



**Ministry of Higher education and Scientific
Research**

**UNIVERSITY OF ANBAR
COLLEGE OF EDUCATION FOR PURE
SCIENCE**

Department of physics

Department logo

**Department of Physics
CATALOUGE
2021/2022**

Vision

A scientific and educational department that seeks to lead in university education and scientific research locally and globally in a way that contributes to the service of society and achieve sustainable development

Mission

Excellence in the preparation of educators and researchers knowledgeable and practitioners and professional ethically committed by creating a stimulating environment and associate to the institutions of society

Programme Educational Objectives (CEOs)

Total credit hours of courses according to the adopted levels

Courses		Levels				Total
		First	Second	Third	Fourth	
University	Compulsory	-	-	-	-	-
	Elective	8	4	2	2	16
Total		8	2	-	-	10
College	Compulsory	4	6	4	8	22
	Elective	-	-	-	-	-
Total		4	6	4	8	22
Department	Compulsory	23	18	25	28	94
	Elective	-	8	6	2	16
Total		23	26	31	30	110
Total		35	36	37	38	148

Graduation Requirements

Requirements	Credit
University Requirements	16
College Requirements	22
Department Requirements	94
Elective Courses	16
Total	148

Course code	Course Title	Credit hours	Weekly hours	Prerequisite
UOA140	English Language-I	2	2	
UOA240	English Language-II	2	2	
UOA340	English Language-III	2	2	
UOA440	English Language-IV	2	2	
UOA135	Human Rights Democracy	2	2	
UOA137	Arabic Language	2	2	
UOA141	Computer science	2	2	
UOA241	Programming	2	2	
Total		16	16	

Course Code	Course Title	Credit hours	Weekly hours			Prerequisite
			Lec.	Tut.	Lab	
EPS101	Educational Psychology	2	2			
EPS102	Fundamentals of Education	2	2			
EPS202	General Psychology	2	2			EHS101
EPS201	Educational Administration	2	2			EHS120
EPS211	Methods of Scientific Research	2	2			
EPS311	Curricula and Methodology	2	2			
EPS312	Educational Counselling and Psychological Health	2	2			
EPS411	Measurement and Evaluation	2	2			
EPS412	Teaching Practicum	2	2			
EPS414	Classroom Observation	2	2			
Total		22	22			

University Requirements: 13 credit hours

College Requirements: 22 credit hours

Department Requirements: credit hours

Prerequisite	Weekly hours			Credit hours	Course Title	Course Code
	Lab	Tut	Lec			
	3	-	2	3	Electricity	PHE121
PYS125	-	-	2	2	Magneticty	PHE122
	3	-	3	4	Mechanic 1	PHE123
PYS123	3	-	3	4	Mechanic 2	PHE124
	3	-	3	4	optical engineering	PHE125
	-	-	2	2	Heat and Properties of Matter	PHE126
	-	-	2	2	Mathematics 1	PHE127
	-	-	2	2	Liner algebra	PHE128
PYS125	3	-	3	4	Optical physics	PHE221
PYS125	3	-	3	4	Advance electric	PHE222
PYS122	3	-	3	4	Advance magnetic	PHE223
	-	-	2	2	Sound and wave motion	PHE224
PYS127	-	-	3	3	Advance calculus	PHE225
PYS127	-	-	3	3	Deferential equation	PHE226
	3	-	3	4	Atomic physics	PHE321
PYS321	3	-	3	4	Molecular physics	PHE322
	3	-	3	4	Electronics	PHE323
PYS323	3	-	3	4	Electronic circuit	PHE324
	-	-	2	2	Quantum mechanics 1	PHE325
	-	-	2	2	Analytical mechanics	PHE326
PYS226 PYS225	-	-	2	2	Complex function	PHE327
	-	-	3	3	Statistical mechanic	PHE328

	-	-	3	3	Solid state physics 1	PHE421
PYS421	-	-	3	3	Solid state physics 2	PHE422
PYS325	-	-	2	2	Quantum mechanics 2	PHE423
	3	-	3	4	Nuclear physics	PHE424
PYS424	3	-	3	4	Radiation physics	PHE425
	3	-	3	3	Electromagnetic	PHE426
PYS426	3	-	3	3	Electrodynamics	PHE427
	-	-	2	2	Laser physics 1	PHE428
	2	-	-	2	Classroom Observation	PHE429
	47	-	76	110	المجموع	

Elective Courses

Course Code	Course Title	Credit hours	Weekly hours			Prerequisite
			Lec.	Tut.	Lab	
PHE227	Healthy physics	2	2	-	-	
PHE228	Astronomy physics	2	2	-	-	
PHE229	Space physics	2	2	-	-	
PHE230	Thermodynamic	2	2	-	-	
PHE329	New and Renewable Energy	2	2	-	-	
PHE330	Crystals	2	2	-	-	
PHE331	Sets theory	2	2	-	-	
PHE430	Nanotechnology	2	2	-	-	
Total		16	16			

Total Credits = 148

Total In-Touch Hours = 222

FIRST LEVEL

Course code	Course Title	Credit Hours	Weekly hours			Prerequisite
			Lec	Tut.	Lab	
PHE121	Electricity	3	2		3	
PHE122	Magneticty	2	2		-	PYS125
PHE123	Mechanic 1	4	3		3	
PHE124	Mechanic 2	4	3		3	PYS123
PHE125	optical engineering	4	3		3	
PHE126	Heat and Properties of Matter	2	2		-	
PHE127	Mathematics 1	2	2		-	
PHE128	Liner algebra	2	2		-	
PHE121	Electricity	3	2		3	
EPS101	Educational Psychology	2	2		-	
EPS120	Fundamentals of Education	2	2		-	
UOA140	English language	2	2		-	
UOA135	Human rights and democracy	2	2		-	
UOA137	Arabic language	2	2		-	
UOA142	Computer science	2	1		2	
Total		38	32		17	

SECOND LEVEL

Course code	Course Title	Credit Hours	Weekly hours			Prerequisite
			Lec	Tut.	Lab	
PHE221	Optical physics	4	3		3	PYS125
PHE222	Advance electric	4	3		3	PYS125
PHE223	Advance magnetic	4	3		3	PYS122
PHE224	Sound and wave motion	2	2		-	
PHE225	Advance calculus	3	3		-	PYS127
PHE226	Deferential equation	3	3		-	PYS127
PHE221	Optical physics	4	3		3	PYS125
PHE227	Healthy physics	2	2		-	
PHE228	Astronomy physics	2	2		-	
PHE229	Space physics	2	2		-	
PHE230	Thermodynamics	2	2		-	
EPS 211	General physiology	2	2			EHS101
EPS 202	Educational administration	2	2			EHS120
EPS 201	Methods of Scientific Research	2	2			
UOA240	English language 2	2	2			
UOA241	Programming	2	1		2	
Total		42	37		14	

THIRD LEVEL

Course code	Course Title	Credit Hours	Weekly hours			Prerequisite
			Lec	Tut.	Lab	
PHE321	Atomic physics	4	3		3	
PHE322	Molecular physics	4	3		3	PYS321
PHE323	Electronics	4	3		3	
PHE324	Electronic circuit	4	3		3	PYS323
PHE325	Quantum mechanics 1	2	2		-	
PHE326	Analytical mechanics	2	2		-	
PHE327	Complex function	2	2		-	PYS226 PYS225
PHE328	Statistical mechanic	3	3		-	
PHE329	New and renew energy	2	2		-	
PHE330	Crystals	2	2		-	
PHE331	Sets theory	2	2		-	
EPS311	Curricula and Methodology	2	2			
EPS312	Educational Counselling and Psychological Health	2	2			
UOA340	English language 3	2	2			
Total		37	33		12	

FOURTH LEVEL

Course code	Course Title	Credit Hours	Weekly hours			Prerequisite
			Lec	Tut.	Lab	
PHE421	Solid state physics 1	3	3		-	
PHE422	Solid state physics 2	3	3		-	PYS421
PHE423	Quantum mechanics 2	2	2		-	PYS325
PHE424	Nuclear physics	4	3		3	
PHE425	Radiation physics	4	3	-	3	PYS424
PHE426	Electromagnetic	3	3		3	
PHE427	Electrodynamics	3	3		3	PYS426
PHE428	Laser physics 1	2	2		-	
PHE429	Classroom Observation	2	-		2	
PHE430	Nanotechnology	2	2	-	-	
EPS 411	Measurement and Evaluation	2	2			
EPS 412	Teaching Practicum	2	2			
EPS 413	Classroom Observation	2		4		
EPS 414	Graduation Research Project	2	2			
Total		35	30	4	14	

Curriculum Map of the PEOs with courses according to learning outcomes

Programme Educational Objectives PEOs		1	2	3	4	5	6	7	8	9
FIRST LEVEL										
Course code	Course title	knowledge and understanding				Subject-specific skills				thinking skills
PHE121	Electricity	✓	✓			✓				✓
PHE122	Magnetism	✓	✓			✓				✓
PHE123	Mechanic 1	✓	✓			✓				✓
PHE124	Mechanic 2	✓	✓			✓				✓
PHE125	optical engineering	✓	✓			✓	✓			✓
PHE126	Heat and Properties of Matter	✓				✓				✓
PHE127	Mathematics 1	✓	✓			✓				✓
PHE128	Linear algebra	✓	✓			✓				✓
UOA142	Electricity	✓				✓				
EPS101	Educational Psychology	✓				✓				
EPS120	Fundamentals of Education	✓	✓			✓	✓			✓
UOA137	English language	✓				✓				✓
UOA140	Human rights and democracy	✓	✓			✓				✓
UOA135	Arabic language	✓	✓			✓				✓
UOA136	Computer science	✓				✓				

SECOND LEVEL											
Course code	Course title	knowledge and understanding				Subject-specific skills				thinking skills	
PHE221	Optical physics	✓	✓			✓	✓			✓	✓
PHE222	Advance electric	✓				✓	✓			✓	✓
PHE223	Advance magnetic	✓				✓				✓	✓
PHE224	Sound and wave motion	✓				✓				✓	✓
PHE225	Advance calculus	✓				✓				✓	✓
PHE226	Deferential equation	✓	✓			✓	✓	✓		✓	✓
PHE227	Optical physics	✓	✓			✓	✓	✓		✓	✓
PHE228	Healthy physics	✓	✓			✓	✓			✓	✓
PHE229	Astronomy physics	✓	✓			✓	✓			✓	✓
PHE230	Space physics	✓	✓			✓	✓			✓	
EPS 211	Thermodynamics	✓	✓			✓	✓	✓		✓	✓
EPS 202	General physiology	✓	✓			✓	✓	✓		✓	✓
EPS 201	Educational administration	✓	✓			✓	✓			✓	✓
UOA240	Methods of Scientific Research	✓	✓			✓	✓			✓	✓
UOA241	English language 2	✓	✓			✓	✓			✓	✓
	Programming	✓	✓			✓	✓			✓	✓

THIRD LEVEL											
Course code	Course title	knowledge and understanding				Subject-specific skills				thinking skills	
PHE321	Atomic physics	✓	✓			✓	✓			✓	
PHE322	Molecular physics	✓				✓				✓	
PHE323	Electronics	✓	✓			✓	✓			✓	✓
PHE324	Electronic circuit	✓	✓			✓	✓			✓	✓
PHE325	Quantum mechanics 1	✓				✓	✓			✓	
PHE326	Analytical mechanics	✓	✓			✓	✓			✓	✓
PHE327	Complex function	✓	✓			✓				✓	✓
PHE328	Statistical mechanic	✓	✓	✓		✓	✓			✓	✓
PHE329	New and renew energy	✓				✓					
PHE330	Crystals	✓	✓			✓	✓			✓	✓
PHE331	Sets theory	✓	✓			✓	✓			✓	
EPS311	Curricula and Methodology	✓				✓				✓	
EPS312	Educational Counselling and Psychological Health	✓	✓			✓	✓			✓	
UOA340	English language 3		✓			✓	✓			✓	

	FOURTH LEVEL										
Course code	Course title	knowledge and understanding				Subject-specific skills				thinking skills	
PHE421	Solid state physics 1	✓				✓				✓	
PHE422	Solid state physics 2	✓				✓				✓	
PHE423	Quantum mechanics 2	✓	✓			✓				✓	✓
PHE424	Nuclear physics	✓	✓	✓			✓				✓
PHE425	Radiation physics	✓	✓	✓			✓				✓
PHE426	Electromagnetic		✓								
PHE427	Electrodynamics	✓				✓				✓	
PHE428	Laser physics 1	✓				✓				✓	
PHE429	Classroom Observation	✓				✓	✓			✓	✓
PHE430	Nanotechnology	✓	✓			✓	✓			✓	
EPS 411	Measurement and Evaluation	✓	✓			✓				✓	
EPS 412	Teaching Practicum	✓				✓	✓			✓	✓
EPS 413	Classroom Observation	✓	✓			✓	✓			✓	
EPS 414	Graduation Research Project	✓	✓			✓				✓	