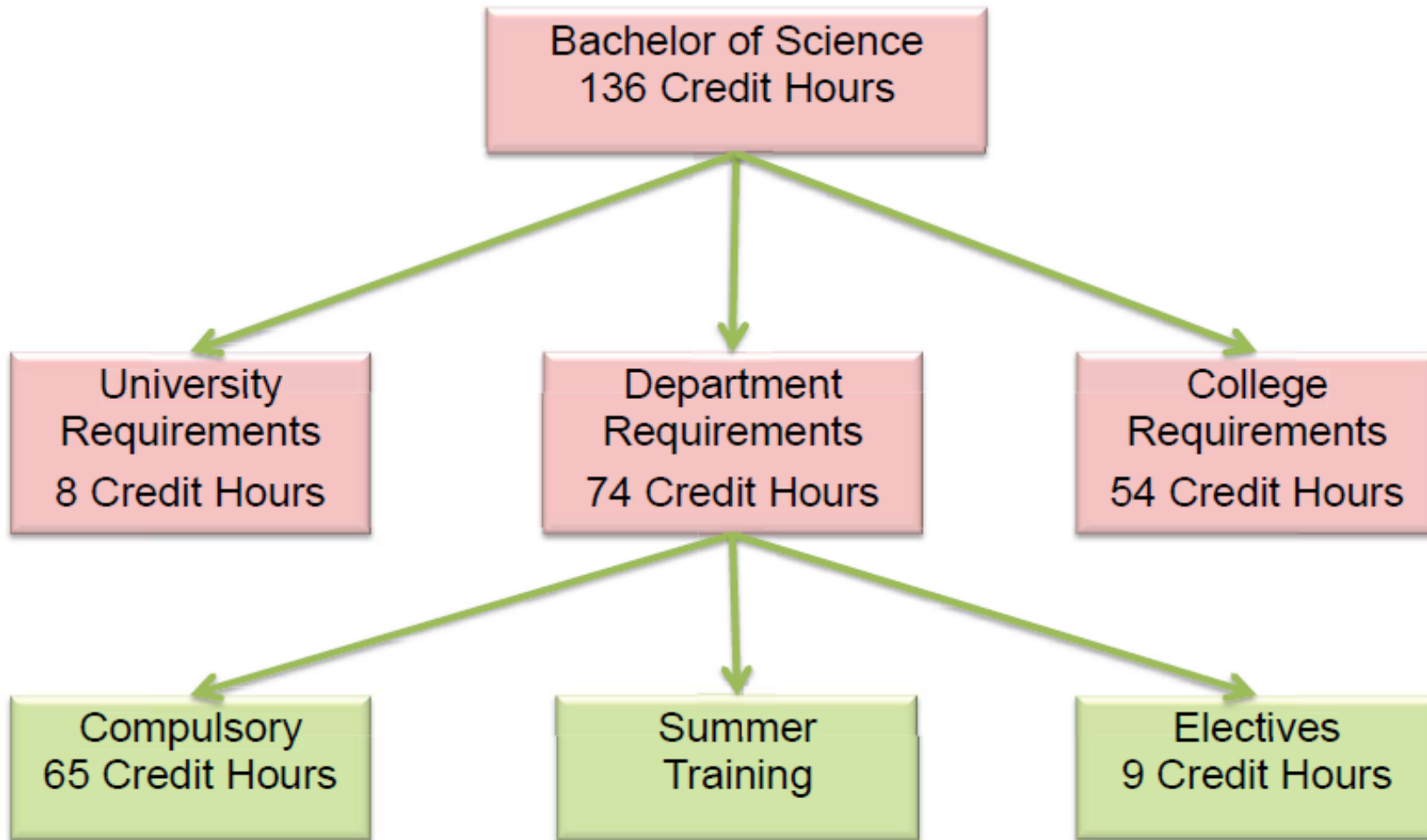
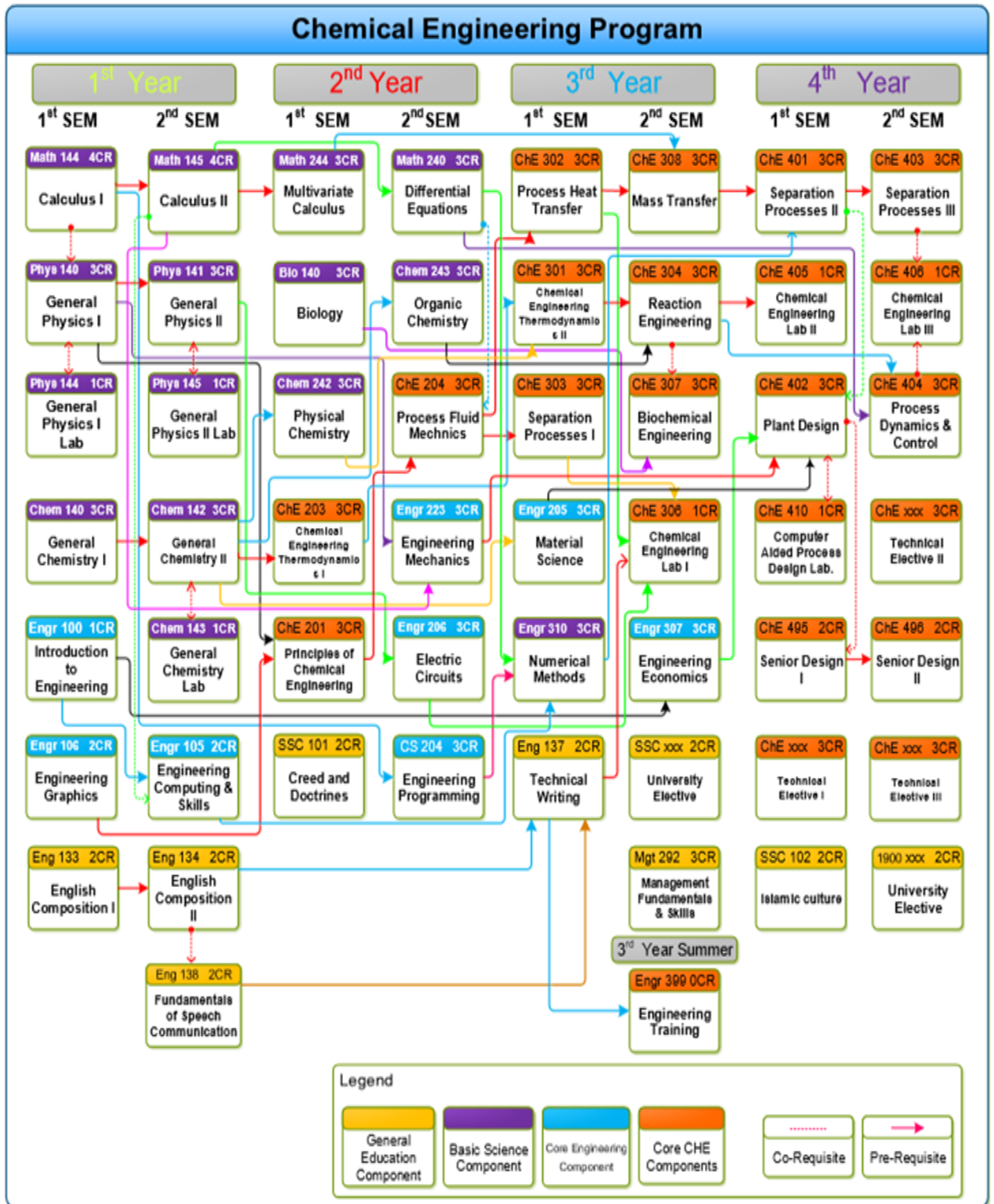


Curriculum Structure



Flow Chart of the Chemical Engineering Curriculum (BSc Degree)



Study Plan of the Undergraduate Program (B.Sc. Degree)

① First Semester					
Course Code	Course Title	CH	Required/Elective	Pre- & Co-requisite	Curriculum Category
Math 144	Calculus I	4	Required		Math and Basic Sciences
Phys 140	General Physics I	3	Required	C:Math 144 C:Phys 144	Math and Basic Sciences
Phys 144	General Physics I Lab	1	Required		Math and Basic Sciences
Chem 140	General Chemistry I	3	Required		Math and Basic Sciences
Engr 100	Introduction to Engineering	1	Required		General Engineering
Engr 106	Engineering Graphics	2	Required		General Engineering
Eng 133	English Composition I	2	Required		Broad Education
Semester Credit Hours			16		

② Second Semester					
Course Code	Course Title	CH	Required/Elective	Pre- & Co-requisite	Curriculum Category
Math 145	Calculus II	4	Required	P: Math 144	Math and Basic Sciences
Phys 141	General Physics II	3	Required	P:Phys 140 C:Phys 145	Math and Basic Sciences
Phys 145	General Physics II Lab	1	Required	C: Phys 141	Math and Basic Sciences
Chem 142	General Chemistry II	3	Required	P:Chem 140 C:Chem 143	Math and Basic Sciences
Chem 143	General Chemistry Lab	1	Required	C:Chem 142	Math and Basic Sciences
Engr 105	Engineering Computing & Skills	2	Required	P:Engr 100 C:Math 145	General Engineering
Eng 134	English Composition II	2	Required	P: Eng 133	Broad Education
Eng 138	Fundamentals of Speech Communication	2	Required	C: Eng 134	Broad Education
Semester Credit Hours			18		

③ Third Semester					
Course Code	Course Title	CH	Required/Elective	Pre- & Co-requisite	Curriculum Category
Bio 140	Biology	3	Required		Math and Basic Sciences
Math 244	Multivariate Calculus	3	Required	P: Math 145	Math and Basic Sciences
ChE 201	Principles of Chemical Engineering	3	Required	P:Phys 140 P:Engr 106	Core Chemical Engineering
Chem 242	Physical Chemistry	3	Required	P:Chem 142	Math and Basic Sciences
ChE 203	Chemical Engineering Thermodynamics I	3	Required	P:Chem 142	Core Chemical Engineering
SSC 101	Creed and doctrines	2	Required		Broad Education
Semester Credit Hours				17	

④ Fourth Semester					
Course Code	Course Title	CH	Required/Elective	Pre- & Co-requisite	Curriculum Category
Math 240	Differential Equations	3	Required	P: Math 145	Math and Basic Sciences
Chem 243	Organic Chemistry	3	Required	P: Chem 142	Math and Basic Sciences
ChE 204	Process Fluid Mechanics	3	Required	P:ChE 201 C:Math 240	Core Chemical Engineering
Engr 223	Engineering Mechanics	3	Required	P:Math 144 P:Phys 144	General Engineering
Engr 206	Electric Circuits	3	Required	P: Phys 141	General Engineering
CS 204	Engineering Programming	3	Required	P:Math 144	General Engineering
Semester Credit Hours				18	

5 Fifth Semester					
Course Code	Course Title	CH	Required/Elective	Pre- & Co-requisite	Curriculum Category
ChE 302	Process Heat Transfer	3	Required	P: ChE 204	Core Chemical Engineering
ChE 301	Chemical Engineering Thermodynamics II	3	Required	P:ChE 203 C:Chem 242	Core Chemical Engineering
ChE 303	Separation Processes I	3	Required	P: ChE 204	Core Chemical Engineering
Engr 205	Materials Science	3	Required	P: Chem 142	Math and Basic Sciences
Engr 310	Numerical Methods	3	Required	P:Math 240, P: CS 204, P: Engr 105	General Engineering
Eng 137	Technical Writing	2	Required	P:Eng 134 P:Eng 138	Broad Education
Semester Credit Hours			17		

6 Sixth Semester					
Course Code	Course Title	CH	Required/Elective	Pre- & Co-requisite	Curriculum Category
ChE 308	Mass Transfer	3	Required	P:ChE 302 P:Math 244	Core Chemical Engineering
ChE 304	Reaction Engineering	3	Required	P:ChE 301 C:Chem 243	Core Chemical Engineering
ChE 307	Biochemical Engineering	3	Required	P:Bio 140 C:ChE 304	Core Chemical Engineering
ChE 306	Chemical Engineering Lab I	1	Required	P:ChE 302 P:ChE 303 P: Engr 206 P: Eng 137	Core Chemical Engineering
Engr 307	Engineering Economics	3	Required	P:Engr 100	General Engineering
SSC xxx	University Elective I	2	Required		Broad Education
Mgt 292	Management Fundamentals & Skills	3	Required		Broad Education
Semester Credit Hours			18		

Summer Semester					
Course Code	Course Title	CH	Required/Elective	Pre- & Co-requisite	Curriculum Category
Engr 399	Engineering Training	0	Required	P: Senior Standing P:Eng 137	Core Chemical Engineering
Semester Credit Hours			0		

7 Seventh Semester					
Course Code	Course Title	CH	Required/Elective	Pre- & Co-requisite	Curriculum Category
ChE 401	Separation Processes II	3	Required	P:ChE 308 C:Engr 310	Core Chemical Engineering
ChE 402	Plant Design	3	Required	P:Engr 223, P: Engr 307 P:Engr 205 P: ChE 401 C:ChE 410	Core Chemical Engineering
ChE 405	Chem. Eng. Lab. II	1	Required	P: ChE 304	Core Chemical Engineering
ChE 410	Computer-Aided Process Design Lab.	1	Required	C: ChE 402	Core Chemical Engineering
ChE xxx	Technical Elective I	3	Required		Elective Chemical Engineering
ChE 495	Senior Design I	2	Required	P:Senior Standing C: ChE 402	Core Chemical Engineering
SSC 102	Islamic Culture	2	Required		Broad Education
Semester Credit Hours			15		

8 Eighth Semester

Course Code	Course Title	CH	Required/Elective	Pre-& Co-requisite	Curriculum Category
ChE 403	Separation Processes III	3	Required	P: ChE 401	Core Chemical Engineering
ChE 406	Chemical Engineering Lab III	1	Required	C:ChE 403 C:ChE 304	Core Chemical Engineering
ChE 404	Process Dynamics & Control	3	Required	P:Math 240 P:ChE 304	Core Chemical Engineering
ChE xxx	Technical Elective II	3	Required		Elective Chemical Engineering
ChE 496	Senior Design II	2	Required	P: ChE 495	Core Chemical Engineering
ChE xxx	Technical Elective III	3	Required	P:Eng 134 C:Eng 138	Elective Chemical Engineering
SSC xxx	University Elective II	2	Required		Broad Education
Semester Credit Hours					17

Total Credit Hours of the Program**136**

Chemical Engineering Department:			Department Technical Electives:			مواد القسم الإختيارية:	
Course Number	Course Code	Course Title	Units	Type	Pre- & Co-requisite	اسم المقرر	رمز المقرر
			Credits				
2204-305	ChE 305	Chemical Process Industries	3	اختياري قسم	P: 0815-243	الصناعات الكيمايائية	كم 305
2204-407	ChE 407	Chemical Engineering Optimization	3	اختياري قسم	P: 2200-310	طرق اختيار الأمثل في الهندسة الكيمايائية	كم 407
2204-408	ChE 408	Chemical Process Safety	3	اختياري قسم	P: 2204-304	السلامة في العمليات الصناعية الكيمايائية	كم 408
2204-420	ChE 420	Experimental Design and Data Analysis	3	اختياري قسم	P: 2200-310	تصميم التجارب وتحليل النتائج المعملية	كم 420
2204-421	ChE 421	Corrosion Engineering	3	اختياري قسم	P: 2200-205	هندسة التآكل	كم 421
2204-430	ChE 430	Polymer Engineering	3	اختياري قسم	P: 0815-243	هندسة المبلمرات	كم 430
2204-431	ChE 431	Natural Gas Engineering	3	اختياري قسم	P: 0815-243	هندسة الغاز الطبيعي	كم 431
2204-432	ChE 432	Petroleum Refining Engineering	3	اختياري قسم	P: 0815-243	هندسة تكرير البترول	كم 432
2204-433	ChE 433	Petrochemical Industries	3	اختياري قسم	P: 0815-243	الصناعات البتروكيمايائية	كم 433
2204-441	ChE 441	Introduction to Environmental Engineering	3	اختياري قسم	P: 2204-303	مقدمة في هندسة البيئة	كم 441
2204-442	ChE 442	Industrial Water Treatment	3	اختياري قسم	P: 2204-303	معالجة المياه الصناعية	كم 442
2204-443	ChE 443	Industrial Wastewater Treatment	3	اختياري قسم	P: 2204-303	معالجة المياه العادمة الصناعية	كم 443
2204-444	ChE 444	Water Desalination	3	اختياري قسم	P: 2204-308	تحلية المياه	كم 444
2204-452	ChE 452	Air Pollution and Control	3	اختياري قسم	P: 2204-303	تلوث الهواء والتحكم به	كم 452
2204-481	ChE 481	Undergraduate Research I	3	اختياري قسم	Senior Standing	البحث العلمي لطلبة البكالوريوس 1	كم 481
2204-482	ChE 482	Undergraduate Research II	3	اختياري قسم	Senior Standing	البحث العلمي لطلبة البكالوريوس 2	كم 482
2204-483	ChE 483	Special Topics I	3	اختياري قسم	Senior Standing	موضوعات خاصة 1	كم 483
2204-484	ChE 484	Special Topics II	3	اختياري قسم	Senior Standing	موضوعات خاصة 2	كم 484

Chemical Engineering Department:			University Electives:			مواد الجامعة الإختيارية الإسلامية:	
Course Number	Course Code	Course Title	Units	Type	Pre-& Co-requisite	اسم المقرر	رمز المقرر
			Credits				
7401-102	Deic 102	Fiqh Biography	2	اختياري جامعة	None	فقه السيرة	سلم 102
7401-302	Deic 302	Islam and Science and Technology Issues	2	اختياري جامعة	None	الاسلام وقضايا العلوم والتقنية	سلم 302
7401-317	Deic 317	Islamic Morals and Ethics	2	اختياري جامعة	None	أخلاق إسلامية وأداب المهنة	سلم 317
7401-318	Deic 318	Economic System in Islam	2	اختياري جامعة	None	النظام الاقتصادي في الإسلام	سلم 318
7401-401	Deic 401	Islamic Social System	2	اختياري جامعة	None	النظام الاجتماعي في الاسلام	سلم 401
7401-418	Deic 418	Political System and Human Rights in Islam	2	اختياري جامعة	None	النظام السياسي وحقوق الانسان في الاسلام	سلم 418

مواد الجامعة الإختيارية الإسلامية من مركز الدراسات المساندة: ChE Dept: University Electives (For Batch 2018 & above): From Supporting Studies Center

Course Number	Course Code	Course Title	Units	Type	Pre-& Co-requisite	اسم المقرر	رمز المقرر
			Credits				
1900-101	SSC101	Creed and doctrines	2	اجباري جامعة	None	العقيدة والمذاهب	مدم 101
1900-102	SSC102	Islamic culture	2	اجباري جامعة	None	الثقافة الإسلامية	مدم 102
1900-103	SSC103	Islamic Morals and Ethics	2	اختياري جامعة	None	الأخلاق الإسلامية وآداب المهنة	مدم 103
1900-104	SSC104	Studies in the Biography of the Prophet	2	اختياري جامعة	None	دراسات في السيرة النبوية	مدم 104
1900-105	SSC105	Medical jurisprudence	2	اختياري جامعة	None	الفقه الطبي	مدم 105
1900-106	SSC106	Economics & Politics in Islam	2	اختياري جامعة	None	الاقتصاد والسياسة في الإسلام	مدم 106
1900-107	SSC107	Islamic Social & Family Behavior	2	اختياري جامعة	None	النظام الاجتماعي والسلوك الاسري	مدم 107
1900-108	SSC108	Management & Entrepreneurship	2	اختياري جامعة	None	الإدارة وريادة الاعمال	مدم 108
1900-109	SSC109	Health & Fitness	2	اختياري جامعة	None	صحة ولياقة	مدم 109
1900-110	SSC110	Research skills	2	اختياري جامعة	None	مهارات البحث	مدم 110
1900-111	SSC111	Volunteer work	2	اختياري جامعة	None	العمل التطوعي	مدم 111
1900-112	SSC112	Medicine: Type and use	2	اختياري جامعة	None	الدواء: النوع والاستخدام	مدم 112
1900-113	SSC113	Human Rights in Islam	2	اختياري جامعة	None	حقوق الانسان في الإسلام	مدم 113
1900-114	SSC114	Food and Nutrition	2	اختياري جامعة	None	الغذاء والتغذية	مدم 114