lect/Lab./Prac./Tutor</b>	<b>SSWL (hr/sem)</b>	<b>USWL (hr/w)</b>
2	0/0/0/0	48	52
<b>Description</b>			
This section includes a description of the module, 100-150 words			

**Module 42**

<b>Code</b>	<b>Course/Module Title</b>	<b>ECTS</b>	<b>Semester</b>
PHY-416	statistical mechanics II	4	1
<b>Class (hr/w)</b>	<b>Lect/Lab./Prac./Tutor</b>	<b>SSWL (hr/sem)</b>	<b>USWL (hr/w)</b>
2	0/2/0/1	32	68
<b>Description</b>			
This section includes a description of the module, 100-150 words			

**Module 43**

<b>Code</b>	<b>Course/Module Title</b>	<b>ECTS</b>	<b>Semester</b>
PHY-421	Nuclear Physics II	7	1
<b>Class (hr/w)</b>	<b>Lect/Lab./Prac./Tutor</b>	<b>SSWL (hr/sem)</b>	<b>USWL (hr/w)</b>
2	0/2/0/1	79	96
<b>Description</b>			
This section includes a description of the module, 100-150 words			

**Module 44**

<b>Code</b>	<b>Course/Module Title</b>	<b>ECTS</b>	<b>Semester</b>
PHY-422	Solid State Physics II	7	1
<b>Class (hr/w)</b>	<b>Lect/Lab./Prac./Tutor</b>	<b>SSWL (hr/sem)</b>	<b>USWL (hr/w)</b>
2	0/2/0/1	79	96
<b>Description</b>			
This section includes a description of the module, 100-150 words			

**Module 45**

<b>Code</b>	<b>Course/Module Title</b>	<b>ECTS</b>	<b>Semester</b>
PHY-423	Electromagnetics Theory II	4	1
<b>Class (hr/w)</b>	<b>Lect/Lab./Prac./Tutor</b>	<b>SSWL (hr/sem)</b>	<b>USWL (hr/w)</b>
2	0/0/0/0	63	37
<b>Description</b>			
This section includes a description of the module, 100-150 words			

**Module 46**

<b>Code</b>	<b>Course/Module Title</b>	<b>ECTS</b>	<b>Semester</b>
PHY-424	medical Physics	4	1
<b>Class (hr/w)</b>	<b>Lect/Lab./Prac./Tutor</b>	<b>SSWL (hr/sem)</b>	<b>USWL (hr/w)</b>
2	0/0/0/0	63	37
<b>Description</b>			
This section includes a description of the module, 100-150 words			

## Module 47

Code	Course/Module Title	ECTS	Semester
PHY-425	Practical Physics	4	1
Class (hr/w)	Lect/Lab./Prac./Tutor	SSWL (hr/sem)	USWL (hr/w)
2	0/0/0/0	63	37
Description			
This section includes a description of the module, 100-150 words			

## Module 48

Code	Course/Module Title	ECTS	Semester
PHY-426	Research project	4	1
Class (hr/w)	Lect/Lab./Prac./Tutor	SSWL (hr/sem)	USWL (hr/w)
2	0/0/0/0	48	52
Description			
This section includes a description of the module, 100-150 words			

## Contact

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