



1. Academic Support Department

1.1 Introduction

The Academic Support Department (ASD) was established since the beginning of 2011 and has been developed to meet ADPoly's mission of providing high quality academic support services and general education that solidifies students' knowledge and skills to enhance their academic performance in Applied Science and Engineering Technology in alignment with Abu Dhabi Economic Vision 2030..

1.2 Department Mission

The mission of the academic support department (ASD) is to provide high quality academic support services and tutoring that solidify knowledge, skills and enhance academic performance for science and engineering technology students at Abu Dhabi Polytechnic. The ASD is committed to support students to achieve institutional educational goals and become a life-long-learners through offering variety of academic services, tutoring and learning resources.

1.3 General Education

The General Education (GE) is offered by ASD as a main role of the department. The general education curriculum (GEC) is offered in six main clusters: natural sciences (physics and chemistry), mathematics (precalculus, calculus and advance mathematics), fundamentals in engineering technology, humanities, English and technical communication skills, and skills for life (see figure 1). The GEC was developed based on the following parameters: program needs offered at ADPoly, Academic Accreditation Commission (CAA) standards, ABET standards, and national and international institutions' (i.e., other polytechnics) curriculum benchmarking. The general education courses are offered on a credit-hour system and they are divided into college compulsory requirements and program-based courses.

1.4 Philosophy of General Education at Abu Dhabi Polytechnic

On the top of our priorities at Abu Dhabi Polytechnic is to make sure that undergraduate students receive a diverse and robust general education since enrollment to graduation. In the era of the Industrial Revolution 4.0 with increasing demands on professional expertise, general education plays a vital role in preparing graduates who can maneuver technological advancements as they occur.

The General Education program ensures that all undergraduate students, regardless of their academic major, receive a broad education entrenched in natural sciences, mathematics, fundamentals of engineering technology, humanities, communication skills, and innovation and entrepreneurship. It helps students to expand their knowledge and professional perception while studying Arabic language and Islamic culture, developing their Emirati national identity, learning how to be better communicators in English and striving for life-long self-efficacy.

The general education curriculum recognizes prior learning through a well-defined articulation plan for different high-school systems. Students can waive one or more semesters upon joining Abu Dhabi Polytechnic. Furthermore, our general education curriculum has been benched marked with national and international polytechnic and applied higher education institutions' curricula. Studying at Abu Dhabi Polytechnic gives students opportunities for transfer from other institutions, degree bridging, exchange programs, and continuation of their graduate studies. Our general education curriculum meets institutional needs as well as those of accreditation bodies.

The general education represents a bedrock upon which detailed major-specific information is built. We believe that students with a well-rounded general education are also better informed and more likely to engage in meaningful activities to improve their own well-being as well as become positive contributors within their communities, professions, and country.

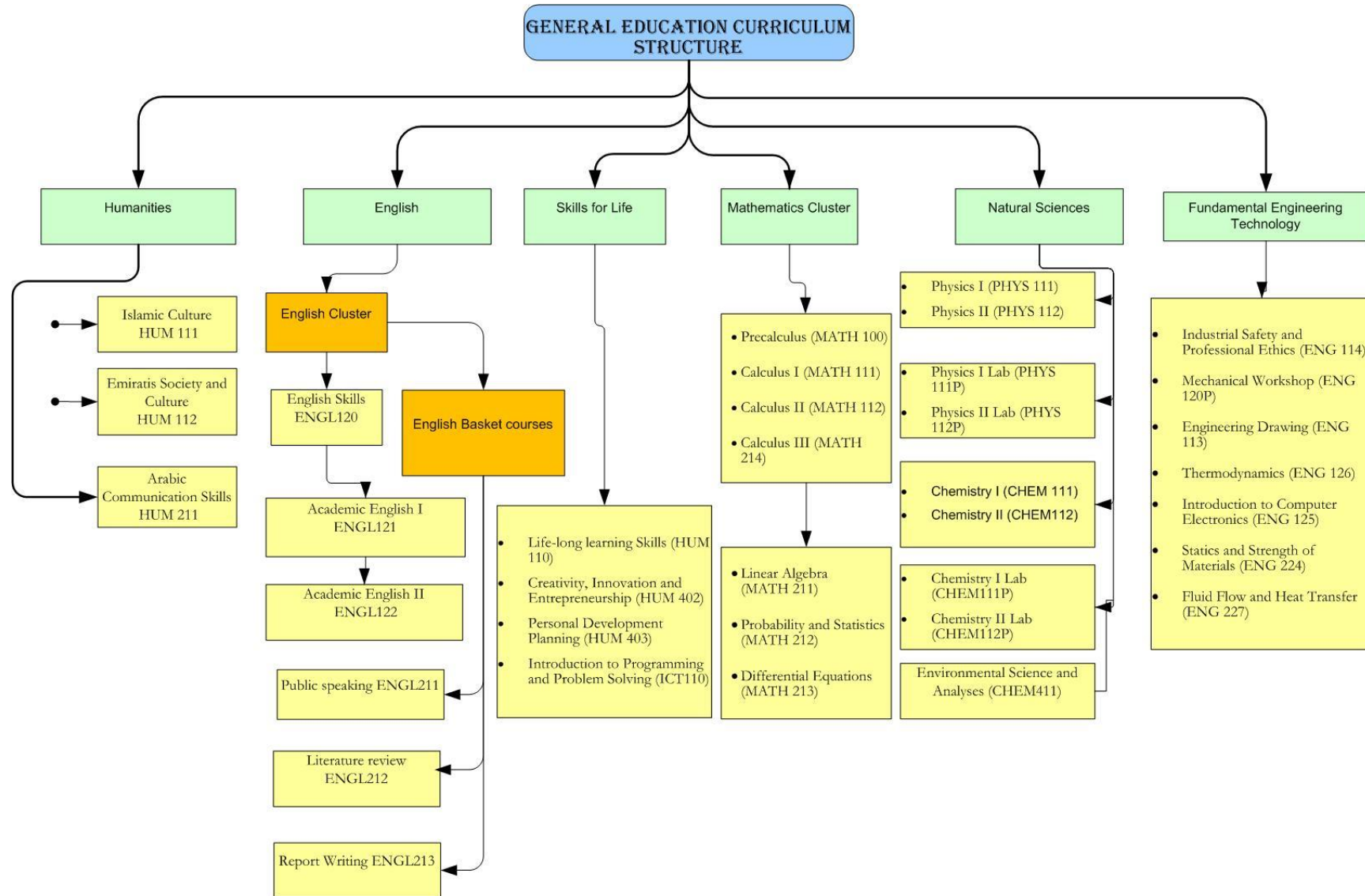


Figure 1: General education curriculum clusters.



1.5 Program Objectives (POs/PEOs)

General education program is intended to provide the undergraduate curriculum with critical thinking skills; a broad understanding of the approaches to knowledge in humanities and social sciences, a common core of understanding among students in Islamic and multicultural studies, and a level of skill appropriate to higher education in science, mathematics, information literacy, the application of technology and communications skills.

These objectives are as follows:

PEO1: Provide students with knowledge and skill in science, mathematics, fundamentals of engineering technology, information literacy, and communication that will help them succeed in their studies, lives and careers.

PEO2: Provide students with critical thinking skills that promoting innovation, creativity and entrepreneurship.

PEO3: Provide students with a common core of understanding such as in Islamic culture and studies that enhancing their awareness of their role as a responsible citizens of UAE, who know and value their religion and culture, and also appreciate and participate in the multicultural diversity of the modern world.

PEO4: Create learning environment that produce competency in the use of resources and in research methodologies to promote life-long learning.

PEO5: Provide students with teamwork and leadership experiences while demonstrating effective communication skills and knowledge that will help them successfully guide the economic, social and cultural development of the UAE.

1.6 Program Learning Outcomes (PLOs/SLOs)

The following list summarizes the Learning Outcomes for general education which are similar to ABET SLOs (1-5) for engineering technology.

PLO1: an ability to apply knowledge, techniques, skills and modern tools of mathematics, science, engineering, and technology to solve broadly-defined engineering problems appropriate to the discipline;

PLO2: an ability to design systems, components, or processes meeting specified needs for broadly-defined engineering problems appropriate to the discipline;

PLO3: an ability to apply written, oral, and graphical communication in broadly-defined technical and non-technical environments; and an ability to identify and use appropriate technical literature;

PLO4: an ability to conduct standard tests, measurements, and experiments and to analyze and interpret the results to improve processes; and

PLO5: an ability to function effectively as a member as well as a leader on technical teams.

1.7 General Education Curriculum

The general education curriculum is divided in two main components:

1. General education requirements to be adhered to all areas of academic study (Table 1)
2. Program-based general education courses (Table 2)

Table 1. General education requirements to be adhered to all academic programs

Course Code	Course Title	Prerequisite(s)	Co-requisite	Credit Hours	Contact Hours	L	B	T	D	HD	AB
MATH100	Precalculus	MPE \geq 70, EmSAT \geq 1500		3	4	3		1	3	3	3
MATH111	Calculus I	MATH100		3	4	3		1			3
ICT110	Introduction to Programming & Problem Solving			3	4	2	2		3	3	3
ENGL120	English Skills	EmSAT \geq 1300, IELTS \geq 6.0 (Bands \geq 5.5)		0	3	2	1		0	0	0
ENGL121	Academic English I	ENGL120		3	4	2	2		3	3	3
ENGL122	Academic English II	ENGL121		3	4	2	2		3	3	3
ENGL211	Public Speaking (Blended L.)	ENGL122		1	2	1	1			1	1
ENGL212	Literature Review (Blended L.)	ENGL122		1	2	1		1			1
ENGL213	Report Writing (Blended L.)	ENGL122		1	2	1		1			1
HUM111	Islamic Culture			3	3	3			3	3	3
HUM112	Emirates Society & Culture			3	3	3			3	3	3
HUM211	Arabic Communication Skills			3	3	3			3	3	3
HUM402	Creativity, Innovation and Entrepreneurship	ENGL122		3	3	3					3
									21	22	30

D: diploma; HD: Higher Diploma; AB: Applied Bachelor



Table 2. Program- based general education courses.

Course Code	Course Title	Prerequisite(s)	Co-requisite	Credit Hours	Contact Hours	L	B	T	D	HD	AB
PHYS111	Physics I		MATH100	3	4	3		1			
PHYS111P	Physics I Lab		PHYS111	1	3		3				
PHYS112	Physics II	PHYS111, MATH100		3	4	3		1			
PHYS112P	Physics II Lab		PHYS112	1	3		3				
CHEM111	Chemistry I			3	4	3		1			
CHEM111P	Chemistry I Lab		CHEM111	1	3		3				
CHEM112	Chemistry II	CHEM111		3	4	3		1			
CHEM112P	Chemistry II Lab	CHEM111 and CHEM111P	CHEM112	1	3		3				
MATH112	Calculus II	MATH111		3	4	3		1			
MATH211	Linear Algebra	MATH100		3	4	3		1			
MATH212	Probability and statistics	MATH100		3	4	3		1			
MATH213	Differential Equations	MATH112		3	4	3		1			
MATH214	Calculus III	MATH112		3	4	3		1			
HUM110	Lifelong Learning Skills			3	3	3					
ENG113	Engineering Drawing			2	3	1	2				
ENG114	Industrial Safety and Professional Ethics			2	2	2					
ENG120P	Mechanical Workshop			1	3		3	1			
ENG125	Introduction to Computer Electronics	ICT110		3	4	2	2				
ENG126	Thermodynamics	MATH111, PHYS111, CHEM112		3	5	2	2	1			



Course Code	Course Title	Prerequisite(s)	Co-requisite	Credit Hours	Contact Hours	L	B	T	D	HD	AB
ENG224	Statics & Strength of Materials	MATH111, PHYS112		3	4	3		1			
ENG227	Fluid Flow & Heat Transfer	ENG126, MATH111		3	5	2	2	1			
HUM403	Personal Development Planning	ENGL122		2	2	2					
CHEM411	Environmental Science and Analyses	CHEM111		3	3	3					

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1.8 Proposed Study Plan for all Programs (GRs Plan) (42 Credits)

There are several general education courses proposed for freshman year (year 1). This general plan will vary from one program to program; students should refer to the study plan provided by their program.

1 st Year (Freshman)				
Semester 1	Course Code	Course Title	Credit Hours	Prerequisite(s)
	MATH100	Precalculus	4	MPE or EmSAT≥1500
	ENGL120	English Skills	0	IELTS =6.0 with all bands 5.5 or EmSAT=1300
	PHYS111	Physics I	3	Co-requisite MATH100
	PHYS111P	Physics I Lab	1	PHYS111
	ICT110	Introduction to Programming & Problem Solving	3	
	HUM111	Islamic Culture	3	
	ENG114	Industrial Safety & Prof. Ethics	2	
Total Credit Hours			16	
Semester 2	Course Code	Course Title	Credit Hours	Prerequisite(s)
	CHEM111	Chemistry I	3	
	CHEM111P	Chemistry Lab I	1	
	PHYS112	Physics II	3	
	PHYS112P	Physics II Lab	1	
	MATH111	Calculus I	3	MATH100, MPE≥70%
	ENGL121	Academic English I	3	ENGL120
	ENG120P	Mechanical Workshop	1	
	ENG113	Engineering Drawing	2	
Total Credit Hours			17	
Summer	Course Code	Course Title	Credit Hours	Prerequisite(s)
	ENGL122	Academic English II	3	ENGL121
	MATH112	Calculus II	3	MATH111
	HUM112	Emirates Culture and Society	3	
Total Credit Hours			9	