



## PROGRAM SHEET

### *BACHELOR OF SCIENCE IN GENERAL ENGINEERING*

**(BSGE)**

**Catalog 2010-2012**

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**OFFICE OF THE REGISTRAR  
AL AKHAWAYN UNIVERSITY  
ENROLLMENT SERVICES**

SSK 1211	Strategic Learning for University Success ( <i>Pre-requisite: Successful completion of at least three Language Center level I courses</i> )	2 SCH	Met <input type="checkbox"/> not Met <input type="checkbox"/>
SSK 1212	Information Literacy Skills ( <i>Pre-requisite: Successful completion of SSK1211 and all Language Center level II courses</i> )	2 SCH	Met <input type="checkbox"/> not Met <input type="checkbox"/>
SSK 1213	Critical Thinking and Analysis ( <i>Pre-requisite: SSK 1212 &amp; ENG1301</i> )	2 SCH	Met <input type="checkbox"/> not Met <input type="checkbox"/>
*ARB 1310 or ARB 1320	Arabic for Academic Purposes Arabic for Communication Purposes	3 SCH	Met <input type="checkbox"/> not Met <input type="checkbox"/>
*FRN 2310 or FRN 3310	French for Academic Purposes II Advanced French Writing and Speaking Skills	3 SCH	Met <input type="checkbox"/> not Met <input type="checkbox"/>
CSC 1401	Computer Programming	4 SCH	Met <input type="checkbox"/> not Met <input type="checkbox"/>
COM 1301	Communication Through Speaking ( <i>Pre-requisite: ENG 1301</i> )	3 SCH	Met <input type="checkbox"/> not Met <input type="checkbox"/>
ENG 1301	English Composition I ( <i>Pre-requisite: Pass all Language Center Modules</i> )	3 SCH	Met <input type="checkbox"/> not Met <input type="checkbox"/>
ENG 2303	Technical Writing ( <i>Pre-requisites: Successful completion of all SSK courses, ENG 1301 and COM 1301</i> )	3 SCH	Met <input type="checkbox"/> not Met <input type="checkbox"/>
HIS 1301 or **HIS1302(Arb) or HIS 2301 or PSC 2301	History of the Arab World in <b>English</b> or History of the Arab World in <b>Arabic</b> , ( <i>equivalent to HIS 1301</i> ), or Contemporary World History ( <i>Pre-requisite: ENG 1301</i> ) or Comparative Political Systems ( <i>Pre-requisite : ENG 1301</i> )	3 SCH	Met <input type="checkbox"/> not Met <input type="checkbox"/>
HUM 3302 or **HUM 3303 or LIT2301or **LIT 2304 or LIT 2305	Introduction to the Study of Islamic Civilization in <b>English</b> ( <i>Pre-requisite: Junior Classification</i> ) or Introduction to the Study of Islamic Civilization in <b>Arabic</b> , ( <i>Pre-requisite: Junior Classification</i> ) or Major Works of World Literature ( <i>equivalent to ARB 2305/LIT 2305</i> ) ( <i>Pre-requisite: Sophomore Classification and ENG 130</i> ),or Introduction to Arabic Literature( <i>equivalent to ARB 2304</i> ), or Introduction to World Literature in <b>Arabic</b> ( <i>equivalent to ARB 2305/LIT 2301</i> )	3 SCH	Met <input type="checkbox"/> not Met <input type="checkbox"/>
HUM 3305 or HUM 3306 or PHI 2301 or PHI 2302	Science and Society ( <i>Pre-requisite: Junior Classification</i> )or Comparative Religion ( <i>Pre-requisite: Junior Classification</i> ) or Philosophical Thought ( <i>Pre-requisite: ENG 1301</i> ), or History of Ideas	3 SCH	Met <input type="checkbox"/> not Met <input type="checkbox"/>
MTH 1303	Differential and Integral Calculus ( <i>Pre-requisites: Working knowledge of algebra, trigonometry and analytical geometry</i> ).	3 SCH	Met <input type="checkbox"/> not Met <input type="checkbox"/>
CHE 1401	General Chemistry I,	4 SCH	Met <input type="checkbox"/> not Met <input type="checkbox"/>
SOC1301 or SSC1310 or GEO 1301 or PSY 1301	Introduction to Sociology, or Introduction to Anthropology, or Introduction to Geography, or Introduction to Psychology	3 SCH	Met <input type="checkbox"/> not Met <input type="checkbox"/>

**Notes :**

**\* Arabic and French language requirements:** A total of 6 SCH in these languages is a requirement of the UCC. Students take 0-6 SCH of Arabic and/or 0-6 SCH of French, depending on their background. Students holding a Moroccan baccalaureate or having had Arabic as the language of instruction in high school are not required to take Arabic courses (0 SCH). They fulfill the Arabic language requirement by taking one of the following UCC content courses taught in Arabic: HIS1302, HUM3303, LIT2304, or LIT2305. Language requirement in the UCC should be met by taking French courses depending on the TEF score.

Students who have not had Arabic as the language of instruction in high school are required to successfully complete ARB1320 and any lower level pre-requisite Arabic language courses. A placement test will determine which Arabic courses (such as ARB1309 and ARB1310) are needed. A maximum of 6 SCH in Arabic can be counted as fulfilling the UCC language requirement. Any additional credits will not count towards the degree. All students must also pass the Arabic component of the Exit Exam.

All students are required to satisfy the TEF-B2 level of French, or take the required course(s) to reach the level needed, FRN3310, before graduation. Students will take a placement test which determines the French courses (such as FRN2310) needed to achieve this level of proficiency. A maximum of 6 SCH in French can be counted as fulfilling the UCC requirement. Any additional courses (such as FRN1305 and FRN1308) will not count towards the degree and will be graded on Pass/Fail basis. All students must also pass the French component of the Exit Exam.

**\*\* History and Humanities requirement:** Students who take a content course taught in Arabic (HIS1302, HUM3303, HUM3304, LIT2304, or LIT2305) fulfill a History or Humanities requirement of the UCC. They may not take the equivalent course in English (HIS2301, HUM3301, HUM3302) or Arabic (ARB2304, ARB2305) to fulfill another requirement

<b>GENERAL ENGINEERING CORE</b>	<b>36 SCH</b>
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CSC 2302	Data Structures ( <i>Pre-requisites: CSC1401</i> )	3 SCH	Met <input type="checkbox"/> not Met <input type="checkbox"/>
CSC 3324	Software Engineering I ( <i>Pre-requisites: CSC2302</i> )	3 SCH	Met <input type="checkbox"/> not Met <input type="checkbox"/>
CSC 3326	Database Systems ( <i>Pre-requisites: CSC3324</i> )	3 SCH	Met <input type="checkbox"/> not Met <input type="checkbox"/>
EGR 2302	Engineering Economics ( <i>Pre-requisites: MTH1303</i> )	3 SCH	Met <input type="checkbox"/> not Met <input type="checkbox"/>
EGR 3331	Digital Design ( <i>Co-requisites: PHY1402</i> )	3 SCH	Met <input type="checkbox"/> not Met <input type="checkbox"/>
EGR 4300	Internship ( <i>Pre-requisites: May be combined with EGR 4402 for 7 SCH.</i> )	3 SCH	Met <input type="checkbox"/> not Met <input type="checkbox"/>
EGR 4402*	Capstone Design ( <i>Pre-requisites: To be taken during the last regular semester of enrollment.</i> )	4 SCH	Met <input type="checkbox"/> not Met <input type="checkbox"/>
MTH 2301	Multivariable Calculus ( <i>Pre-requisites: MTH1303</i> )	3 SCH	Met <input type="checkbox"/> not Met <input type="checkbox"/>
MTH 3301	Engineering Probability and Statistics ( <i>Pre-requisites: MTH2301 and Junior Standing</i> )	3 SCH	Met <input type="checkbox"/> not Met <input type="checkbox"/>
PHY 1401	Physics I ( <i>Pre-requisites: MTH1303</i> )	4 SCH	Met <input type="checkbox"/> not Met <input type="checkbox"/>
PHY 1402	Physics II ( <i>Pre-requisites: PHY1401</i> )	4 SCH	Met <input type="checkbox"/> not Met <input type="checkbox"/>

\*May be combined with internship 7 SCH

<b>GENERAL ENGINEERING MAJOR</b>	<b>31 SCH</b>
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**Required courses:**

**10 SCH**

BIO 1401 <b>or</b> BIO 1402	Principles of Biology or Environmental Biology	4 SCH	Met <input type="checkbox"/> not Met <input type="checkbox"/>
CSC 2303	Advanced Programming/Object-Oriented Programming ( <i>Pre-requisite: CSC 2302</i> )	3 SCH	Met <input type="checkbox"/> not Met <input type="checkbox"/>
CSC 2304	Computer Architecture ( <i>Pre-requisites: CSC 2302 and EGR 3331</i> )	3 SCH	Met <input type="checkbox"/> not Met <input type="checkbox"/>

**ENGINEERING CORE**

**21 SCH**

CHE 1402	General Chemistry II ( <i>Pre-requisite: CHE 1401</i> )	4 SCH	Met <input type="checkbox"/> not Met <input type="checkbox"/>
EGR 2402	Electrical Circuits 1 ( <i>Pre-requisites: PHY 1402 and MTH 2304 as re or co-requisite</i> )	4 SCH	Met <input type="checkbox"/> not Met <input type="checkbox"/>
EGR 3304	Materials Science ( <i>Pre-requisites: CHE 1402 and PHY 1402</i> )	3 SCH	Met <input type="checkbox"/> not Met <input type="checkbox"/>
EGR 3306	Engineering Instrumentation ( <i>Pre-requisite: EGR 2402</i> )	3 SCH	Met <input type="checkbox"/> not Met <input type="checkbox"/>
EGR 3308	Thermal Engineering ( <i>Pre-requisite: PHY 1402</i> )	3 SCH	Met <input type="checkbox"/> not Met <input type="checkbox"/>
EGR 3402	Statics and Dynamics ( <i>Pre-requisites: MTH 2301; PHY 1401</i> )	4 SCH	Met <input type="checkbox"/> not Met <input type="checkbox"/>

<b>CONCENTRATIONS</b>	<b>12 SCH</b>
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**COMPUTER SCIENCE**

**6 SCH**

CSC 3351	Operating Systems ( <i>Pre-requisite: CSC 2303 and CSC 2304</i> )	3 SCH	Met <input type="checkbox"/> not Met <input type="checkbox"/>
CSC 3352	Computer Communication ( <i>Pre-requisites: CSC 2303 and CSC 2304</i> )	3 SCH	Met <input type="checkbox"/> not Met <input type="checkbox"/>

In addition: 2 advanced courses in computer science can be chosen from the following courses:

**6 SCH**

CSC 3309	Artificial Intelligence ( <i>Pre-requisites: CSC 2303 and Junior Classification</i> )	3 SCH	Met <input type="checkbox"/> not Met <input type="checkbox"/>
CSC 3325	Software Engineering II ( <i>Pre-requisite: CSC 3324</i> )	3 SCH	Met <input type="checkbox"/> not Met <input type="checkbox"/>
CSC 3327	Internet Technologies ( <i>Pre-requisite: CSC 3326</i> )	3 SCH	Met <input type="checkbox"/> not Met <input type="checkbox"/>
CSC 3328	Embedded Systems ( <i>Pre-requisite: CSC 3351</i> )	3 SCH	Met <input type="checkbox"/> not Met <input type="checkbox"/>
CSC 3341	Computer Graphics ( <i>Pre-requisites: CSC 2302</i> )	3 SCH	Met <input type="checkbox"/> not Met <input type="checkbox"/>
CSC 3353	Computer Networks ( <i>Pre-requisite: CSC 3352</i> )	3 SCH	Met <input type="checkbox"/> not Met <input type="checkbox"/>
CSC 3354	Distributed Systems ( <i>Pre-requisites: CSC 3351 and CSC 3352</i> )	3 SCH	Met <input type="checkbox"/> not Met <input type="checkbox"/>
CSC 3355	Computer Security ( <i>Pre-requisites: CSC 2303 and Senior Classification</i> )	3 SCH	Met <input type="checkbox"/> not Met <input type="checkbox"/>

<b>MINOR (REQUIRED IN MATHEMATICS)</b>	<b>9 SCH</b>
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MTH 1304	Discrete Mathematics for Engineers	3 SCH	Met <input type="checkbox"/> not Met <input type="checkbox"/>
MTH 2303	Linear Algebra ( <i>Pre-requisite : MTH 2301</i> )	3 SCH	Met <input type="checkbox"/> not Met <input type="checkbox"/>
MTH 2304	Differential Equations ( <i>Pre-requisite : MTH 2303</i> )	3 SCH	Met <input type="checkbox"/> not Met <input type="checkbox"/>

**Note:** MTH 2301 and MTH 3301 are added to these three courses from the School Core to give a total of 15 SCH.

<b>ELECTIVES</b>	<b>3 SCH</b>	Met <input type="checkbox"/> not Met <input type="checkbox"/>
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One elective will be chosen from university undergraduate courses in collaboration with, and with approval of, the Academic Advisor and Academic Coordinator. The following courses are not acceptable as BSGE electives: CHE1400, CSC1400, GBU 3301, MTH1388, MTH1301, and PHY1400. Graduate courses in the major may be taken as electives after special permission from the Dean.

<b>TOTAL</b>	<b>135 SCH</b>
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**NB.** The combined BS/MS program allows qualified GE students to pass directly from the BS to the MS in Computer Science/ Computer Networks/ Software Engineering (for more details refer to the catalog).