

Kingdom of Saudi Arabia
Umm Al-Qura University
Faculty of Applied Science
Physics Department

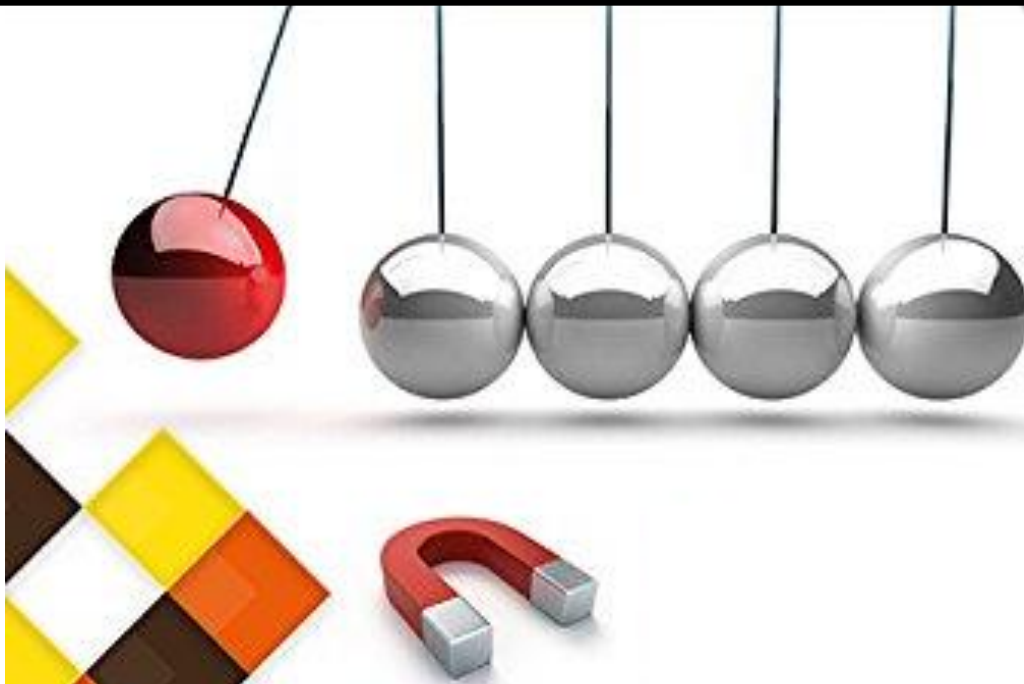


المملكة العربية السعودية
جامعة أم القرى
كلية العلوم التطبيقية
قسم الفيزياء

Handbook of Physics Program

Study Plan 19, 33, 37

Program Specification – Course Specification



Plan 19, 33, 37

بِسْمِ اللَّهِ الرَّحْمَنِ الرَّحِيمِ

وَقَالَ عِيسَى ابْنُ مَرْيَمَ
اللَّهُمَّ صَلِّ وَسَلِّمْ
وَبَارِكْ عَلَى سَيِّدِنَا مُحَمَّدٍ

Physics Program

Introduction to Plan
19, 33, 37





معالي مدير الجامعة
الدكتور بكري بن معتوق عساس



سعادة عميد الكلية
د. وليد بن جميل أطف



سعادة وكيلة الكلية لفرع الطالبات
د/ رجاء معتوق



سعادة وكيل الكلية
د/ حاتم الطس



سعادة وكيلة الكلية لشئون التعليم
والتطوير
د/ بدرية الجحدلي



سعادة وكيل الكلية للدراسات العليا
أ.د./ باسم حسين اصغر



سعادة وكيل الكلية للشئون الاكاديمية
الدكتور/ حسين ابو الريش



سعادة وكيل الكلية للتطوير الجامعي
الدكتور/ فهد الهاشمي



سعادة رئيس قسم الفيزياء
الدكتور صالح بن مرزوق اللقمانى



سعادة وكالة القسم لفرع الطالبات
الدكتوراه/ زينب مطر

مقدمة

الحمد لله رب العالمين والصلاة والسلام
على سيدنا ونبينا محمد وعلى آله
واصحابه والتابعين الى يوم الدين،

أنشئ قسم الفيزياء في عام 1385/1384 هـ الموافق 1965/1964م، كتوأماً لقسم الرياضيات،
وذلك عندما صدرت أول لائحة لكلية التربية بجامعة الملك عبد العزيز شطر مكة المكرمة، وقد تخرجت عدة
دفعات على نظام التخصص المزدوج (فيزياء ورياضيات).

استمر العمل على هذا النظام لمدة عشر سنوات، حتى عام 1395/1394 هـ حيث تم فصل قسم
الفيزياء عن قسم الرياضيات، وأصبح قسماً قائماً بذاته يمنح درجة البكالوريوس في الفيزياء والفيزياء الطبية.

و في عام 1397/1396 هـ، أدخل نظام الساعات المعتمدة على جامعة الملك عبد العزيز شطر
مكة المكرمة، وأصبح القسم يقدم مقرراته وفقاً لنظام الساعات المعتمدة. ويمنح درجة البكالوريوس في
الفيزياء. وفي عام 1401/1400 هـ تأسست جامعة أم القرى بمكة المكرمة، ثم انشئت كلية العلوم
التطبيقية وأصبح القسم تابعاً لها. وأصبح يمنح درجة البكالوريوس في الفيزياء و الفيزياء الطبية.

وهناك ثلاث خطط دراسية من أهم الخطط بالنسبة للقسم، وهي الخطة 19، والخطة 33، والخطة
37، والأخيرة هي الأحداث وهي قيد التنفيذ الآن، وفيما يلي نستعرض توزيع المقررات لبرنامج الفيزياء الخطة
37.19 , 33 ,

وفقنا الله وإياكم الى ما يحبه و يرضاه ،،،

لجنة المناهج الدراسية

قسم الفيزياء

Study plan 19 (Credit hours 142h)

First Year; Level 1 First Semester : Credit Hours 18				
Course		Hours	Prerequisite	
Code	Title		Code	Title
403101	General Physics 1	4		
402101	General Chemistry 1	3		
404101	Differentiation and Integration 1	4		
705101	English Language	2		
601101	Islamic Culture 1	2		
605101	Quran 1			

First Year; Level 2 Second Semester: Credit Hours 20				
Course		Hours	Prerequisite	
Code	Title		Code	Title
403102	General Physics 2	4	403101+404101	General Physics 1 + Differentiation and Integration 1
403121	Electricity and Magnetism	4	403101+404101	General Physics 1 + Differentiation and Integration 1
404102	Differentiation and Integration 2	4	404101	Differentiation and Integration 1
404140	Algebra Fundamental	4	404101	Differentiation and Integration 1
401101	General Biology Plant	2		
401102	General Biology Animal	2		

Study plan 19 (Credit hours 142h)

Second Year; Level 3 First Semester: Credit Hours 19				
Course		Hours	Prerequisite	
Code	Title		Code	Title
403212	Heat and Thermodynamic	3	404102+40310 2	Differentiation and Integration 2 + General Physics 2
403231	Optics	4	404102+40310 2	Differentiation and Integration 2 + General Physics 2
403240	Theoretical Physics 1	3	404102	Differentiation and Integration 2+ General Physics 2
403241	Classical Mechanics 1	4	404102+40310 2	Differentiation and Integration 2+ General Physics 2
403285	Measurements	3	403121	Electricity and Magnetism
501101	Arabic Language	2	-	

Second Year; Level 4 Second Semester: Credit Hours 18				
Course		Hours	Prerequisite	
Code	Title		Code	Title
403213	Statistical Thermodynamic	3	403212	Heat and Thermodynamic
403242	Theoretical Physics 2	3	403240	Theoretical Physics 1
403245	Classical Mechanics 2	3	403241	Classical Mechanics 1
403253	Atomic physics	4	403240+40231	Classical Mechanics 1+ Optics
705102	Communication in English 1	3	705101	English Language
601201	Islamic Culture 2	2	601101	

Study plan 19 (Credit hours 142h)

Third Year; Level 5 First Semester: Credit Hours 18				
Course		Hours	Prerequisite	
Code	Title		Code	Title
403332	Electromagnetism 1	3	403242+403285	Theoretical Physics 2 + Measurements
403344	Quantum Mechanics 1	3	403242+403253	Theoretical Physics 2 Atomic physics
403346	Theoretical Physics 3	3	403242	Theoretical Physics 2
403371	Solid Stat 1	4	403253	Atomic physics
601301	Islamic Culture 3	3	601201	English Language
605201	Quran 2	2	605101	Islamic Culture 2

Third Year; Level 6 Second Semester: Credit Hours 19				
Course		Hours	Prerequisite	
Code	Title		Code	Title
403342	Electromagnetism 2	3	403332	Electromagnetism 1
403345	Quantum Mechanics 2	3	403344	Quantum Mechanics 1
403361	Nuclear Physics 1	4	403344+403253	Quantum Mechanics 1 + Atomic physics
403382	Workshop	2	403371	Solid Stat 1
403383	Computer	2	403242	Theoretical Physics 2
705103	Communication in English 2	3	705102	Communication in English 1
601401	Islamic Culture 4	2	601301	Islamic Culture 3

Study plan 19 (Credit hours 142h)

Fourth Year; Level 7 First Semester: Credit Hours 22				
Course		Hours	Prerequisite	
Code	Title		Code	Title
403423	Electronics	4	403371	Solid Stat 1
403432	Advanced Optics	3	403346+4032 31	Theoretical Physics 3 + Optics
403462	Radiation Physics	3	403361	Nuclear Physics 1
403471	Semiconductor	3	403371	Solid Stat 1
403493	Project	5	Department	Department
605301	Quran 3	2	605201	Quran 2
102101	Alsera Alnabaweia	2		

Fourth Year; Level 8 Second Semester: Credit Hours 9				
Course		Hours	Prerequisite	
Code	Title		Code	Title
403461	Nuclear Physics 2	2	403361	Nuclear Physics 1
403463	Nuclear Technology	2	403462	Radiation Physics
403372	Solid State 2	2	403471	Semiconductor
605401	Quran 4	2	605301	Quran 3

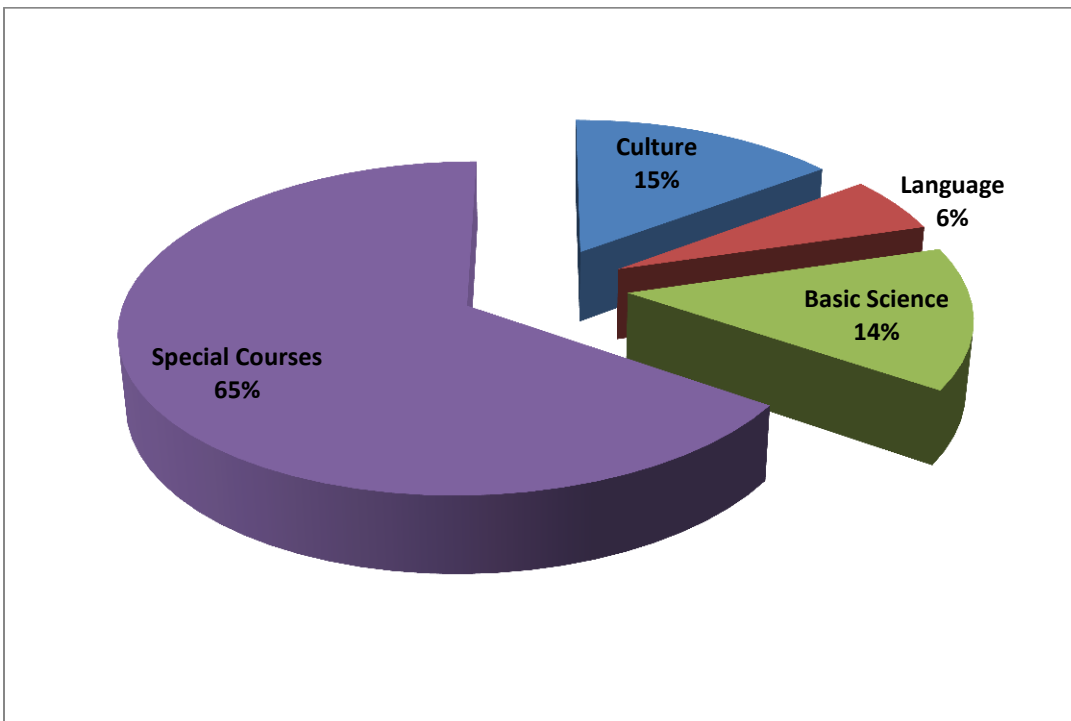


Fig. 1: The Curriculum Structure of the Program

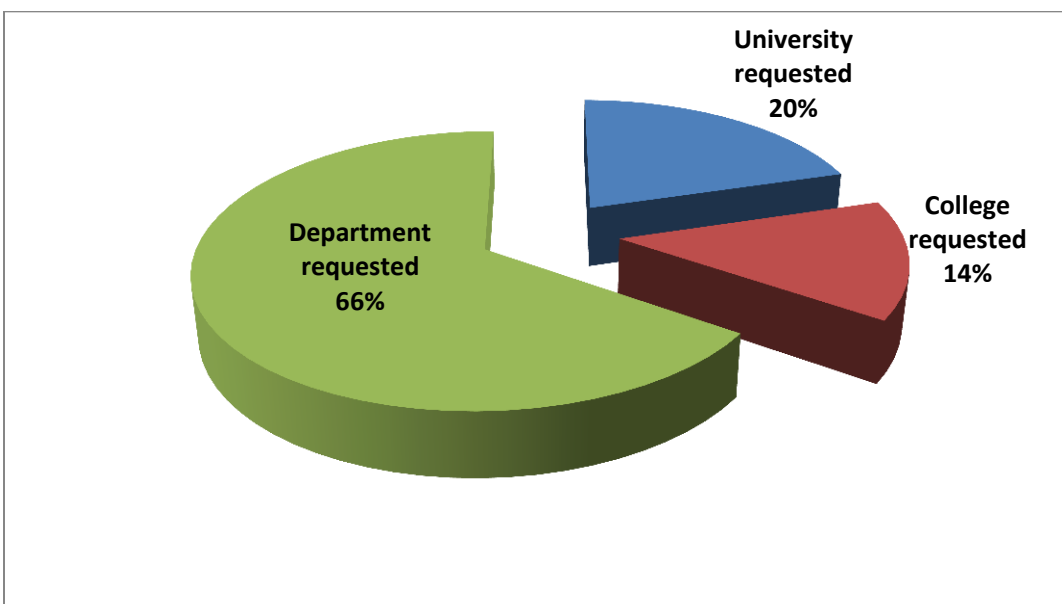


Fig. 2: Curriculum Distribution

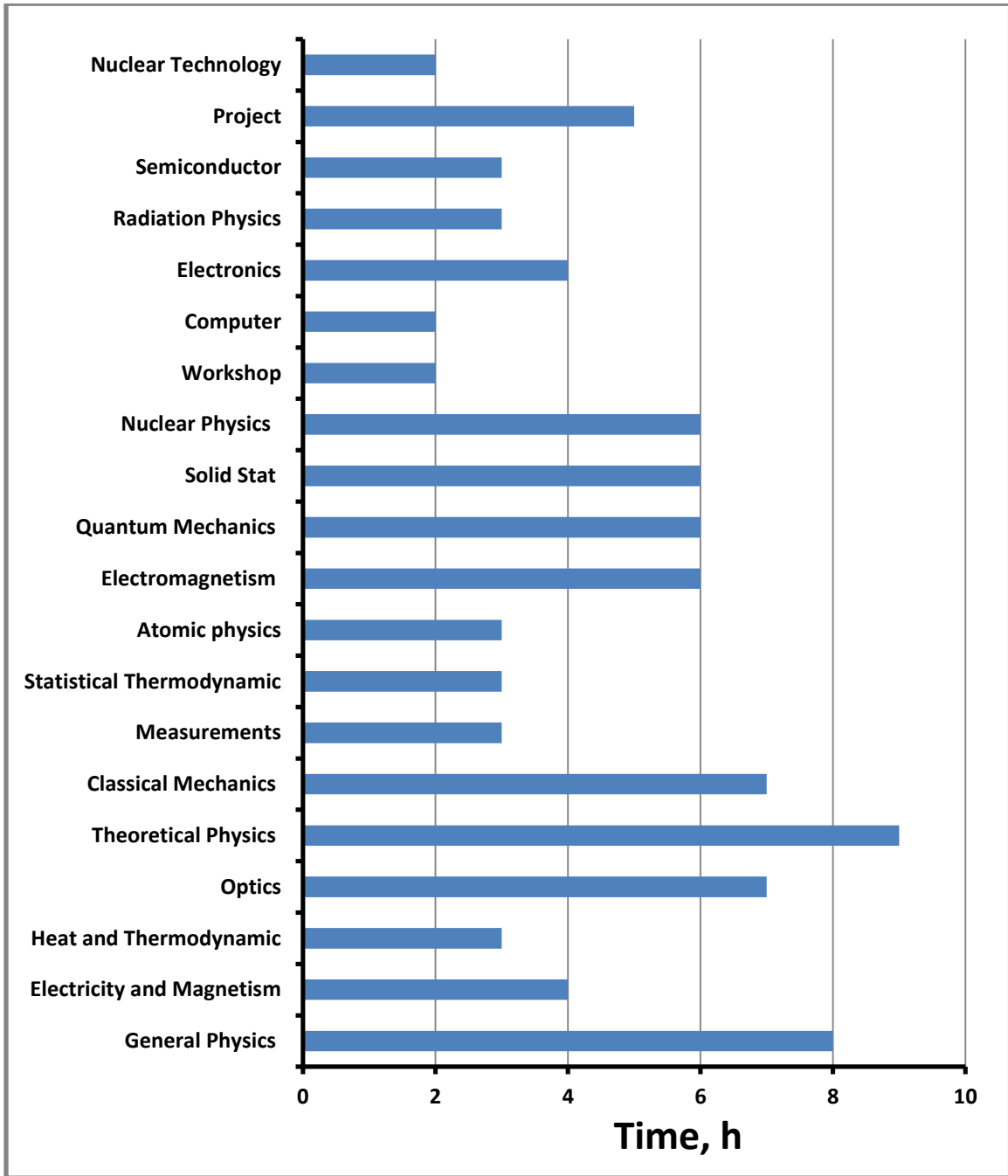


Fig. 3: Credit hours distribution

Study plan 33 (Credit hours 132 h)

First Year; Level 1 First Semester : Credit Hours 16				
Course		Hours	Prerequisite	
Code	Title		Code	Title
4800140	Calculus 1	4		
4800150	IT	2		
4800170	English Language	6		
4800130	General Physics (1)	4		

First Year; Level 2 Second Semester: Credit Hours 14				
Course		Hours	Prerequisite	
Code	Title		Code	Title
4800141	Calculus 2	4	4800140	Calculus 1
4800104	Learning Skills	3		
4800171	English Language	4	7004101	English Language
4800153	IT skills	3	4800150	IT

Study plan 33 (Credit hours 132h)

Second Year; Level 3 First Semester: Credit Hours 19				
Course		Hours	Prerequisite	
Code	Title		Code	Title
403243	Theoretical Methods in Physics (1)	2	4800141	Calculus 2
403210	Thermodynamics	2	4800141	Calculus 2
403200	Classical Physics	4	4800130	General Physics (1)
402101	General chemistry	4	4800130	General Physics (1)
404231	Statistics	3	4800141	Calculus 2
601101	Islamic Culture (1)	2		
605101	The Holy Qura'an (1)	2		

Second Year; Level 4 Second Semester: Credit Hours 15				
Course		Hours	Prerequisite	
Code	Title		Code	Title
403244	Theoretical Methods in Physics (2)	3	403243	Theoretical Methods in Physics (1)
403232	Optics	4	4800141	Calculus 2
403220	Classical Mechanics(1)	3	403243	Theoretical Methods in Physics (1)
403211	Statistical Thermodynamics	3	403210	Thermodynamics
605201	The Holy Qura'an (2)	2	605101	The Holy Qura'an (1)

Study plan 33 (Credit hours 132h)

Third Year; Level 5 First Semester: Credit Hours 20				
Course		Hours	Prerequisite	
Code	Title		Code	Title
403343	Theoretical Methods in Physics (3)	3	403244	Theoretical Methods in Physics (2)
403321	Classical Mechanics(2)	3	403220	Classical Mechanics(1)
403344	Quantum Mechanics (1)	3	403244	Theoretical Methods in Physics (2)
403201	Electromagnetism (1)	3	403200	Classical Physics
403350	Modern Physics	4	4032141	Theoretical Methods in Physics (1)
605301	The Holy Qura'an (3)	2	605201	The Holy Qura'an (2)
501101	Arabic Language	2		

Third Year; Level 6 Second Semester: Credit Hours 16				
Course		Hours	Prerequisite	
Code	Title		Code	Title
403345	Quantum Mechanics (2)	3	403344	Quantum Mechanics (1)
403370	Solid State Physics (1)	3	403344	Quantum Mechanics (1)
403331	Electromagnetism (2)	3	403201	Electromagnetism (1)
403380	Computational Physics	3	403344	Quantum Mechanics (1)
102101	Biography of prophet Mohamed (PBUH)	2		
601201	Islamic Culture (2)	2	601101	Islamic Culture (1)

Study plan 33 (Credit hours 132h)

Fourth Year; Level 7 First Semester: Credit Hours 22				
Course		Hours	Prerequisite	
Code	Title		Code	Title
403446	Quantum mechanics	2	403345	Quantum Mechanics (2)
403460	Nuclear Physics	4	403345	Quantum Mechanics (2)
403434	Advanced optics (1)	2	403232	Optics
403471	Semiconductors	2	403370	Solid State Physics (1)
403452	Atomic Physics	2	403345	Quantum Mechanics (2)
403473	Electronics	4	403370	Solid State Physics (1)
601301	Islamic Culture (3)	3	601201	Islamic Culture (2)
605401	The Holy Qura'an (4)	2	605301	The Holy Qura'an (3)

Fourth Year; Level 8 Second Semester: Credit Hours 10				
Course		Hours	Prerequisite	
Code	Title		Code	Title
403462	Radiation Physics	2	403460	Nuclear Physics
403472	Solid State Physics (2)	2	403370	Solid State Physics (1)
403465	Nuclear technology	2	403370	Solid State Physics (1)
403499	Graduated Project	2		Agreement of Department
601401	Islamic Culture (4)	2	601301	Islamic Culture (3)

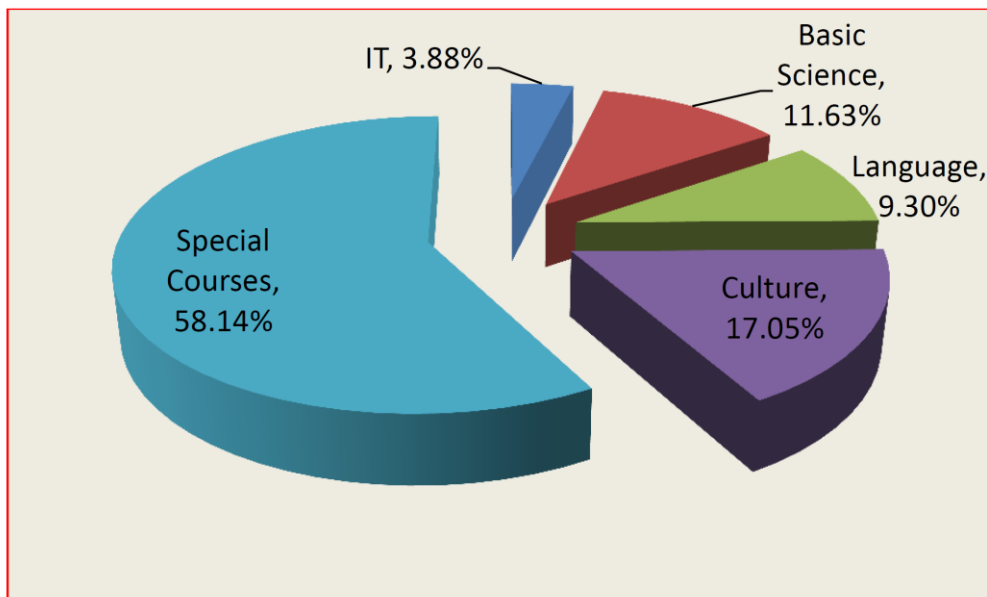


Fig. 4: The Curriculum Structure of the Program

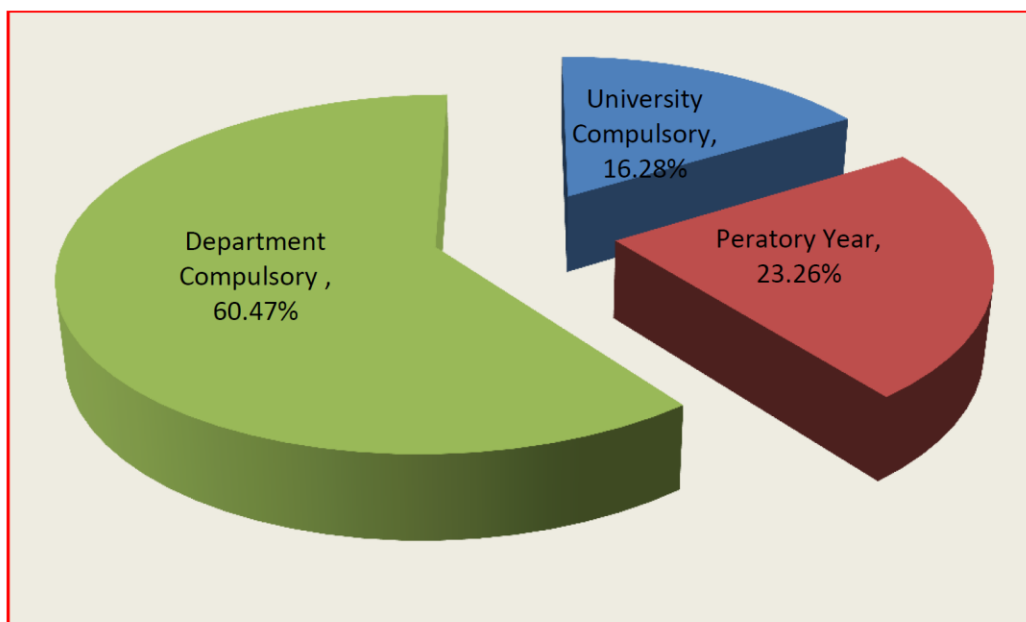


Fig. 5: Curriculum Distribution

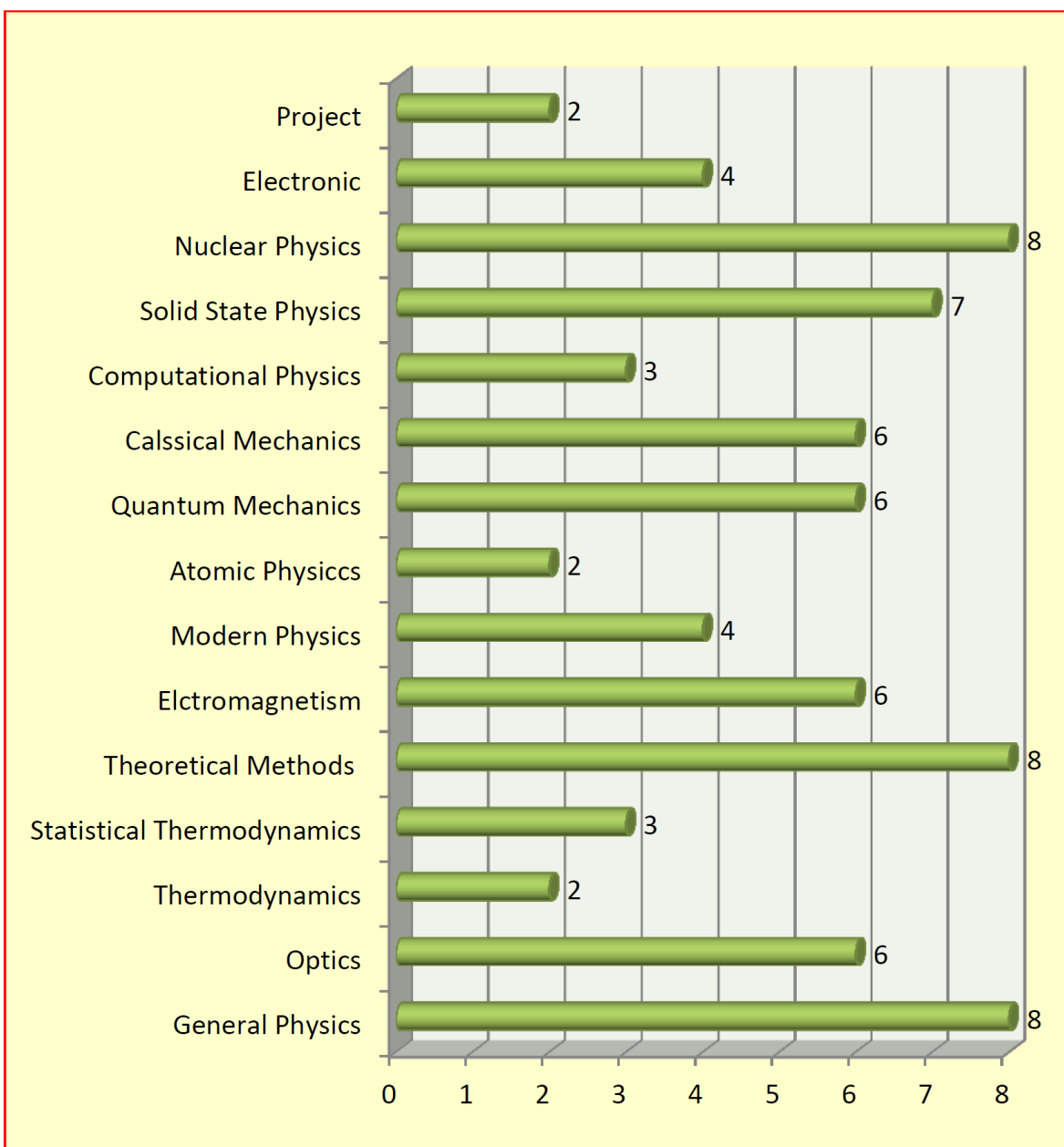


Fig. 6: Credit hours distribution

Study plan 37 (Credit hours 130h)

Level 1 : Credit Hours 16					
Course		Hours		Prerequisite	
Code	Title	L	P	Code	Title
4041101-4	Calculus	4	-		
4021101-4	General Chemistry	3	1		
7004101-4	English Language	4	-		
605101-2	The Holy Qura'an (1)	2	-		
601101-2	Islamic Culture (1)	2	-		

Level 2 : Credit Hours 16					
Course		Hours		Prerequisite	
Code	Title	L	P	Code	Title
4041101-4	General Biology	3	1		
4031101-4	General Physics	3	1		
7004102-4	English Language	4	-	7004101-4	English Language
501101-2	Arabic Language	2	-		
102101-2	Biography of prophet Mohamed (PBUH)	2	-		

Study plan 37 (Credit hours 130h)

Level 3 : Credit Hours 16					
Course		Hours		Prerequisite	
Code	Title	L	P	Code	Title
4042501-4	Differentiation and Integration	4	-	4041101-4	Calculus
4042402-4	Linear Algebra	4	-	4041101-4	Calculus
4032102-4	General Physics (2)	3	1	4031101-4	General Physics
4032121-4	Electricity and magnetism	3	1	4031101-4	General Physics

Level 4 : Credit Hours 17					
Course		Hours		Prerequisite	
Code	Title	L	P	Code	Title
4032141-4	Theoretical Methods in Physics (1)	4	-	4042501-4	Differentiation and Integration
4032131-4	Optics	3	1	4032102-4	General Physics (2)
4032150-4	Modern Physics	3	1	4032102-4	General Physics (2)
4032122-3	General Physics(3)	2	1	4032121-4	Electricity and magnetism
601201-2	Islamic Culture (2)	2	-	601101-2	Islamic Culture (1)

Study plan 37 (Credit hours 130h)

Level 5 : Credit Hours 17					
Course		Hours		Prerequisite	
Code	Title	L	P	Code	Title
4033142-4	Theoretical Methods in Physics (2)	4	-	4032141-4	Theoretical Methods in Physics (1)
4033143-4	Classical Mechanics(1)	4	-	4032102-4	General Physics (2)
4033145-4	Quantum Mechanics (1)	4	-	4032141-4	Theoretical Methods in Physics (1)
4033110-3	Heat and Thermodynamics	3	-	4032102-4	General Physics (2)
605201-2	The Holy Qura'an (2)	2	-	605101-2	The Holy Qura'an (1)

Level 6 : Credit Hours 16					
Course		Hours		Prerequisite	
Code	Title	L	P	Code	Title
4033132-3	Electromagnetism (1)	3	-	4032141-4	Theoretical Methods in Physics (1)
4033146-3	Quantum Mechanics (2)	3	-	4033145-4	Quantum Mechanics (1)
4033111-3	Statistical Thermodynamics	3	-	4033110-3	Heat and Thermodynamics
4033144-2	Classical Mechanics (2)	2	-	4033143-4	Classical Mechanics(1)
605301-2	The Holy Qura'an (3)	2	-	605201-2	The Holy Qura'an (2)
601301-3	Islamic Culture (3)	3	-	601201-2	Islamic Culture (2)

Study plan 37 (Credit hours 130h)

Level 7 : Credit Hours 16					
Course		Hours		Prerequisite	
Code	Title	L	P	Code	Title
4034133-3	Electromagnetism (2)	3	-	4033132-3	Electromagnetism (1)
4034160-4	Nuclear Physics	3	1	4033145-4	Quantum Mechanics (1)
4034170-4	Solid State Physics (1)	4	-	4033145-4	Quantum Mechanics (1)
4034180-3	Computational Physics	2	1	4033142-4	Theoretical Methods in Physics (2)
605401-2	The Holy Qura'an (4)	2	-	605301-2	The Holy Qura'an (3)

Level 8 : Credit Hours 16					
Course		Hours		Prerequisite	
Code	Title	L	P	Code	Title
4034162-3	Radiation Physics	3	-	4034160-4	Nuclear Physics
4034172-4	Solid State Physics (2)	3	1	4034170-4	Solid State Physics (1)
4034173-4	Electronics	3	1	4034170-4	Solid State Physics (1)
4034199-3	Graduated Project	3	-		Agreement of Department
601401-2	Islamic Culture (4)	2	-	601301-3	Islamic Culture (3)

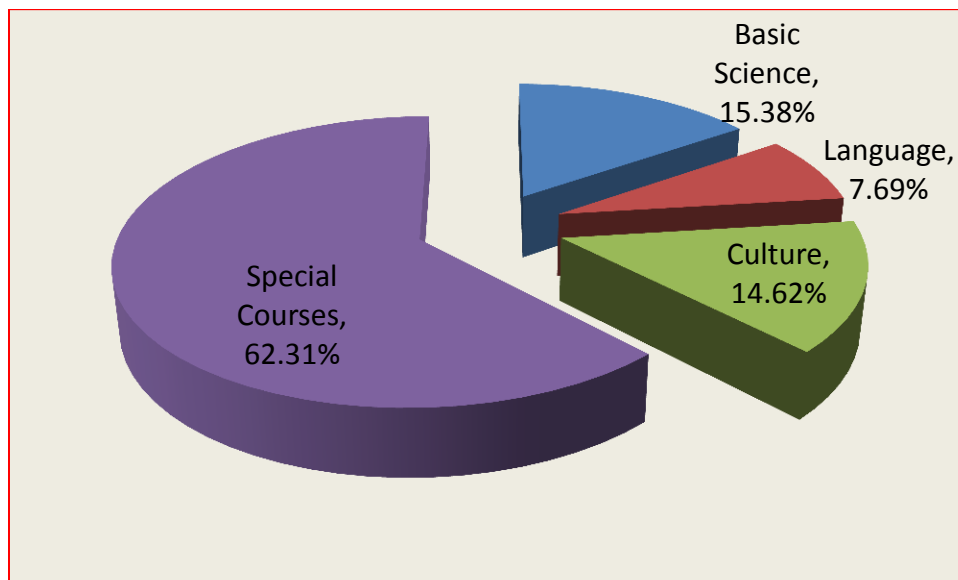


Fig. 7: The Curriculum Structure of the program.

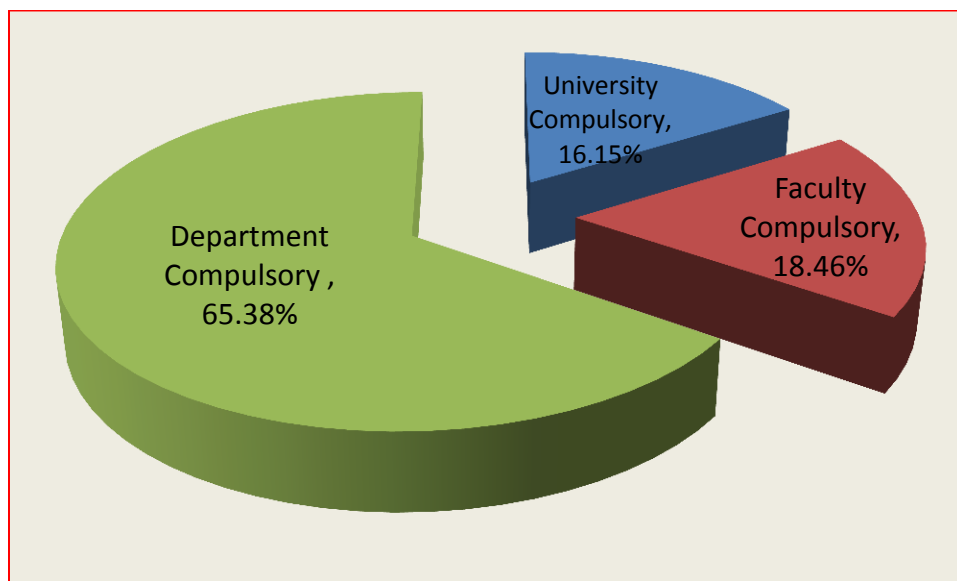


Fig. 8: Curriculum Distribution.

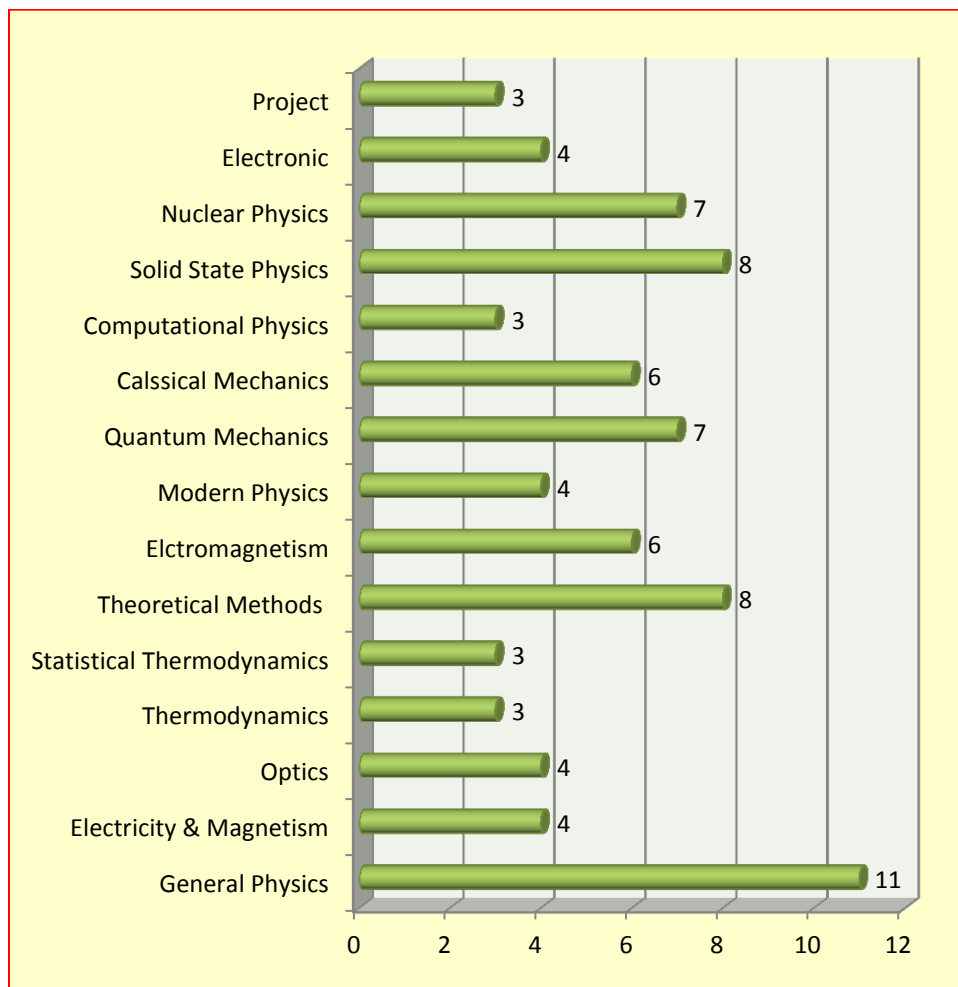


Fig. 9: Credit hours distribution.