البرامج والخطط الدراسية

لكلية العلوم الهندسية
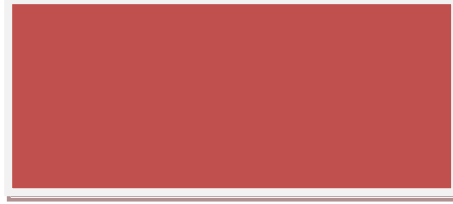
إعداد : الأستاذة/ حواء عياد السنوسي

البريقة- ليبيا

المحتويات

الـمـقـدمـة

تأسست كلية العلوم في العام الدراسي ٢٠١٥-٢٠١٦ وتعهدت الكلية بإعداد وتطوير الخطط الدراسية لمختلف أقسامها العلمية بحيث تكون دائما في المقدمة ومواكبة لتطور العلمي والتكنولوجي وتساهم في تقديم المساعدة والاستشارة للعديد من المؤسسات العامة والخاصة وذلك بالتركيز على استقطاب أعضاء هيئة تدريس ذوي كفاءة وخبرات علمية وعملية في جميع التخصصات المطلوبة لتخريج طلبة يتميزون بكفاءة ومهارات عالية قادرين على الانخراط في سوق العمل يلبون احتياجات المجتمع ويساهمون بكل جدية وحماس في تطوير وبناء هذا البلد الحبيب لدفع به ليكون في مصاف الدول المتقدمة.
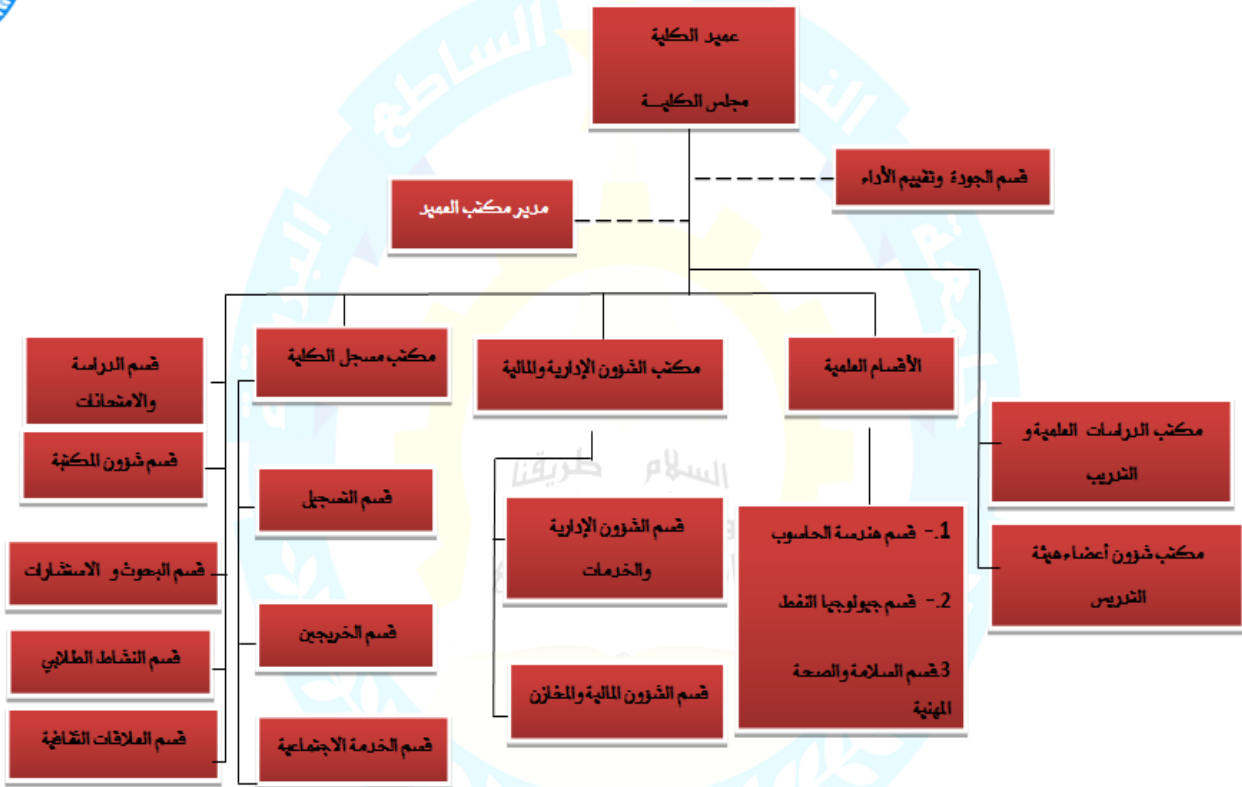
الخريطة التنظيمية لكلية العلوم الهندسية جامعة النجم الساطع/البريقة

الـهـدف الـعـام

إعداد مناهج دراسية متطورة ترتكز على الجانب العملي والتطبيقي لجميع التخصصات العلمية بكلية العلوم الهندسية وتنفيذها بالطريقة التي تتفق مع سياسات جامعة النجم الساطع البريقة وأهدافها المستقبلية وسوق العمل المحلي والدولي.

الــرؤيــة

أن تكون كلية العلوم الهندسية من الكليات الرائدة في تطبيق معايير الجودة المحلية و الإقليمية .

الــرسالة

إعداد كفاءات علمية في القطاع النفطي و التركيز على البحث العلمي و خدمة المجتمع لتقديم أفضل الخدمات وفق القيم التالية:

١. الجـودة: تلتـزم الكلية بمعاييـر تربويـة وعلمية رفيعـة المسـتوى سـاعية لتطوير العمليـة التعليميـة والبحـث العلمـي وخدمـة المجتمـع وفـق أرفـع مسـتويات الجـودة والتوعيـة.

٢. التحفيز: تهدف الكلية إلـى تحفيز المتفوقين والمبدعين ، وتوسـيع رقعـة التخصصـات والاهتمامات البحثيـة التـي تركـز عليهـا.

٣. الريادة: تسعى الكلية إلى التميز و الريادة في الأداء لتصبح مرجعية علمية من خلال ترسيخ قيم الجودة في مجالات التعليم و التدريب ، والدراسات العليا ، وخدمة المجتمع.

٤. العمل بروح الفريق:الاحترافية والمسئولية والإبداع والعمل بروح الفريق الواحد ..

الأهــداف

تسعى كلية العلوم الهندسية بجميع أقسامها العلمية إلى تحقيق الأهداف التالية:

١. تحقيق معايير الجودة والاعتماد في جميع البرامج والمجالات الأكاديمية .

٢. توفير بيئة محفزة للتعليم بما يشمل تطوير البنية التحتية والتكنولوجية والخدمية والمعلوماتية للكلية لمواكبة معايير الجودة .

٣. تطوير البحث العلمي بما يساهم في زيادة مساهمة الكلية في مجالات بحوث العلوم الهندسية المختلفة

.

٤. التطوير المستمر للموارد البشرية بالكلية.

٥. تخريج كوادر علمية ذوي كفاءة ومهارة قادرة على المنافسة في سوق العمل.

٦. تعزيز جسور التواصل مع المجتمع وتطوير الشراكات المحلية والإقليمية والدولية.

مخرجات البرنامج التعليمي

سعينا إن تكون مخرجات البرنامج التعليمي لكلية العلوم الهندسية قادرة إن تخرج طلاب يتميزون بالاتي:

١.الالتزام الوظيفي والأخلاقي وإمكانية التفاعل الايجابي داخل بيئة العمل المحيطة به.

٢. القدرة على تطبيق الأسس العلمية الصحيحة في دراسة وتحليل المشكلة.

٣. معرفة استخدام التقنيات العلمية الحديثة والتطبيقات المختلفة لأنها تعد من أهم متطلبات العمل .

٤.الاطلاع والمتابعة المستمرة لجميع القضايا والتطورات المعاصرة لمواكبة تكنولوجيا العصر.

٥. القدرة على التحديث والتطوير والإضافة وذلك بالبحث المستمر وتنمية هذه الميزة بالمشاركة الدائمة في الأبحاث العلمية .

الدرجة الممنوحة

تمنح جامعة النجم الساطع درجة البكالوريوس في جميع التخصصات المتوفرة في كلية العلوم الهندسية بعد إن يجتاز الطالب وحداته الدراسية والتي تعادل (١٥٠) وحدة كحد ادني والموزعة على ثمانية فصول دراسية حسب الخطة الدراسية المعتمدة .

الأقسام التخصصية

تضم كلية العلوم الهندسية عدد ثلاث أقسام تخصصية أساسية ، وهي على النحو التالي :

١. قسم هندسة الحاسوب

٢. قسم هندسة السلامة والصحة المهنية.

٣. قسم هندسة جيولوجيا النفط.

ويجوز إضافة أقسام أخري عند الحاجة، بناءً علي اقتراح اللجنة العلمية بالكلية وموافقة اللجنة العلمية ومجلس الجامعة.

- موارد الكلية:

١ـ أعضاء هيئة التدريس القارين:

عدداعضاء هيئة التدريس	اسم القسم	ت
٠٩	قسم هندسة الحاسوب	١
٠٣	قسم هندسة السلامة والصحة المهنية	٢
٠٦	قسم هندسة جيولوجيا النفط	٣
١٨	الإجمالي	

٢ـ عدد الطلاب:

عدد الطلاب	اسم القسم	ت
٦٣	قسم هندسة الحاسوب	١
١٢٣	قسم هندسة السلامة والصحة المهنية	٢
٨٩	قسم هندسة جيولوجيا النفط	٣
٣٦٨	الإجمالي	

١ ـ عدد الموظفين و المعيدين:

عدد المعيدين	عدد المواظفين	اسم القسم او الادارة	ت
-	٠٢	الكلية	١
١٠	٠٣	قسم هندسة الحاسوب	٢
١	٠٥	قسم هندسة السلامة والصحة المهنية	٣
٥	٠٣	قسم هندسة جيولوجيا النفط	٤
١٦	١٢	**الإجمالي**	

# فُرص العمل

خريج كلية العلوم الهندسية يكون مؤهلا للعمل في مواقع مختلفة سواء في الجانب التطبيقي من حيث مزاولة عمله الميداني عمليا أو تحليل المشاكل التي تواجهها المؤسسات الصناعية باستخدام التقنيات والتطبيقات التي درسها و إيجاد الحل المناسب لها أو بإعطاء الإرشادات اللازمة للحد من منها . يتواجد خريجي العلوم الهندسية في الشركات كمبرمجي ومصممي لبطاقات التحكم في العمليات الصناعية وكذلك إمكانية عمل منظومات بكافة أنواعها سواء ان كانت خاصة بالتنظيم الإداري أو النظام الأمني (مهندسي الحاسوب) ، الحفاظ على سلامة العاملين من المخاطر وتطبيق قواعد الأمن السلامة في المواقع الميدانية والمؤسسات الخدمية ونشر ثقافة السلامة والمحافظة على المجتمع من التلوث البيئي وذلك بتواجدهم في كافة المؤسسات الخدمية والمواقع الميدانية (مهندسي السلامة والصحة المهنية) . خريجي جيولوجيا النفط يتواجدون في المواقع والحقول النفطية وكافة المواقع التي تحتاج إلى دراية بعلم الطبقات والحفريات حيث انه لابد من معرفة خصائص الأرض التي يتم التعامل معها عند رصد وقياس منسوب البترول أو استخراج الخامات من باطن الأرض وغيرها من العمليات .

قسم هندسة الحاسوب

تمهيد

إحدى الأقسام بالكلية ويعد التخصص الدقيق هندسة حاسوب وتحكم وهو من التخصصات النادرة والتي سيكون لها دورا رائد بإذن الله في قطاع المؤسسات النفطية وغيرها ويضم عدد من معامل الحاسوب التي تستخدمها كليتي العلوم الهندسية والهندسة التقنية والمجهزة بكامل اللغات والبرامج التي تحتاجها العملية التدريسية.
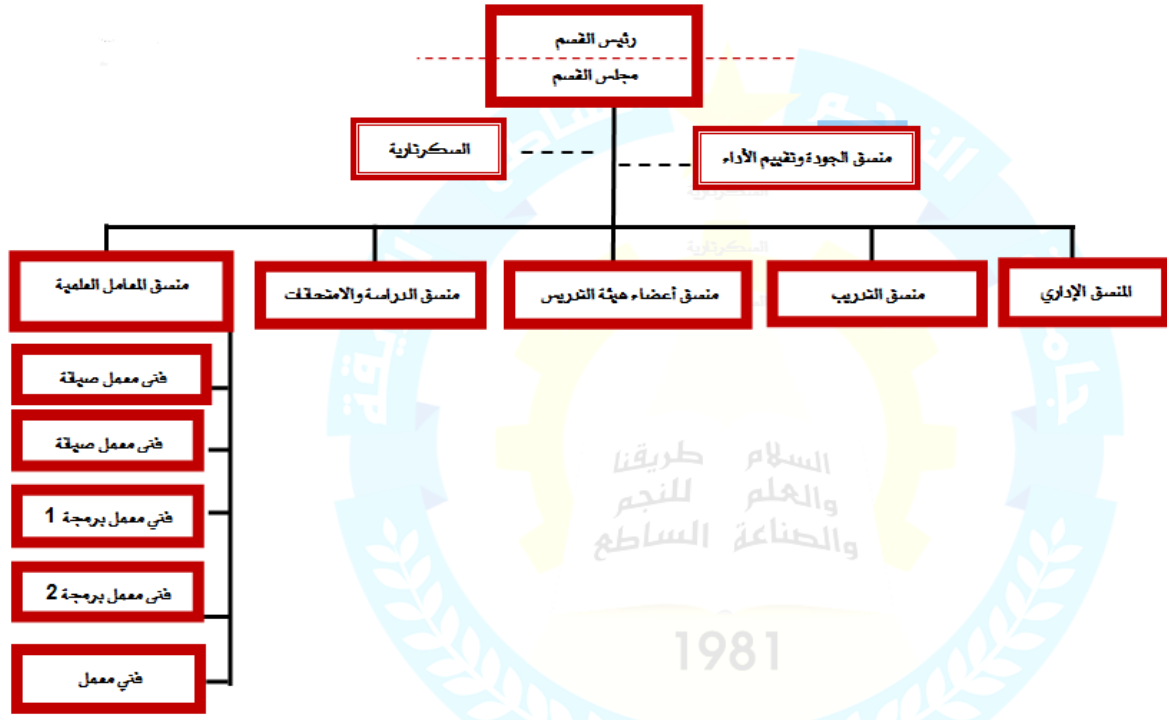
الخريطة التنظيمية لقسم هندسة الحاسوب -كلية العلوم الهندسية جامعة النجم الساطع/البريقة

الـــرؤيــة

تميز أكاديمي لإعداد كوادر وطنية مؤهلة تلبي احتياجات سوق العمل و تساهم في حل المشاكل الصناعية.

الرسالة

إعداد خريجين وطنيين ذوي كفاءة عالية ومتدربين للانخراط في سوق العمل في مجال هندسة الحاسوب.

الأهداف

١) تحقيق معايير الجودة في العملية التعليمية بالكامل وكذلك في الشؤون الإدارية والفنية .

٢) توفير جميع مستلزمات العملية التعليمية من أعضاء هيئة تدريس أكفاء ومعامل متطورة وغيرها من المعدات .

٣) تطوير الجانب البحثي في مجال هندسة الحاسوب.

٤) التنمية المستمرة للعاملين بالقسم.

الخطة الدراسية والوعاء الزمني

تستقبل الكلية في بداية كل عام دراسي طلبة الشهادة الثانوية العامة (القسم العلمي) الذين لا تقل نسبهم عن 65% و وفق الشروط التي تنص عليها لائحة الكلية حيث يخضع الطالب بعدها إلى امتحان قبول بعد إن يقوم بتعبئة استمارة بيانات من ضمنها رغبة الطالب ؛وعند اجتيازه للامتحان يدرس الطالب فصلين دراسيين للمواد العامة بالقسم العام ؛ وبعد إن ينجز 41 وحدة دراسية ينسب إلى احد أقسام الكلية بحسب سياسة الكلية والمعدل المتحصل عليه والمقرر من مجلس الكلية وكذلك رغبته.

الخطة الدراسية

أولاً: القسم العام:

- تعتبر المواد العامة مشتركة لجميع الأقسام العلمية الثلاثة الموجودة في الكلية.

First Semester Courses-20 Units							
No	Course Title	Code	Unitts	Theory	Tutorial	Practical	Prerequisite
1	General Chemistry I	GS111	4	3	-	1	-
2	General Physics I	GS112	4	3	-	1	-
3	Mathematics I	GS113	3	3	-	-	-
4	Principle of Computer I	GS114	3	2	-	-	-
٥	English I	GH115	3	2	1	-	-
٦	General Culture	GH116	2	2	-	-	-
7	Engineering Drawing I	GE117	3	2	١	١	-
Total			**22**	**17**	**2**	**٣**	

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Second Semester Courses-19Units							
No	Course Title	Code	Units	Theory	Tutorial	Practical	Prerequisite
1	General Chemistry II	GS121	4	3	-	1	GS111
2	General Physics II	GS122	4	3	-	1	GS112
3	Mathematics II	GS123	3	3	-	-	GS113
4	Computer Application II	GS124	3	2	-	2	GS114
٥	English II	GH125	3	2	-	-	GH115
٦	Arabic language	GH126	2	2	-	-	-
7	Principle of Statics & Probability	GS127	2	٢	-	-	-
Total			**21**	**١٧**	**-**	**4**	

● ثانياً : مواد التخصص

	Third Semester Courses- 20 Units						
N o	Course Title	Code	Units	Weekly Hours			Prerequisite
				Theory	Tutorial	Practical	
1	English III	GH231	٣	2	-	-	GH125
2	Mathematics III	GS232	٣	٢	-	`	GS123
3	C language	EC233	٣	2	-	1	GE124
4	Electronic measuring instruments	EC234	٣	٢	-	١	
٥	Fundamental of Electric Eng.	GE235	٣	2	-	2	**GS123+GS 122**
6	Fundamentals of control system	EC236	٢	٢	-	-	
٧	Digital system I	EC237	٣	2	-	1	
	Total		**20**	**١4**	**-**	**5**	

	Forth Semester Courses-20 Units						
No	Course Title	Code	Units	Weekly Hours			Prerequisite
				Theory	Tutorial	Practical	
1	Research Methodology & T.R.W	GH241	2	٢	-	-	GH231
2	Statics Methods for computers	GS242	٣	٢	-	-	GS127
3	Electronic circuits I	EE243	4	٣	-	1	GE235
4	Analogue control systems I	EC244	٢	١	-	-	EC2٣6
٥	Data structure	EC245	٣	2	-	2	EE237
6	Numerical analysis methods	GE246	3	2	-	1	GS114+ GS232
7	Digital system II	EC247	3	2	-	1	EC237
	Total		**20**	**١4**	**-**	**5**	

	Fifth Semester Courses-19 Units						
No	Course Title	Code	Units	Weekly Hours			Prerequisite
				Theory	Tutorial	Practical	
1	Java language	EC351	4	3	-	2	EC2٤5
2	Operating systems	EC352	٣	3	-	-	EC2٤٧
3	Electronic circuits II	EE353	4	3	-	1	EE243
4	Communication Theory	EE35٨	3	2	-	١	GS123+ GE235
٥	Micro processors I	EC255	3	2	-	١	EC2٣3
٦	Computer Networks	EC356	2	2	-	-	
	Total		**٢٠**	**15**	**-**	**5**	

Sixth Semester Courses-18 Units

No	Course Title	Code	Units	Weekly Hours			Prerequisite
				Theory	Tutorial	Practical	
1	Sensors	EE361	٣	٢	-	-	EE3٠3+ EE243
2	Distributed control systems	EC362	٣	2	-	-	EC3٠٠
3	Programmable logic control(PLC)	EC363	٣	٣	-	-	EC2٣7+ EC2٤٧
4	Data Acquisition	EC364	٤	٣	-	١	EE3٠3
٥	Micro processors II	EC365	3	2	-	2	EC3٠٠
٦	C++ language	EC366	٣	٣	-	-	EC233
Total			**١٩**	**١5**	**-**	**3**	

Seventh Semester Courses-17 Units

No	Course Title	Code	Units	Weekly Hours			Prerequisite
				Theory	Tutorial	Practical	
1	Data base	EC471	٣	٣	-	-	EC2٤5+ EC3٠٢
2	Networking security	EC472	٣	٣	-	-	EC3٠6
3	Industrial systems	EC473	4	3	-	1	EC3٦2
4	Elective I	EC474	٣	٣	-	-	
٥	Project I	EC475	٤	-	-	٤	
Total			**١7**	**12**	**-**	**5**	

Eight Semester Courses-15 Units

No	Course Title	Code	Units	Weekly Hours			Prerequisite
				Theory	Tutorial	Practical	
1	Digital control	EC481	٣	٢	-	٢	EC2٤٤
2	Elective II	EC482	٣	٣	-	-	
3	Visual basic	EC483	٣	٣	-	-	EC4٧1
4	Artificial intelligence	EC484	٣	٢	-	٢	EC355+ EC352
٥	Project II	EC585	٣	٣	-	-	
Total			**١5**	**١3**	**-**	**٤**	

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قسم هندسة السلامة والصحة المهنية

تمهيد

وهو تخصص جديد أيضا في الجامعات الليبية وهام جدا وذلك لأهمية توفر السلامة في المؤسسات والمنشات الصناعية وكذلك في مواقع الحقول النفطية حيث يوجد إقبال كبير جدا من قبل الطلاب على هذا القسم والذي يمثل العدد الأكثر طلابا في الكلية.
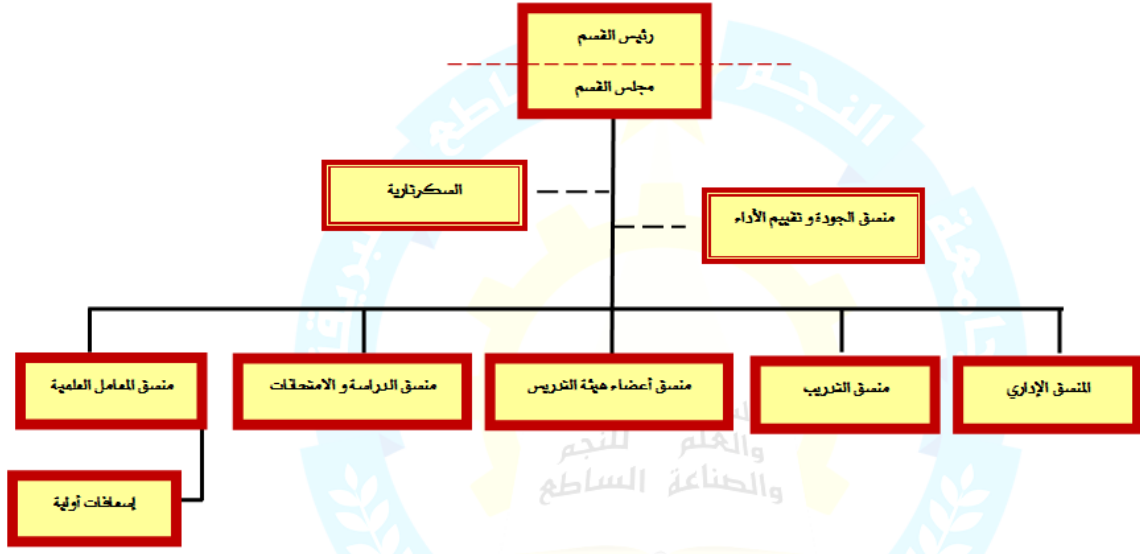
الخريطة التنظيمية لقسم هندسة السلامة والصحة المهنية _كلية العلوم الهندسية جامعة النجم الساطع /البريقة

الــرؤيــة

أن يكون قسم السلامة بجامعة النجم الساطع من الأقسام الرائدة علي مستوي شمال أفريقيا بحلول عام ٢٠١٨م.

الرسالة

إعداد كوادر متخصصة في هندسة السلامة المهنية قادرة علي المنافسة في سوق العمل الحلي و الدولي وفقاً لمعايير الجودة

الأهـداف

٥) ١ إعداد خريجين في مجال هندسة الحاسوب والتحكم قادرين على المناقشة في سوق العمل.
٦) تطير البرنامج الإداري في قسم هندسة السلامة والصحة المهنية.
٧) تطوير الجانب البحثي في مجال هندسة السلامة و الصحة المهنية.
٨) تقديم برامج لخدمة المجتمع في مجال هندسة السلامة والصحة المهنية.

١٠

٩) تعزيز السمعة الأكاديمية من خلال تحقيق الاعتماد الدولي.

الخطة الدراسية والوعاء الزمني

تستقبل الكلية في بداية كل عام دراسي طلبة الشهادة الثانوية العامة (القسم العلمي) الذين لا تقل نسبهم عن 70% و وفق الشروط التي تنص عليها لائحة الكلية حيث يخضع الطالب بعدها إلى امتحان قبول بعد إن يقوم بتعبئة استمارة بيانات من ضمنها رغبة الطالب ؛وعند اجتيازه للامتحان يدرس الطالب فصلين دراسيين للمواد العامة بالقسم العام ؛ وبعد إن ينجز 41 وحدة دراسية ينسب إلى احد أقسام الكلية بحسب المعدل المتحصل عليه والمقرر من مجلس الكلية ثم رغبته.

ثانياً : مواد التخصص

Third Semester Courses-**20** Units							
No	Course Title	Code	Units	Weekly Hours			Prerequisite
				Theory	Tutorial	Practical	
1	Determination ofhazard	HS231	٤	٣	-	٢	-
2	Risk Identification and Analysis	HS232	٣	٣	-	١	-
3	Industrial psychology	GH233	٣	٣	-	-	-
4	Engineering Graphics	HS234	٣	٢	1	١	-
٥	Introduction to safety	HS235	٢	٢	-	-	-
٦	Introduction to Environment Science	HS236	٢	٢	-	-	-
7	Risk assessment	HS237	٣	٣	-	1	-
Total			**20**	**18**	**1**	**5**	

Forth Semester Courses-**20**Units							
No	Course Title	Code	Units	Weekly Hours			Prerequisite
				Theory	Tutorial	Practical	
1	Research Methodology& T.R.W	GH241	٢	٢	-	-	
2	Humanities	GH242	٢	٢	-	-	GH233
3	Pollution	HS243	٣	٢	-	١	HS236
4	Safety Management	HS244	٢	٢	-	-	-
٥	Fire protection	HS245	٣	٢	1	١	-
٦	Chemical Hazards 1	HS246	٣	٣	1	١	-
7	Fire Chemistry	HS247	٣	٣	-	١	-
8	Accident Prevention	HS248	٢	٢	-	١	-
Total			**20**	**18**	**2**	**5**	

	Fifth Semester Courses-**20** Units						
No	Course Title	Code	Units	Weekly Hours			Prerequisite
				Theory	Tutorial	Practical	
1	Waste Dispose	HS351	3	٣	-	١	HS243
2	Ergonomics	HS352	٣	٣	-	١	-
3	Occupational Disease	HS353	٣	٢	-	١	-
4	Material Handling	HS354	٣	٢	-	٢	-
٥	Engineering protection procedure	HS355	٣	٣	1	١	-
٦	Chemical Hazards 2	HS356	٣	٣	1	١	HS246
7	Technical Terminology 1	GH357	٢	٢	-	-	-
Total			**20**	**18**	**2**	**7**	

	Sixth Semester Courses-**18**Units						
No	Course Title	Code	Units	Weekly Hours			Prerequisite
				Theory	Tutorial	Practical	
1	Principle of Engineering Economy	GE361	٢	٢		-	-
2	Chemical Storing	HS362	٣	٢	1	١	HS356
3	Communication	GE363	٢	٢		١	-
4	Legislation	GH364	٢	٢		-	-
٥	Risk Management	GE365	٣	٣		١	-
٦	Safety engineering technology	HS366	٣	٢	1	1	HS352
7	Environmental Condition	HS367	٣	3		1	-
Total			**18**	**16**	**2**	**5**	

	Seventh Semester Courses-**17**Units						
No	Course Title	Code	Units	Weekly Hours			Prerequisite
				Theory	Tutorial	Practical	
1	Quality ManagementTotal	GE471	٣	٣		١	GE365
2	Manufacturing processes	CE472	٣	٣	1	١	-
3	Environmental protection	HS473	٣	٢		٢	HS367
4	Exhaust ventilation	HS474	٣	٣		١	-
٥	First aid	HS475	٣	٢	1	١	-
٦	Technical	GH476	٢	٢		-	GH357

	Total		17	15	2	6
	Terminology 2					

(Note: the fragment row above — "Terminology 2" then "Total" with 17, 15, 2, 6 — appears at the top)

	Eight Semester Courses-16Units						
No	Course Title	Code	Units	Weekly Hours			Prerequisite
				Theory	Tutorial	Practical	
1	Hygiene chemistry	HS481	٣	٢	1	2	-
2	Accident investigation	HS482	٣	٢	1	١	-
3	Machine – tool hazard	HS483	٣	٢	1	١	-
4	Industrial polluted water Treatment	CE484	٣	٢	1	١	-
5	Final project	HS485	٤	٤	-	٣	-
	Total		16	12	4	8	

قسم هندسة جيولوجيا النفط

تمهيد

فتح هذا القسم بعد قسمي الحاسوب والسلامة بفصل ويعد من الأقسام الحيوية والتي لها مستقبل مهني لأهمية المهندس الجيولوجي والذي يعتبر المكمل لمهندس النفط في المواقع والحقول النفطية. ويضم هذا القسم مجموعة من المعامل ويستكمل فيه الطلاب مقرراتهم الدراسية مع دعم بالزيارات الميدانية والحفريات.
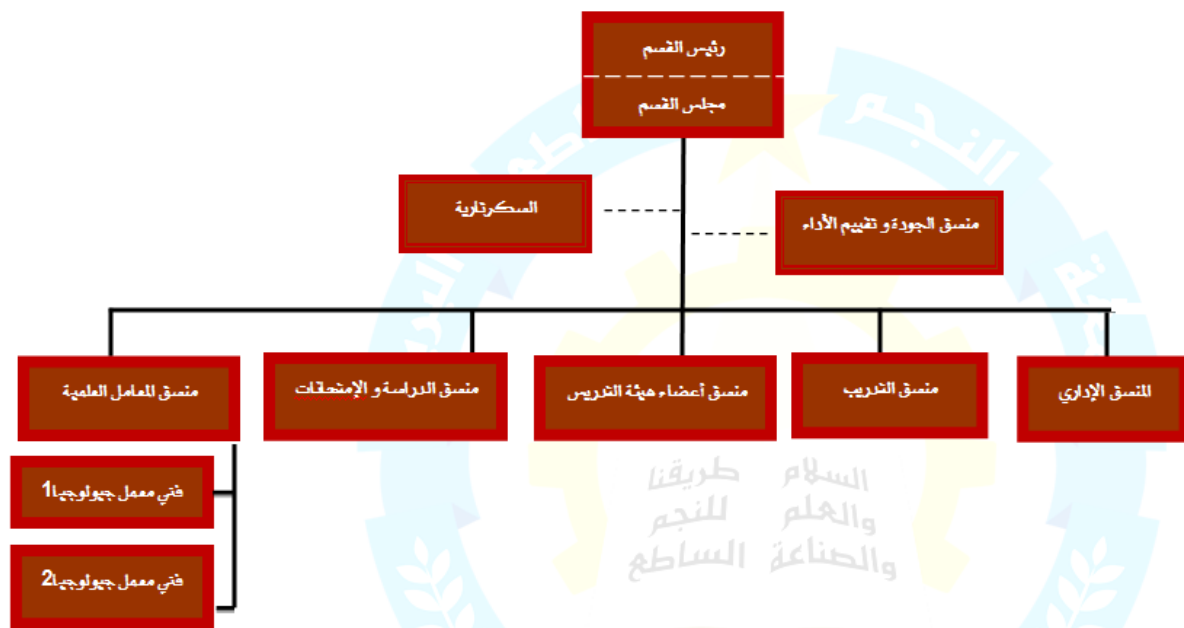
الخريطة التنظيمية لقسم هندسة جيولوجيا النفط_كلية العلوم الهندسية جامعة النجم الساطع /البريقة

الـــرؤيـــة

أن يكون قسم هندسة الجيولوجيا من الأقسام المتميزة علميا وبحثيا على المستوى الدولي

والإقليمي. الـرسـالة

تخريج مهندسين ذوي مهارات تقنية ومهنية عالية قادرين على الانخراط في سوق العمل وفق معايير الجودة.

الأهــداف

1) إعداد خريجين في مجال هندسة الجيولوجيا والتحكم قادرين على المناقشة في سوق العمل.

٢) تطير البرنامج الإداري في قسم هندسة الجيولوجيا.

3) تطوير الجانب البحثي في مجال هندسة الجيولوجيا.

4) تقديم برامج لخدمة المجتمع في مجال هندسة الجيولوجيا .

5) تعزيز السمعة الأكاديمية من خلال تحقيق الاعتماد الدولي.

الخطة الدراسية والوعاء الزمني

تستقبل الكلية في بداية كل عام دراسي طلبة الشهادة الثانوية العامة (القسم العلمي) الذين لا تقل نسبهم عن 75% و وفق الشروط التي تنص عليها لائحة الكلية حيث يخضع الطالب بعدها إلى امتحان قبول بعد إن يقوم بتعبئة استمارة بيانات من ضمنها رغبة الطالب ؛وعند اجتيازه للامتحان يدرس الطالب فصلين دراسيين للمواد العامة بالقسم العام ؛ وبعد إن ينجز 41 وحدة دراسية ينسب إلى احد أقسام الكلية بحسب المعدل المتحصل عليه والمقرر من مجلس الكلية ثم رغبته.

ثانياً : مواد التخصص

No	Course Title	Code	Units	Theory	Tutorial	Practical	Prerequisite
	Third Semester Courses- **18** Units		Units		Weekly Hours		Prerequisite
				Theory	Tutorial	Practical	
1	English Language III	GH231	3	٢	1	-	GH125
2	Mathematics III	GS232	3	2	1	-	GS123
3	Physical Geology	SGL233	4	3	-	2	-
4	Crystallography & Mineralogy	SGL234	٣	٢	-	٢	-
٥	Pleo-Botany	SGL235	3	2	-	2	-
٦	Zoology	SGL236	٣	٢	-	٢	-

	Total		١٩	13	2	٨

Forth Semester Courses- **1٧** Units							
No	Course Title	Code	Units	Weekly Hours			Prerequisite
				Theory	Tutorial	Practical	
1	Research Methodology & T.R.W	GS241	3	2	1	-	GH231
2	Introduction of Petroleum Geology Engineering	SGL242	3	٢	-	-	-
3	Optical Mineralogy	SGL243	٣	٢	-	٢	SGL234
4	Historical geology	SGL244	٣	٢	-	٢	-
٥	Geomorphology	SGL245	٣	٣	-	-	-
٦	Sedimentology1	SGL246	٣	٢	-	٢	SGL233
	Total		**1٨**	**13**	**1**	**٦**	

Fifth Semester Courses- **18** Units							
No	Course Title	Code	Units	Weekly Hours			Prerequisite
				Theory	Tutorial	Practical	
1	Structural Geology	SGL351	٣	٢	-	١	SGL233
2	Sedimentology2	SGL352	٣	٢	-	٢	SGL246
3	Petrography	SGL353	٣	٢	-	٢	SGL243
4	Geochemistry	SGL354	٣	٢	-	-	-
٥	Engineering Geophysics	SGL355	٣	٢	-	٢	-
٦	Paleontology Invertebrate	SGL356	٣	٢	-	2	-
	Total		**18**	**12**	**-**	**9**	

Sixth Semester Courses- **18**Units							
No	Course Title	Code	Units	Weekly Hours			Prerequisite
				Theory	Tutorial	Practical	
1	Stratigraphy	SGL361	٣	٢	-	٢	SGL246
2	Petroleum Geology	SGL362	٣	3	-	-	
3	Hydrogeology	SGL363	٣	٣	-	-	-
4	Photo geology & Remote sensing	SGL364	٣	٢	-	١	SGL351
٥	Micro-Paleontology	SGL365	٣	٢	-	٢	SGL256
٦	Environmental Geology	SGL366	2	2	-	-	-
	Total		**17**	**14**	**-**	**5**	

١٥

	Seventh Semester Courses-**18** Units						
No	Course Title	Code	Units	Weekly Hours			Prerequisite
				Theory	Tutorial	Practical	
1	Regional Geology Of Libya	SGL471	٣	٣	-	-	SGL361
2	Seismic Data Interpretation	SGL472	٣	٢	-	٢	SGL255
3	Well Logging	SGL473	٣	٢	-	٢	-
4	Reservior Petrophysics	SGL474	٣	٢	-	2	SGL362
5	Geological Field Methods	SGL475	٤	٣	-	٢	SGL361
	Total		**16**	**12**	**-**	**8**	

	Eight Semester Courses-1٧ Units						
No	Course Title	Code	Units	Weekly Hours			Prerequisite
				Theory	Tutorial	Practical	
1	Source rock evaluation	SGL481	٣	٣	-	-	SGL362
2	Basin Analysis	SGL482	٣	٢	-	١	
3	Drilling Technology	SGL483	٣	٣	-	-	
4	Biostratigraphy	SGL484	٣	٢	-	٢	SGL 361
٥	Final Petroleum Geology Project	SGL500	٦	**3**	-	**3**	SGL476
	Total		**18**	**13**	-	**6**	

نظام الدراسة بالكلية

- تكون الدراسة بالكلية وفقاً لنظام الفصل الدراسي المغلق وينقسم العام الدراسي إلى فصلين دراسيين (الربيع– الخريف) ،وتكون مدة الدراسة في كل فصل (١٤) أسبوع مضاف إليها أسبوعان لعقد الامتحانات النهائية.

- تجديد القيد بداية كل فصل وفق المواعيد المحددة وعلى الطالب الحضور شخصياً.

- يجوز للطالب إيقاف القيد خلال شهر من بداية الدراسة وفق المدة المحددة في التقويم ، ويحق له إيقاف القيد مرتين فقط خلال دراسته الجامعية.

- على الطالب حضور المحاضرات والدروس العلمية ولا يحق له دخول الامتحان في أي مقرر تزيد نسبة غيابه عن (٢٥%) أي من ٤ إلى ٥ محاضرات ويعطى تقدير راسب في المقرر.

- لا يعتبر الطالب ناجحا ولا تجمع له الدرجة في الامتحان النهائي حتى يتحصل على مجموع درجات 20 على الأقل من الدرجة النهائية(٦٠).

- لا يجوز للطالب الدخول على المادة من ١٠٠ في حالة تغيب الطالب عن الامتحان الجزئي ولا يقبل له إي أعذار أو أسباب وسيتعامل معه وفق لائحة الكلية والنصوص الواردة فيها.

- يجوز لطالب إعادة إي مادة أنجزها بشرط إن يكون معدله فيها اقل من 65% وبحسب ما تنص عليه اللائحة (501).

- لا يتخرج الطالب إلا بعد حصوله على معدل تراكمي لا يقل عن 55% .

انتقال الطالب:

١-الانتقال داخل الكلية:

يقبل انتقال الطالب من قسم إلى قسم أخر بالكلية إذا كان متحصلا على المعدل المشروط وان لا يكون قد اجتاز مواد الفصل الرابع.

٢- الانتقال من كلية إلى كلية أخرى داخل الجامعة:

يقبل الطالب المنتقل إذا كان مستوفيا لشروط القبول بموافقة مجلس الكلية المنتقل إليها وطبقا للائحتها حيث تعرض استمارة مواده على اللجنة العلمية بالكلية ومن ثم تحال إلى لجنة المعادلة التابعة للقسم العلمي المختص المنتقل إليه.

٣- الانتقال من جامعة أخري إلى الكلية:

بعد ان يتم استلام مستندات الطلبة المنتقلين من مسجل عام الجامعة يجتمع مجلس الكلية (الشؤون العلمية بالكلية) عليها لتأكيد عليها ما إذا كانت مستوفية لشروط أم لا ولابد إن يقر المجلس بان الجامعة معترف بها وبعدها تعرض على لجنة استلام للبث فيها عند استيفاء الشروط التالية:

- أن يقدم ما يفيد بأنه غير مفصول.
- ألا يقل متوسط معدله التراكمي عن ٥٠%.
- ألا يكون قد أمضى أكثر من سنتين من تاريخ حصوله عليه.
- تبث لجنة الاستلام في طلبات الانتقال، وتنسب المقبولين منهم إلى الأقسام المعنية بالكلية لإجراء المعادلة اللازمة على النحو الآتي:
- تستبعد المقررات المتحصل فيها الطالب على أقل من ٦٠% ويطلب إعادة دراستها إذا كانت من متطلبات القسم.
- تحتسب في المعدل التراكمي للطالب المنتقل المقررات التي درسها بكلية العلوم فقط مع الإبقاء على جميع المقررات التي درسها في بطاقته الدراسية وكذلك المقررات المقبولة له.
- تحسب المقررات الدراسية التي سبق أن درسها الطالب من ضمن المدة الدراسية.

- لا يتحصل الطالب المنتقل على الإجازة المتخصصة من كلية العلوم الهندسية إلا إذا درس ١٠٠% من مقررات القسم المنتقل إليه لتخرجه من هذه الكلية.

وصف المقررات الدراسية في قسم هندسة الحاسوب

3. <u>THIRD SEMESTER</u>

Course no.	EC233	
Course Title.	C language	
Credit.	**3 Credit**	**Hours per week. (2 Lec + 0 Tut + 1 lab)**
Prerequisite.	GE124	
Course Description.	Introduction to c: history, facilities, and concepts, uses, "the basics of programming language", different programming techniques and procedural programming, programming units "and" object oriented programming program structure: simple data types, variables, constants, operators, comments, help control decision; if another switch, etc. Simple programs based on the study's concepts, control flow instructions for loop, while loop, do-while. Functions: function types, parameters, and models and redoing. Arrays: array definition, initialize an array, accessing individual array elements, two dimensional arrays, access to the elements of two dimensional array, pass an array element to a function using the array rules. Indicators: initialize a variable index, ausingohat index? Declare a variable index, an indicator variable, pointer arithmetic. Matrix indicators: pass an array to a function. The functions return a cursor variable. " Structures: ads and access to member access and structures, pointers to the structures and functions of structures, arrays of structures. Other data types: trade unions, enumerations, and bit fields. Files: index file, open the file, close the file, in the file**.**	

Course no.	EC234	
Course Title.	Electronic measuring instruments	
Credit.	**3 Credit**	**Hours per week. (2 Lec + 0 Tut + 2 lab)**
Prerequisite.	None	
Course	Units and standard systems, electrical measurements, measurement	

Descriptio n.	errors, precision, statistical analysis, static almaiarh, clarity and precision, dynamic response, coil devices, mobile devices, iron alkhrodinamikih, sensory, and current measurements voltage and power measurements, capacity and charge, measuring frequency and power factor, measuring the electric tanneries, alasilskob, DC and AC archways, measuring resistance and capacity, identify faults in cables, **strain addadt Temperature** gauges, and displacement and speed and wheel strength and pressure, optical devices, data converters, voltage and frequency changers, digital devices, signal generation, and wave Spectrum Analyzer, digital data collection systems, overlapping, Alta MATH, liquid crystal displays, optical fiber sensors.

Course no.	EC236	
Course Title.	**Fundamentals of control system**	
Credit.	**2 Credit**	**Hours per week. (2 Lec + 0 Tut + 0 lab)**
Prerequisit e.	**None**	
Course Descriptio n.	Introduction and definition-models of physical systems – feedback control system characteristics. The performance of feedback control system – stability analysis – root locus analysis and design – frequency response analysis stability in frequency domain – feedback control system design and compensation . With examples are simulated and programmed using mat lab.	

Course no.	EC 237	
Course Title.	**Digital system I**	
Credit.	**3 Credit**	**Hours per week. (3 Lec + 0 Tut + 2 lab)**
Prerequisit e.	**None**	
Course Descriptio n.	Binary arithmetic . Boolean algebra .Basic logic elements and their characteristics .Combinational logic functions (adders, decoders, multiplexers, etc.) and their implementation. Flip-flops, gate level realization. Asynchronous counters and registers. Introduction to ROM , RAM, and PLAs Analysis and design of small sequential logic system. PLDS,FGA. Practical: AND, OR, NOT, NAND, NOR, XOR, XNOR circuits basic truth table investigation work of the service. Consensual circuit analysis, tracking the score circuits and use its correctness agenda preparation and simplification of harmonic circuits. Combined services building full and complete and whole grappler BCD decimal using the combined services. A.F comparative service building ingredients for each length integers-2 bits, using basic circuits. And comparative service runs two length each. Virtually all action recognition 4bits from coding and Assembly services.	

4. <u>FOURTH SEMESTER</u>

Course no.	EC 242	
Course Title.	Statistical methods for the computer	
Credit.	**3 Credit**	**Hours per week. (2 Lec + 0 Tut + 0 lab)**
Prerequisite.	**GS127**	
Course Description.	Define statistics, statistical methods, descriptive statistics, statistical evidence, types of samples: probability sampling non-probability sampling-. Probability distributions and continuous: the normal distribution, the standard normal distribution, distribution, distribution of Fisher, appreciation, hypothesis tests, test independence: coefficient function, correction factor possible, analysis of variance, allocation criteria.	

Course no.	EE 243	
Course Title.	**Electronic circuits I**	
Credit.	**4 Credit**	**Hours per week. (3 Lec + 0 Tut + 1 lab)**
Prerequisite.	**GE235**	
Course Description.	BJT and FET Transistor biasing. Small signal amplifiers. FET transistors. Boe plot and transfer function, Frequency-response of amplifiers. Multistage amplifiers. Large-signal amplifiers.	

Course no.	EC244	
Course Title.	**Analogue control systems I**	
Credit.	**2 Credit**	**Hours per week. (1 Lec + 0 Tut + 0 lab)**
Prerequisite.	**EC236**	
Course Description.	Feedback control system concept , speed and position control systems . frequency response techniques- use of Bode , inverse Nyquist. Root – locus and Nichols charts. Performance criteria , error , sensitivity , stability and time response . compensation techniques. State –space representation, analysis and design.	

Course no.	EC245
Course Title.	Data structure
Credit.	3 Credit	Hours per week. (2 Lec + 0 Tut + 2 lab)
Prerequisite.	EC237	
Course Description.	Packed data structure (arrays and files. Creation and retrieval of stable sparse matrices. Internal sorts algorithms. Basic operations on sequential and random files. External sorts algorithms. Strings). Dynamic data structures (linear and nonlinear .Basic operations on stacks. Arithmetic expressions translation using stacks. Linked list, double linked lists, queues, circular lists. Basic operation and application to simulation problems. Trees. Creation and parsing (travelling) algorithms).	

Course no.	EC247
Course Title.	Digital system II
Credit.	3 Credit	Hours per week. (2 Lec + 0 Tut + 1 lab)
Prerequisite.	EC237	
Course Description.	Compositional reasoning and cascade. Design techniques. Review of algorithms and tools. The principle of structural design. Design strategies. Dissolution of the design. Design tools. Introduction to basic features alata language. Modeling and texturing. Basics of modelling language meta gear. Level design algorithm. Alsgli transport-level design. Sequential circuit design (synchronous and asynchronous). Programming devices and storage media. Applied system design	

5. <u>FIFTH SEMESTER</u>

Course no.	EC351	
Course Title.	**Java language**	
Credit.	**3 Credit**	**Hours per week. (3 Lec + 0 Tut + 2 lab)**
Prerequisite.	**EC245**	
Course Description.	Introduction to the Java language basics: transformers – transactions, expression and phrases and blocks, control structures: the words, the words for while and do-while, if words and words switch, arrays, classes in Java: the members and methods, the life cycle of the class-grade parts, Genetics: introduction, benefits of genetics, Department of genetics, heredity.	

Course no.	EC352	
Course Title.	**Operating systems**	
Credit.	**3 Credit**	**Hours per week. (3 Lec + 0 Tut + 0 lab)**
Prerequisite.	**EC247**	
Course Description.	Computer systems organization . Types and functions of operating systems. process management , Memory management. I/O management . Case studies of typical operating systems (Unix ,DOS)**.**	

Course no.	EE353	
Course Title.	**Electronic circuits II**	
Credit.	**4 Credit**	**Hours per week. (3 Lec + 0 Tut + 1 lab)**
Prerequisite.	**EE243**	
Course Description.	Feedback amplifiers and stability. Operational amplifiers; characteristics and applications. Power electronic. Waveform generators (oscillators; sine; square; triangle waves). Waves shaping circuits (multi-stable, multi-vibrators, pulse generators).	

Course no.	EC354	
Course Title.	Communication Theory	
Credit.	3 Credit	Hours per week. (2 Lec + 0 Tut + 1 lab)
Prerequisite.	GS123+ GE235	
Course Description.	Spectral analysis, Modulation, Amplitude modulation (AM), Double side band suppressed-carrier (DSB-SC), single side band (SSB), frequency division multiplexing (FDM), angle modulation, phase and frequency modulation, pulse amplitude modulation (PAM), pulse width modulation (PWM), pulse position modulation (PPM), pulse code modulation (PCM), multiplexing time division multiplexing in PCM, delta modulation (DM).	
Course no.	EC355	
Course Title.	Micro processors I	
Credit.	3 Credit	Hours per week. (2 Lec + 0 Tut + 1 lab)
Prerequisite.	EC233	
Course Description.	Microprocessor architecture , real and protected mode memory addressing , memory paging , addressing modes , instruction set and Assembly language programming . Case studies of the contemporary microprocessors , Memory interfacing and timing I/O devices programming and interfacing ; programmable peripheral interface ,programmable communication interface , programmable interrupt controller , and DMA controller.	

Course no.	EC356	
Course Title.	Computer Networks	
Credit.	3 Credit	Hours per week. (2 Lec + 0 Tut + 0 lab)
Prerequisite .	None	
Course Description .	This course will provide an introduction to computer networking technologies, including architectures, protocols, and interfaces. Addressing ,routing, flow control, queuing and routing will be discussed. It covers the concepts, vocabulary design issues, and techniques currently used in the area of the computer networks. Topics include history and evolution, transmission media, interconnection topology, control method, protocols, types of nods, network interfaces, performance analysis, diagnosis and maintenance, taxonomy, bridges, and gateways.	

6. <u>Sixth SEMESTER</u>

Course no.	EE361	
Course Title.	Sensors	
Credit.	3 Credit	Hours per week. (2 Lec + 0 Tut + 0 lab)
Prerequisite.	EE3٥3+ EE243	
Course Description.	Principles and operation of sensors, using mathematical models in hardware systems, defined measurement systems, sensors, elements of General configuration inputs and output systems, static and dynamic characteristics of measuring systems, standards and metrology, sensors measuring sensor-variable resistance voltage difference, sensors measure the pressure (emotion) metallic and semiconducting, modified signal measurement and applications of sensors measure the pressure (tonnage measurement and torque).	

Course no.	EC362	
Course Title.	Distributed control systems	
Credit.	3 Credit	Hours per week. (2 Lec + 0 Tut + 0 lab)
Prerequisite.	EC355	
Course Description.	General concepts of operating systems-concepts of distributed systems — structure of distributed systems – centralized control and distributed control-transparency in distributed systems-label concepts – communication between programs – grant resources and impact on the Division of the load-balancing partitioning burden – migration programs – time synchronization – control competition in distributed environments.	

Course no.	EC363	
Course Title.	Programmable logic control(PLC)	
Credit.	3 Credit	Hours per week. (3 Lec + 0 Tut + 0 lab)
Prerequisite.	EC2٣7+ EC 2٤٧	
Course Description.	Basic concepts of small programmable controllers, programmable logic: inputs/outputs, relays, counters and timers, concept drawing, functions and commands and functions and data processing controllers	

Course no.	EC364
Course Title.	Data Acquisition
Credit.	4 Credit	Hours per week. (3 Lec + 0 Tut + 1 lab)

Prerequisite.	EE3◦3

Course Description.	Active filters. A\D, A\D conversion methods, organization of digital instruments, principles of data- logging. Sensors and Transducers, Instrumentation Amplifiers, signal conditioning techniques, consideration of bandwidth and stability, recovery of signals from noise, correlation and sampling techniques. Interference and noise. Common mode rejection techniques for elimination of ground loops, screening, guard techniques. Error budget, Actuators (serro motor, step motor, relays).
	
	 Data Acquisition and control Lab:
	   Microcontroller, simulation tools (proteus), Microcontroller
	   programming (Micro C)

Course no.	EC365
Course Title.	Micro processors II
Credit.	3 Credit	Hours per week. (2 Lec + 0 Tut + 2 lab)

Prerequisite.	EC3◦5
Course Description.	Description of the controlled precision programmable family synthetic PIC PIC16F84 control components/PIC16F877, its structure, the energy patterns, tips Widget, organize and address memory (program memory and internal and external data) describe the functions of recorders, directives and programmers, input and provincial operations, linking with the surrounding organs and study some applications. Case study comparing 16 processors/32-bit for my Motrolla and Intel. Software applications on personal computer using the TASM and Pascal and C high twist. Practical content: practical experiences Intel 808. . Software applications on personal computer using the TASM and languages. C & Pascal.

Course no.	EC366	
Course Title.	C++ language	
Credit.	3 Credit	Hours per week. (2 Lec + 0 Tut + 1 lab)
Prerequisite .	EC233	
Course Description .	Introduction to computing and programming, Setup systems and compilers, programming errors, program structure and commands note printing, form printing and control commands, variables and calculations and expressions, handle the input and output files, control the program using IF-else command statement, Switch, switching orders for while loops and loop programming, external functions, dealing with various dimensions of mathematical matrices, nominal variables, indicators, structural data, presented in categories, a variety of engineering applications**.**	

7.SEVENTH SEMESTER

Course no.	EC471	
Course Title.	Data base	
Credit.	3 Credit	Hours per week. (3 Lec + 0 Tut + 0 lab)
Prerequisit e.	EC245 + EC352	
Course Description .	Part1: Data base and Data base Users (Data base system concepts and Architecture, Data Modeling Using the Entity Relationship Models, Enhanced Entity Relationship and UML Modeling). Part 2: (RELATIONAL MODEL: CONCEPTS, CONSTRAINTS, LANGUGES, DESIGN, AND PROGRAMMING. The Relational Data Model and Relation Data base Constraints, The Relational Algebra and Relational Calculus, Relational Data base Design by ER and EER to Relational Mapping, SQL : Schema Definition, Basic Constraints, and Queries, More SQL :Assertions, Views, and programming Techniques).	

Course no.	EC472
Course Title.	Networking security
Credit.	3 Credit	Hours per week. (3 Lec + 0 Tut + 0 lab)
Prerequisite.	EC3٠6
Course Description.	This course emphasizes the need for security; the issues of privacy, confidentiality, integrity and reliability of computer systems vis-à-vis the vulnerabilities and threats to computing system resources: hardware, software, information, communication networks, distributed systems, and databases. Principles of design, implementation and administering secure systems incorporating multilevel security strategies, secrecy/ cryptography algorithms, authentication, non repudiation, digital signatures, Internet/intranet firewalls, OS security aspects, object oriented access control, PVNs are covered in sufficient detail. Describe efficient basic number-theoretic algorithms, including greatest common divisor, multiplicative inverse mod n, and raising to powers mod n. Describe at least one public-key cryptosystem, including a necessary complexity-theoretic assumption for its security. Create simple extensions of cryptographic protocols, using known protocols and cryptographic primitives. Discuss the fundamental ideas of public-key cryptography. Describe how public-key cryptography works. Distinguish between the use of private- and public-key algorithms. Summarize common authentication protocols. Generate and distribute a PGP key pair and use the PGP package to send an encrypted e-mail message. Summarize the capabilities and limitations of the means of cryptography that are conveniently available to the general public. Outline the technical basis of viruses and denial-of-service attacks. Enumerate techniques to combat "cracker" attacks. Discuss several different "cracker" approaches and motivations. Identify the professional's role in security and the tradeoffs involved. Defend the need for protection and security, and the role of ethical considerations in computer use.

Course no.	EE473	
Course Title.	Industrial systems	
Credit.	3 Credit	Hours per week. (3 Lec + 0 Tut + 1 lab)
Prerequisite.	EC362	
Course Description.	Programmable logic controllers (PLC), definition and characteristics of PLC (basics), describe the parts and Assembly, units (cards), I/o channels, a comparative study of digital control systems and control relays, PLC system work style, programming languages: (peaceful chart), functional block diagram (FBD), sequential function chart (SFC), the instruction list (IL), structured text (ST), geometrical applications. Programmed digital automation machines, automation (definition – stages of automation – features – applications), digital control machines components (NC) and the DNC and CNC digital control, classes, types of movement on the coordinates, and how to use step motors in CNC machines and calculate precise movement, CNC machines programming methods and languages spoken, language (code) G programming orders and coordinates its functions and variables with examples. Practical: industrial control programmers using the comparison lab system.	

8. Eighth SEMESTER

Course no.	EC481	
Course Title.	Digital control	
Credit.	3 Credit	Hours per week. (2 Lec + 0 Tut + 2 lab)
Prerequisite.	EC244	
Course Description.	State space description of continuous and sampled system. State feedback, controllability, pole placement. State estimation , Observability , feedback from estimated state. Minimal order observers. Regulators with integral effect. Design by minimization of a quadratic performance function. Practical rules for direct digital control (DDC). Realization and consideration of digital control algorithms . Design of digital controllers using-space analysis (state observation , state estimation, kalman filter). Digital Filter Design.	

Course no.	EC483	
Course Title.	**Visual basic**	
Credit.	**3 Credit**	**Hours per week. (3 Lec + 0 Tut + 0 lab)**
Prerequisite .	**EC471**	
Course Description .	- Structures and classes Classless & Structures define structures and layers, layers as input factors as return values as Class access control), Member function & Encapsulation) Member packaging functions, argument Return value member) & (Member access control, (Albany and the destroyer (deconstructor & Constructor (initialization and customization by Albany (assignment & Initialization Constructor, friendly functions (Friend function (convert kinds of classes.: coping files additive programming and implementation and applied genetics files derived classes), A class for sets) to corpora layers), Interface , Implementation and application, files) (Virtual function default function), Multiple Inheritances) heredity), Porired classes & Inheritances)..	

Course no.	EC484	
Course Title.	**Artificial intelligence**	
Credit.	**3 Credit**	**Hours per week. (2 Lec + 0 Tut + 2 lab)**
Prerequisite .	**EC355+ EC352**	
Course Description .	Introduction and definitions, applications of artificial intelligence, knowledge representation and examples, mathematical logic from first class and examples, natural language understanding and intelligent and therefore designate examples examples, fuzzy logic, neural networks, research and resolve issues with search, public review. <u>Practical:</u> Development of the student's abilities to obtain information from Internet **easily**	

وصف المقررات الدراسية في قسم هندسة السلامة والصحة المهنية

3. THIRD SEMESTER

Course no.	HS 231	
Course Title.	Determination of hazard	
Credit.	**4** Credit	Hours per week. (3 Lec + 0 Tut + 2 lab)
Prerequisite.	Nil	
Course Description.	Introduction - Definitions - Acceptable risk - Examples of risks Types and elements of inspection Special Inspection - Continuous Inspection - Intermittent Inspection - Periodic Inspection Types of inspection reports (semi - monthly inspection - quarterly report - annual report). Production Allowance Noise Vibration Work Permits Work Permit Systems - Work Permits - Work Execution - Work Completion Types of Permits Methods to Match the Quality of Hazardous Materials Location and Location Container Form Signs and colors Ads and stickers shipping papers Sensor detection equipment Practical part: Study of methods for determining the hobby of hazardous materials Study of the speed of work and periodic review of implementation Hazard detection in the work environment (noise and vibration) Practical needs and means of field visits Detection devices.	

Course no.	HS232	
Course Title.	Risk identification and analysis	
Credit.	3 Credit	Hours per week. (3 Lec + 0 Tut + 1 lab)
Prerequisite.	Nil	
Course Description.	Monitoring definitions - Risks - Risk analysis. The purpose of risk analysis. Benefits of the method of risk analysis. Methods A / Induction Method B / Induction Method Error Analysis	

(FMEA) Risks and risk assessment.
Risks are balanced with risk. Hazardous Materials List (Model). Sources of hazard information General guide for durations. - Telephones Center. General pattern of conduct of hazardous substances efficient event, break event, editing event, immersion event, impact and collision, harm incident.

Course no.	GH233	
Course Title.	Industrial Psychology	
Credit.	3 Credit	Hours per week. (3 Lec + 0 Tut + 0 lab)
Prerequisite.	Nil	
Course Description.	The definition of general psychology and industrial psychology in terms of subjects of study and the objectives of each of them (development and development) Introduction to general psychology, personality, thought, emotion, normal and abnormal behavior in society and measurements. (Definition, theories) Practical application Cooperation and competition mental activity, memory, vigilance Psychological stress. Definition, work requirements as psychological pressure. Job satisfaction (its growth and its impact on production and occupational diseases).	

Course no.	HS234	
Course Title.	Engineering Graphics	
Credit.	3 Credit	Hours per week. (2 Lec + 1 Tut + 1 lab)
Prerequisite.	Nil	

Engineering maps, definition, types). How to read engineering maps. Electrical and electronic maps. Electrical symbols, electronic symbols, engineering terminology, symbols and meanings, lighting schemes, sockets, lamps, bell and fluorescent. Civil and Structural Symbols. Map key. Health engineering codes. Site maps. Locations of doors and windows. Types, shapes, sizes, dimensions, heights, measurements, corridors, stairs, ventilation and lighting. Uh. Sewage maps. Mechanical maps Symbols for hydraulic systems Piping systems (air and steam systems) Systems and work site projections. Choose the project location, site contents and layout. Flowcharts: Code accounts and other information and how to write them on flowcharts. Pipe and instrument designs Pipe design, models and specifications of fittings (auxiliary equipment), valves and pressure discharge devices. Single Pipeline and Pipeline Plans. Cost considerations for the plant, evaluation of consumption, profit and alternative investments. A model industrial study that takes into consideration the above mentioned topics. |

Course no.	HS235
Course Title.	Introduction to Safety
Credit.	2 Credit	Hours per week. (2 Lec + 0 Tut + 0 lab)
Prerequisite.	Nil
Course Description .	Occupational safety and health concept Safety objectives Results of work with occupational safety and health system

Course Description block (HS235):

Occupational safety and health concept Safety objectives Results of work with occupational safety and health system
   Risk Definition Risk Types of Risks Physical Hazards Mechanical Risks Chemical Hazards Engineering Risks Biological Hazards Fire Causes Explosives Definition of Ignition Theory Trigonometric Elements Classification of Fire Responsible for Accidents or Hazards in the Work Environment Responsibility for Management in Occupational Safety Workers' Responsibility for Risk Control Emergency Plans Definition of Emergency Plans Types Emergency plans Objectives and principles of contingency planning Elements of the contingency plan Personal protective equipment Personal protective equipment Personal protective equipment Types of management and workers Personal protection

Course no.	HS236
Course Title.	Introduction to Environment Science
Credit.	2 Credit	Hours per week. (2 Lec + 0 Tut + 0 lab)

Prerequisite.	Nil
Course Description.	The concept of ecology importance, its relationship with other sciences, divisions. The environment and the need to preserve it The environment and the concept of communities and the environmental methods used to survey the living communities The biosphere and its components Living and non-living environment Water environment Ocean environment resources Environment resources Natural resources and their resources Permanent renewable and non-renewable environment resources Man, environment and sustainability of natural resources Environmental sustainability

Course no.	HS237	
Course Title.	Risk Assessment	
Credit.	3 Credit	Hours per week. (3 Lec + 0 Tut + 1 lab)
Prerequisite.	Nil	
Course Description.	The concept of risk assessment Risk factor Identification of risk sources Probability Risk When to assess risk Who is doing risk assessment What factors are taken into account when to keep risk assessment records Verification and examination of different risk sources Probability assessment Determination of severity of damage Risk analysis Probability and severity matrix Risk classification .	

4 . FOURTH SEMESTER

Course no.	GH 241	
Course Title.	Research Methods and Technical Report Writing	
Credit.	2 Credit	Hours per week. (2 Lec + - Tut + - lab)
Prerequisite.	Nil	
Course Description.	Introduction to the concept of scientific research Characteristics of scientific research Steps of scientific research. Scientific measurement. Types of measurements (Direct, indirect). Types and methods of selection Data collection methods A scientific research plan (consisting of four chapters). Chapter I (General Framework of Research) Chapter II (Previous Studies and theoretical Framework) Chapter 3 (Method of data collection, analysis and approach used) Chapter Four (Conclusions and Recommendations) Need it.	

Course no.	GH242	
Course Title.	Humanities	
Credit.	2 Credit	Hours per week. (2 Lec + 0 Tut + 0 lab)
Prerequisite.	GH233	
Course Description.	Introduction to the historical development of human relations The reasons that led to attention to the relations The philosophical basis of human relations The basic characteristics of the program of human relations Training on human relations Role of management in improving human relations Definition of human relations and importance The integrated concept of human relations The adoption of human relations on other sciences Morale The axis of relations Human Relations in the Field of Work Theories and its Role in the Relationships	

Course no.	HS243	
Course Title.	Pollution	
Credit.	3 Credit	Hours per week. (2 Lec + 0 Tut + 1 lab)
Prerequisite.	HS236	
Course Description.	General Introduction to Environmental Pollution Concentration of pollutants in the environment. Damage to plants, to animals, to humans, to property. Parallel and adverse impact of pollution. Economic cost of pollution impacts and means of reduction. Pollution types: Air Pollution Dust, sulfur oxides, nitrogen oxides, hydrocarbons, carbon monoxide (water pollution), water pollution with pesticides, crude oil, washing powder, pesticides, inorganic materials, radioactive materials, suspended substances and sediments, Solid waste Environmental and health damage	

Course no.	GE 244	
Course Title.	**Safety Management**	
Credit.	**2 Credit**	**Hours per week. (2 Lec + 0 Tut + 0 lab)**
Prerequisite.	**Nil**	
Course Description.	Administrative Functions (Brief Overview) Planning Guidance Coordination Oversight Economic Responsibility of the Department The concept of effectiveness. The concept of writing. Define roles and duties in the field of occupational safety and security and the relationship of management levels. The importance of maintenance and the role of the administrative process therein. The concept of crises Characteristics of crises. Causes of crises. How to deal with crises. How to manage crises	

Course no.	HS245	
Course Title.	**Fire Protection**	
Credit.	**3 Credit**	**Hours per week. (2 Lec + 1 Tut + 1 lab)**
Prerequisite.	**Nil**	
Course Description.	General concepts of ignition Detailed theory of ignition Causes of fires Natural causes of human use of energy. Ventilation and its impact in fire prevention. Study of fire prevention methods Types and methods of ventilation The effect of ventilation in the prevention and control of the speed of the movement of the air The facts related to the process of ventilation and heat exchange Ventilation, dust and vapors Protection means Detection and warning systems (prevention of ignition causes) Buildings, stores and installations Alarm signaling systems (awareness, site management, maintenance, supervision and inspection) Alarms Audio devices - Hand alarms - Emergency phone - Special telephone device - Wireless devices Emergency doors and exits (escape corridors, escape stairs) Precautions to be taken in fire operations Survey - Hoses construction - Fire fighting - Prevention - Supervision and surveillance	

Course no.	HS246	
Course Title.	Chemical hazards 1	
Credit.	3 Credit	Hours per week. (3 Lec + 1 Tut + 1 lab)
Prerequisite.	Nil	
Course Description.	Classification of chemical hazards. Definitions and notes of the "combustion process". Chemical ignition speed (solid, liquid, gaseous). During chemical flammability, "ignition time calculation". Chemical ignition sources. Flammable materials Classification of inflammable materials Occupational safety methods used to avoid the risk of flammable chemicals. Explosive chemical hazards Classification of explosive chemicals. Methods to avoid the risk of explosive chemicals. The risks of highly effective chemicals The risk of chemical reactions. Risks arising from corrosive chemicals "Solid, liquid and gaseous" Risks from toxic chemicals (Methods of exposure to toxic substances, familiar use and methods of prevention	

Course no.	HS247	
Course Title.	Fire Chemistry	
Credit.	3 Credit	Hours per week. (3 Lec + 0 Tut + 1 lab)
Prerequisite.	Nil	
Course Description.	Safety and handling of chemicals and risk assessment. Harmful and flammable chemicals and how to deal with them. Division of harmful substances "Gas - liquid - solid". Thermal energy Thermal and heat energy and measurement units. Ignition conditions, mechanical ignition, material types by flammable material ignition heat (Latent heat, heat lost) combustion Combustion of inorganic materials. Radioactive materials Types of radioactive materials. Radiation and its effects on humans and doses. Some of the world's atomic accidents, the effects of atomic explosions and the amount of heat emitted.	

Course no.	HS248	
Course Title.	Accident Prevention	
Credit.	2 Credit	Hours per week. (2 Lec + 0 Tut + 1 lab)
Prerequisite.	Nil	
Course Description.	Work accidents, accidents, occupational accidents, accidents, occupational accidents, accidents, occupational accidents, accidents, accidents, accidents, accidents, accidents The statistics of the causes of accidents, the statistics of the types of accidents, the statistics of the time of accidents, the statistics of the location of the injury from the body, the statistics of the causes of the infection, the statistical frequency and severity of the injury Statistics of the percentage of people exposed to injury, types of injuries, drawings and charts for the statistics of injuries and work accidents. Practical part: Through field visits to factories and assess safety instructions to prevent accidents and work injuries, to determine the extent to which manufacturers comply with personal protective equipment and comply with occupational safety regulations.	

5 . FIFTH SEMESTER

Course no.	HS351	
Course Title.	Waste dispose	
Credit.	3 Credit	Hours per week. (3 Lec + 0 Tut + 1 lab)
Prerequisite.	HS243	
Course Description.	Definition of waste, waste disposal (economic, environmental) Division of waste to be disposed of. Air pollutants Dust (sources, dust volume, permissible limits), methods of control and disposal. Sulfur Dioxide (Introduction - Sources) Methods of control and disposal of sources of sulfur oxide pollution Calcium carbonate injection method, Wilman Lourdes, Sodium salt for citric acid, Catalyst oxidation, Adsorption laury. Nitrogen oxides The sources responsible for their production, Disposal and control ... ... in brief. Solid waste sources, disposal methods old method tossing in the sea. The exposed method Compact packages. The method of burial in the digging of trenches designed for the purpose. Disposal of waste in a way that is economically viable. Thermal digestion The use of waste as a fuel for biological digestion. Restoration and recycling of radioactive materials.	

Course no.	HS352	
Course Title.	Ergonomics	
Credit.	3 Credit	Hours per week. (3 Lec + 0 Tut + 1 lab)
Prerequisite.	Nil	
Course Description.	The concept of adaptive geometry. The history of the emergence of the science of congruence geometry, muscular work, muscular activity, types of work, man and machine. Sizes of the human body. Design workstations. Seating conditions, vision conditions, tools and hand tools. Practical part: Calculate the activity of the patient. Explain and know the muscles that make up the human body and identify the circulatory system of the body. The relationship between man and machine. Work surfaces suitable for the human body in the case of standing. Working surfaces suitable for the human body in the case of sitting. Use appropriate anatomical hand tools.	

Course no.	HS353	
Course Title.	Occupational Diseases	
Credit.	3 Credit	Hours per week. (2 Lec + 0 Tut + 1 lab)
Prerequisite.	Nil	
Course Description.	The impact of the profession on health. Occupational health goals and objectives The duties of the General Administration of Occupational Health and Clinics The manufacturing and pollution of the environment and the means of combating environmental pollution The stages of completion of work and how accidents occur General methods of prevention of occupational diseases and work injuries Inspection of factories Types of inspections. Inspection stages. Nutrition, its components and its relation to the health of the worker. Physical factors in the work environment and their impact. Chemical factors in the work environment and their impact. Biological factors in the work environment and their impact. Economic considerations in the handling systems between forklifts, conveyor belts, storage and retrieval system (AS / RS) Practical part: Manual transfer and loading. Load unit. Storage and retrieval systems. Practical applications in determining the permissible loads by lifting chains.	

Course no.	HS354	
Course Title.	material Handling	
Credit.	3 Credit	Hours per week. (2 Lec + 0 Tut + 2 lab)
Prerequisite.	Nil	
Course Description.	Hand handling and transport. Hand transport. The correct rules for working in lifting and handling operations. Types of injuries in manual transport. Recommendations for manual lifting operations. Mechanical lifting equipment Tower cranes Cranes with wheels Elevation of materials attached to structural structures Important and safe signals during lifting. Loading and unloading in forklifts. Connecting ropes and nodes. Connecting chains with chains (45 angle, 90 angle, 120 angle) Conveyor belts AS / RS system and retrieval system.	

Course no.	HS355	
Course Title.	Engineering Protection procedure	
Credit.	3 Credit	Hours per week. (3 Lec + 1 Tut + 1 lab)
Prerequisite.	Nil	
Course Description.	Define engineering protection procedures. Security distances. Security distances between operational units and warehouses. Planning of operational units. Organizing factory principles and project planning from a safety point of view. The shape and dimensions of the workshops production. Organization of machines in the workshops. Building design Good advantages for one-storey and multi-storey buildings. Buildings for storage. Design requirements for warehouses. Above ground and underground storage. Safe spaces for hazardous materials stores Classification of hazardous materials is the proper storage condition Practical part : Field visits to identify the application of the extent of the engineering procedures taken and their powers in the workplace.	

Course no.	HS356	
Course Title.	Chemical hazards2	
Credit.	3 Credit	Hours per week. (3 Lec + 1 Tut + 1 lab)
Prerequisite.	HS246	
Course Description.	Absorption of chemicals and mechanisms Deactivation of toxicity Absorption and distribution of chemicals in the body Toxicity mechanisms Exposure mechanisms Mechanisms of detoxification and removal of matter from the body. Metals, metals, toxic and basic metal for lead body, mercury cadmium, arsenic, phosphorus, aluminum, beryllium, chromium, cobalt, copper, manganese, nickel, platinum, silium, silver, tin, Chlorine Alkane (Hexane, Chloroformane, Chloroform, Trichloroethane). Alkyl chloride (trichloroethylene - tetrachloroethylene). Alcohol (methanol, propanol, bioethanol) Dehydrate (formaldehyde, stearhead). Compounds containing sulfur (carbon sulphide) and aliphatic compounds (white alcohol). Aromatic compounds (benzene, toluene, xylene), aromatic amines (alanine, toldine, naphthalene), phenol (pesticides d.d.t) and organic phosphorus compounds. Gases Classification of gases in relation to their effect on health Hazardous gas specifications Professional exposure to gases in industry Exposure to gases in fires and accidents (Carbon monoxide, hydrogen cyanide), crushed gas (chlorine, fucine, hydrogen chloride). , Hydrogen fluoride, ammonia, ozone, nitrogen oxides, nitrogen oxides, hydrogen sulphide, mono-phenyl chlorine	

Course no.	GH357	
Course Title.	Technical Terminology 1	
Credit.	2 Credit	Hours per week. (2 Lec + 0 Tut + 0 lab)
Prerequisite.	Nil	
Course Description.	Technical terms taught in English with at least 500 terms. The terms include the following topics Occupational safety and health legislation Risk of all types Classification and division of dangerous places Falling Protection from high places Forklifts Locusts and firefighting methods Emergency situations Guidance and warning signs Personal protective equipment Work environment Accidents Tools and equipment Safety First Aid Accident Investigation Work Permits and Types Handling Substances Environmental Protection and Environmental Pollution Human Factors Engineering Emergency and Crisis Management Plans Quality and Management And risk assessment	

6 . Sixth SEMESTER

Course no.	GE361	
Course Title.	Principles of Engineering Economy	
Credit.	2 Credit	Hours per week. (2 Lec + 0 Tut + 0 lab)
Prerequisite.	Nil	
Course Description.	Basic concepts and applications of the engineering economy. Types and analysis of costs and profits. Financial analysis of the project. Decisions, decoupling analysis, capital, time value of money. Environmental studies and feasibility study for investment, labor market and marketing demands, depreciation methods, productivity measures	

Course no.	HS 362	
Course Title.	Chemical storing	
Credit.	3 Credit	Hours per week. (2 Lec + 1 Tut + 1 lab)
Prerequisite.	HS356	
Course Description.	Definition of storage Reasons and storage obligations Storage benefits Design and organization of stores in terms of safety Planning of warehouse buildings Lighting in warehouses Ventilation in warehouses Organization and control of inventory Different methods of classification of stored materials. Methods of control of stored materials Storage levels. Storage of liquid chemicals. Storage of gaseous chemicals. Storage of solid chemicals Practical part : Means of clarification of stores and visits to stores and scientific reports about them.	

Course no.	GE 363	
Course Title.	communication	
Credit.	2 Credit	Hours per week. (2 Lec + 0 Tut + 1 lab)
Prerequisite.	Nil	
Course Description.	General Introduction Telecommunication Services Telecommunication Networks Telegrams Evaluation of cables Emergency cables Mobile cables Professional cables. Basic lines of communication Data Communications Mobile Telecommunications services broadcasting services. Wave propagation the general classification of transmitting waves	

Course no.	GH 364	
Course Title.	Legislation	
Credit.	2 Credit	Hours per week. (2 Lec + 0 Tut + 0 lab)
Prerequisite.	Nil	
Course Description.	The Origin of Occupational Safety Legislation in Industrial Countries in the Arab World, Sources of Occupational Safety Legislation, International Conventions, Arab Recommendations, Federal Laws, Types of Legislation, Role of Legislation in Occupational Safety.	

Course no.	GE 365	
Course Title.	Risk Management	
Credit.	3 Credit	Hours per week. (3 Lec + 0 Tut + 1 lab)
Prerequisite.	Nil	
Course Description.	This course deals with the concept of risk uncertainty between them risk identification , risk analysis , risk mitigation solutions development and alternatives, risk assessment, risk scheduling and risk disclosure quantitative and qualitative risk elements risk analysis risk management decision making	

Course no.	GE 366	
Course Title.	Safety Engineering technology	
Credit.	3 Credit	Hours per week. (2 Lec + 1 Tut + 1 lab)
Prerequisite.	HS352	
Course Description.	The concept engineering technical safety , systems operating and technical safety industrial , the relationship between management engineering technical safety and fundamentals control in accidents , environment conditional , standards measure performance , the modern engineering technical mechanical , the technical using in field industrial and production oils and gas .	

Course no.	GE 367	
Course Title.	Environment condition	
Credit.	3 Credit	Hours per week. (3 Lec + 0 Tut + 1 lab)
Prerequisite.	Nil	
Course Description.	Climate factors Temperature, humidity, working atmosphere and the concept of comfort in the factory ventilation natural ventilation, mechanical ventilation, air control, methods of heat protection lighting lighting and work accidents. Illumination. Natural lighting. Industrial lighting. Hybrid lighting. Direct lighting. Indirect lighting. Semi-direct lighting. Measurement of light intensity. Lighting intensity problems. (Noise, continuous, intermittent) Noise impact factors Temporary effect Noise measurement and analysis Noise calculation in industrial workshops Noise protection Natural protection methods Engineering prevention methods Vibration vibration protection Vibration measurement equipment and equipment Reduce vibrations. Practical part : Practical experiments on effective temperatures, relative humidity, lighting, noise, with field visits in factories and facilities to identify the conditions and working environment	

7 . SEVENTH SEMESTER

Course no.	GE 471	
Course Title.	Total Quality Management	
Credit.	3 Credit	Hours per week. (3 Lec + 0 Tut + 1 lab)
Prerequisite.	GE365	
Course Description.	Basic concepts, definitions. Quality function and concept of quality cycle. Quality policy and objectives. Economics of quality and measurement of the cost of quality. Quality considerations in design. Process control: Machine and process capability analysis. Use of control charts and process engineering techniques for implementing the quality plan. Acceptance Sampling: single, double and multiple sampling, lot quality protection, features and types of acceptance sampling tables, acceptance sampling of variables and statistical tolerance analysis. Quality education, principles of participation and participative approaches to quality commitment. Emerging concepts of quality management: Taguchi'sconcept of off-line quality control and Ishikawa's cause and effect diagram.	

Course no.	CE 472	
Course Title.	Manufacturing processes	
Credit.	3 Credit	Hours per week. (3 Lec + 1 Tut + 1 lab)
Prerequisite.	Nil	
Course Description.	The concept of industrial processes – Sequential lines in production processes – Block balancing with and without chemical reaction to stable and unstable processes – Applications of mass and energy balance in industrial processes – Heat transfer methods – Flow of compressible materials flow through narrowing in the pipe .. Speed of sound fans Compressors and blowers And pumps. Chemical equilibrium. Effect of temperature and pressure on equilibrium constants. Expression of equilibrium in chemical reactions and potential of chemical reaction. Standard processes and uniform operations unit. Physical absorption of gases and conditions of gas and liquid balance. Study of the synthesis and idea of heat exchangers, distillation columns and chemical reactors	

Course no.	HS 473	
Course Title.	Environmental protection	
Credit.	3 Credit	Hours per week. (3 Lec + 1 Tut + 1 lab)
Prerequisite.	HS367	
Course Description.	General Introduction on Environmental Protection against Pollution Damage and Protection of Human, Plants, Animals, Factories, Oil Fields and Property Parallel and Contrast Effects of Pollution. Economic Cost of Damage Caused by Environmental Pollution Study Methods and Methods of Dust Prevention, Sulfur Oxides, Nitrogen Oxides , Hydrocarbons, carbon monoxide) Water pollution Pollution of water with pesticides, crude oil, washing powder, pesticides, inorganic materials, radioactive materials, suspended substances and sediments, mineral acids, pathogens, Solid waste classification of solid waste	

Course no.	HS474
Course Title.	**Exhaust Ventilation**
Credit.	**3 Credit**	**Hours per week. (3 Lec + 0 Tut + 1 lab)**
Prerequisite.	**Nil**
Course Description.	Industrial ventilation concept Definitions of terms related to industrial ventilation Internal air quality for industrial ventilation Internal acceptable air quality standards Ventilation standards by ASHRAE Substances that affect indoor air quality Methods of study of indoor air quality Mathematical models of industrial ventilation system

Course no.	HS 475
Course Title.	**First aid**
Credit.	**3 Credit**	**Hours per week. (3 Lec + 2 Tut + 1 lab)**
Prerequisite.	**Nil**
Course Description.	First aid concept First aid kit Equipment and places First aid specialist Staff training Initial steps and procedures Emergency aid Emergency relief Bleeding Burning Sting heat Sting injuries Back neck Industrial respiration Electric shock Trauma and complications Foot poisoning Fractures ASHI first aid system.

Course no.	GH 476
Course Title.	**Technical Terminology 2**
Credit.	**2 Credit**	**Hours per week. (2 Lec + 0 Tut + 0 lab)**
Prerequisite.	**GH357**
Course Description.	Technical terms taught in English with a minimum of five Fataa and include one piece of 200 words and a term dealing with the following topics: occupational safety and health legislation risks of all kinds classification and division of dangerous places fall protection from high places forklifts confined spaces fire and methods of control emergency situations signs guidance and warning equipment Personal Protection Work Environment Accidents Tools & Equipment Safety First Aid Accident Investigation Work Permits & Types Handling Material Handling Environmental Protection & Environmental Pollution Human Factors Engineering Quality management, risk assessment, inspection and storage, safety and operation

Course no.	HS477
Course Title.	**Final Project in (Safety..Eng) Part –I**
Credit.	**2 Credit**	**Hours per week. (2 Lec + 0 Tut + 0 lab)**
Prerequisite.	**Nil**
Course Description.	Research project in any field of specialization for scientific departments. The department distributes the students who wish to conduct the project to the professors concerned with research topics in the laboratory .the student chooses under the guidance of the supervisor and the approval of the department in research in one of the branches of life sciences so that it can be completed and written in a scientific manner acceptable during the last semester. Then discuss the project by a committee of the department in each specialty.

8 . Eighth SEMESTER

Course no.	HS481
Course Title.	**Hygiene Chemistry**
Credit.	**3 Credit**	**Hours per week. (2 Lec + 1 Tut + 2 lab)**
Prerequisite.	**Nil**
Course Description.	Fans ventilation industrial the properties nature acetone , study nature gases by the units industrial , the nature ethylene and methanol , polyethylene , ammonia and characteristics , oxides sulfur , oxides nitrogen , hydrocarbons and monoxide Carbone calcium carbonate , cleanliness flooring , environment industrial .

Course no.	HS482
Course Title.	**Accident Investigation**
Credit.	**3 Credit**	**Hours per week. (2 Lec + 1 Tut + 1 lab)**
Prerequisite.	**Nil**
Course Description.	Accident and Injury Prevention Accident Prevention Accident Prevention Accident Investigation Steps Accident Investigation Team Accident Investigation Team Role of Contributors in Accident Investigation Accident Investigation Models Traditional Models Factors and Variables Affecting Accident Investigation Environmental Factors Victim Factors Investor-Related Factors Accident Accident Policy Insurance.

Course no.	HS483	
Course Title.	Machine - tool hazard	
Credit.	3 Credit	Hours per week. (2 Lec + 1 Tut + 1 lab)
Prerequisite.	Nil	
Course Description.	Injury-related machines Types of risks that can occur Injury and protection methods Risks of machinery and equipment Risks of machinery, equipment and rotating machinery Risks for equipment damage Why injuries occur General rules for machine design General rules for operation, maintenance and inspection Protection system 1910.	

Course no.	CE484	
Course Title.	Industrial Polluted Water Treatment	
Credit.	3 Credit	Hours per week. (2 Lec + 1 Tut + 1 lab)
Prerequisite.	Nil	
Course Description.	Identify the nature and characteristics of natural, chemical and biological liquid industrial wastes, and clarify the importance of treatment These liquid wastes are dangerous and their impact on the environment and human health, and know the common methods and techniques to treat these wastes. Introduction General concepts of the environment Types of water Hydrological cycle of water Sources of water pollution Types and sources of industrial waste liquid The importance of wastewater treatment plants Characteristics of industrial waste liquid Disposal options Industrial effluents Impact of industrial waste on the environment Effect of industrial waste water on environmental systems Industrial waste treatment methods Liquid Pre-Determination Processes Processing Process Physical Processing Chemical Processing Biological Treatment	

Course no.	CHE 485	
Course Title.	Final Project in (Safety. .Eng) Part -II	
Credit.	**4** **Credit**	**Hours per week. (4 Lec + 0 Tut + 2 lab)**
Prerequisite.	Final Project in (Safety..Eng) Part -I	
Course Description.	The students in a group of 3 to 4 works on a topic approved by the head of the department under the guidance of a faculty member and prepares a comprehensive project report after completing the work to the satisfaction of the supervisor. The progress of the project is evaluated based on a minimum of TWO reviews. The review committee may be constituted by the Head of the Department. A project report is required at the end of the eighth semester. The project work is evaluated based on oral presentation and the project report jointly by examiners constituted by the Head of the Department	