



اللائحة الدراسية الموحدة لمرحلة البكالوريوس بنظام الساعات المعتمدة



كلية الهندسة — جامعة الزقازيق ٢٠٢٠





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مادة (١): رسالة ورؤية وأهداف الكلية:

• رسالة الكلية

تنصب رسالة كلية الهندسة بجامعة الزقازيق في الحفاظ على مستوى أكاديمي وهندسي عاليين وسلوك مهنى قويم والتزام أخلاقي لخريجها . وفي إطار تحقيق رسالتها ، فإن الكلية تعمل بشكل دؤوب ومنذ نشأتها لتصبح إحدي المؤسسات الأكاديمية المتميزة في مجالات التعليم والبحث العلمي الهندسي وخدمة المجتمع المحيط بشكل خاص والمجتمع الأوسع بشكل عام . وفي هذا الإطار أيضا ، فقد عملت الكلية دوما علي تطوير لائحتها الدراسية الداخلية وعناصرالعملية التعليمية (أعضاء هيئة التدريس ومعاونيهم والمختبرات والمكتبة) لمرحلة البكالوريوس والدراسات العليا كذلك، بالإضافة إلي إدخال الوسائل التكنولوجية الحديثة والميكنة في الجهازين التعليمي والإداري ونظم الإمتحانات وإظهار النتائج.

• رؤية الكلية

تتحدد الرؤية العامة للكلية في أنه لا سبيل الي إرتقاء أي مجتمع ، ومجتمعنا المصري بصفة خاصة ، إلا من خلال منظومة تعليمية وبحثية رصينة ترتكز علي دعائم قوية من الأخلاقيات المهنية وتواكب التطور العلمي والتكنولوجي الذي لا يتوقف ، وأن هذا هو السبيل الأوثق الي بلوغ درجات متقدمة في مصاف الأمم العظيمة .

• أهداف الكلية

تهدف الكلية إلى المساهمة في دفع عجلة التنمية في مجال المهن الهندسية والتطبيقات التقنية في مصر وتصبو الكلية إلي تحقيق التميز المهني لخريجيها وذلك بالأخذ بأسباب التطوير المستمر للعملية التعليمية من حيث البرامج الدراسية وتحديث المعامل وتجهيزها ورفع مستوي أعضاء هيئة التدريس وتدريبهم علي إتباع طرق التدريس والتقويم الحديثة وإستخدام الوسائل التعليمية بجانب إجرائهم أبحاثا علمية عالية المستوي. ولأهمية متابعة الكلية للتطورات العالمية في التدريس، فقد أدخلت الكلية برامج دراسية جديدة تعمل بنظام الساعات المعتمدة وتستخدم أساليب تدريس وتقييم جديدة ومتطورة وشراكة مع جامعات أجنبية متميزة للعمل علي رفع تنافسية الخريجين عالميا ورفع جودة التعليم الهندسي.

ومن هنا تتحدد أهداف الكلية فيما يلى:

- اعداد خريجين متخصصين في مجالات العلوم الهندسية والتطبيقات العملية والتقنية بهدف خدمة المجتمع كلا في اطار تخصصه.
- ٢- تطوير البحث العلمي والدراسات العليا بما يتفق مع خطط الدولة ويحقق تطوير المجتمع وحل مشكلاته.

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- المساهمة في التخطيط للمستقبل عن طريق المشاركة في وضع إستراتيجيات التنمية والدفع الى تطوير
 لائحة الجامعة وتطوير نظم إدارة الكلية وأقسامها الاكاديمية والادارية.
 - ٤- وضع آليات التطوير المستمر للبرامج التعليمية وتقويم الاداء.
- و- إنشاء برامج جديدة بنظام الساعات المعتمدة والتركيز على تخصصات جديدة ومتطورة لتخريج مهندس متميز في مختلف المجالات طبقا لاحتياجات الدولة والسوق المحلى والعربي والعالمي.
- الدفع إلى تدريس المقررات بنظام التعليم الإليكتروني والتعليم عن بعد واستخدام الوسائط المتعددة في العرض والتقييم.
- ٧- الإسهام في التنمية المستدامة للمجتمع وتقديم الخدمات البحثية والإستشارية لقطاعات الصناعة والبناء لتطوير المجتمع.
- ٨- تم مراعاة قواعد الهيئة القومية لضمان جودة التعليم والاعتماد NARS2018 في تحديث اللائحة و هو مايتضح في أهداف ورسالة ورؤية الكلية وينعكس علي أهداف و محتويات المقررات الدراسية بحزم البرامج الدراسية المختلفة.

مادة (2):

- تمنح جامعة الزقازيق بناءً على طلب كلية الهندسة درجة البكالوريوس في أحد التخصصات الهندسية بنظام الساعات المعتمدة الآتية:
 - ١ الهندسة المدنية برنامج هندسة الإنشاءات وإدارة التشييد
 (طبقاً للقرار الوزاري رقم (٢٣٣٦) بتاريخ ٢٠٠٧/٨/٢٩).
 - ۲ الهندسة الميكانيكية برنامج هندسة الميكاترونيات
 (طبقاً للقرار الوزاري رقم(۳۸۱۲) بتاريخ ۲۰۱۳/۱۰/۲).
 - ۳- الهندسة الميكانيكية- برنامج هندسة الطيران والمركبات الفضائية (طبقاً للقرار الوزاري رقم (۲۰۱٦/۷).
- يتم العمل بهذه اللائحة وذلك بعد صدور القرار التنفيذي بإقرارها وذلك في بداية الفصل الدراسي الأول للعام الجامعي على الطلاب الجدد الملتحقين ببرامج الساعات المعتمدة في ذات العام على ألا يتم تطبيقها بأثر رجعي على الطلاب القدامي بالمستويات الأعلى ببرامج الساعات المعتمدة.





مادة (٣): الأقسام العلمية المشاركة في تنفيذ برامج الساعات المعتمدة:

يدخل في إختصاص كل قسم من أقسام الكلية التدريس وإجراء البحوث الخاصة بمقررات برامج الساعات المعتمدة طبقا لجدول النظام الكودى للمقررات الدراسية وجداول تفاصيل المقررات الدراسية المرفقة لبرامج الساعات المعتمدة. ويجوز لإدارة البرامج إسناد تدريس أي من المقررات الدراسية لأحد أعضاء هيئة التدريس من أي الأقسام العلمية ذات الصلة بالمحتوي العلمي لهذا المقرر كما يجوز للطالب تسجيل مادتى مشروع التخرج بأي من الأقسام العلمية ذات الصلة الوثيقة بتخصص البرنامج المقيد به الطالب.

مادة (٤): شروط القيد:

- يسمح بالقيد للحاصلين على شهادة الثانوية العامة شعبة رياضيات، أو ما يعادلها، ممن تم توزيعهم عن طريق مكتب التنسيق، أو من المحولين من كليات أخرى طبقا للشروط التى يضعها المجلس الأعلى للجامعات ولا يجوز تجاوز شروط مكتب التنسيق فيما يخص التوزيع أو التحويلات.
- تضع الكلية قواعد عامة للقبول بحيث تكون رغبة الطالب ومبدأ تكافؤ الفرص هي الأساس في قبول طلاب بنظام الدراسة بالساعات المعتمدة.

مادة (٥): نظام الدراسة:

- تعادل درجة البكالوريوس بنظام الساعات المعتمدة مقررات تكافئ ١٦٥ ساعة معتمدة لكل التخصصات الهندسية في هذه اللائحة ، منها 34 ساعة معتمدة بالمستوى العام (مستوى 000) يدرسها كل الطلاب المقبولين بالبرامج خلال الفصلين الرئيسيين الاولين.
- تحدد الساعات المعتمدة المقابلة لساعات الإتصال لكل مقرر (محاضرة تمرين معمل) حسب الجدول التالى:

لمعمل	التمرين/اأ	ضرة	المحا
ساعات معتمدة	ساعات إتصال	ساعات معتمدة	ساعات إتصال
1	۲تمرین أو ۳معمل	1	1
۲	٤تمرين أو ٥معمل	۲	۲

• الدراسة باللغة الإنجليزية، وتضع الكلية نظاماً للتأكد من مستوى الطالب في اللغة الانجليزية.

مادة (٦): مواعيد الدراسة والقيد:

• تقسم السنة الأكاديمية إلى ثلاثة فصول دراسية على النحو التالي:

الفصل الرئيسى الأول (فصل الخريف): يبدأ في شهر سبتمبر ولمدة لا تقل عن ١٤ أسبوع. الفصل الرئيسي الثاني (فصل الربيع): يبدأ في شهر فبراير ولمدة لا تقل عن ١٤ أسبوع.

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الفصل الغير رئيسي (فصل الصيف): يبدأ في أواخر شهر يونيو ولمدة لا تقل عن ٧ أسابيع مكثفة.

- الأسابيع الدراسية الموضحة لا تشمل فترة الامتحانات الدراسية النهائية.
- يتم قيد الطلاب بالبرامج عند بدء أي من الفصلين الدراسيين الرئيسيين فقط ، ويتم تخرج الطلاب عند نهاية أي فصل دراسي بما في ذلك الفصل الصيفي .

مادة (٧): مدة الدراسة:

- الحد الأدنى لمدة الدراسة للطالب المنتظم أربع سنوات دراسية ونصف.
- الحد الأقصى للدراسة للطالب المنتظم عشر سنوات دراسية ويستثنى من تلك المدة الفصول الدراسية الرئيسية التي يتم فيها إيقاف قيد الطالب لعذر يقبله مجلس الكلية. ويفصل الطالب بعدها.

مادة (٨): رسوم الدراسة:

• يتم تحديد رسوم الخدمة التعليمية المقررة لكل ساعة معتمدة، بمعرفة مجلس الجامعة بناء على إقتراح مجلس الكلية سنويا، ويمكن زيادة هذه الرسوم سنويا على الطلاب الجدد فقط وذلك طبقا للقواعد والاليات التي يقرها مجلس الجامعة. ولا يعتبر تسجيل الطالب في أي فصل دراسي كاملا إلا بعد إستيفاء شروط القيد وسداد الرسوم المقررة كاملة.

مادة (٩): شروط التسجيل:

- يسمح للطالب الذي يكون متوسط نقاطه التراكمي ٢,٠٠ أو أعلى في بداية أي من فصلى الخريف أو الربيع التسجيل في مقررات لا تزيد ساعاتها المعتمدة عن ١٨ ساعة معتمدة.
- لا يسمح للطالب المنذر أكاديميا والذي يكون متوسط نقاطه التراكمي أقل من ٢٠٠٠ في بداية أي من فصلى الخريف أو الربيع التسجيل في مقررات تزيد ساعاتها المعتمدة عن ١٤ ساعة معتمدة أو ٥ مقررات دراسية.
- يمكن للطالب التسجيل في الفصل الصيفي في مقررات لا تزيد ساعاتها المعتمدة عن ٦ ساعات أو مقررين دراسيين على الأكثر.
- يجب على الطالب إستيفاء شروط التسجيل في كل مقرر، وبعد استشارة المرشد الأكاديمي، وفي ضوء قواعد التسجيل التي تصدرها الكلية سنويا وتنشر في دليل الطالب، ولا يعتبر التسجيل نهائيا إلا بعد دفع رسوم الخدمة التعليمية المقررة لكل فصل دراسي.
- ▼ تسجیل مقرر مشروع (۱) یتطلب إجتیاز الطالب ۱۲۰ ساعة معتمدة و لا یتم تسجیل مشروع (۲) الا بعد اجتیاز مشروع (۱).





- يجوز التسجيل للطالب المتأخر عن المواعيد المحددة إذا سمحت الأعداد والأماكن وبعد الحصول على موافقة كتابية من أساتذة المقررات ، ويمكن للكلية أن تقرر رسوم تأخير تسجيل بالإضافة إلى رسوم الخدمة التعليمية المقررة.
- يمكن لمجلس الكلية تعديل قائمة المتطلبات السابقة للمقررات أو تعديل محتوى بعض المقررات في بداية السنة الدراسية إذا اقتضت الحاجة لذلك وذلك بعد الحصول على موافقة مجلس الجامعة على تلك التعديلات.
- يمكن أن يحدد مجلس الكلية رسوما إضافية ثابتة لكل فصل دراسى رئيسى مقابل الخدمات الإضافية الأخرى التى تقدم لطلاب برامج الساعات المعتمدة مثل دعم المعامل وتكلفة الكتب والمراجع الدراسية والزيارات الميدانية .. الخ.
- تحصل رسوم الخدمة التعليمية لكل فصل دراسي، وتقدر قيمة رسوم الخدمة التعليمية بعدد الساعات التي يسجل فيها الطالب كل فصل دراسي ، وبحد أدنى ما يقابل رسوم خدمة تعليمية لعدد ١٢ ساعة معتمدة لكل من فصلى الخريف والربيع ، إلا إذا كان عدد الساعات المعتمدة المتبقية للحصول على الدرجة أقل من ذلك فيتم محاسبته على الساعات الفعلية للدراسة، وتكون رسوم الخدمة التعليمية للفصل الصيفي معتمدة على عدد الساعات المعتمدة التي يسجل فيها الطالب.
- يوقع الطالب على تعهد بالإلتزام بدفع رسوم الخدمة التعليمية التي تقترحها الكلية، وتوافق عليها الجامعة، مع التزام الكلية بنفس الرسوم للطالب منذ التحاقه وحتى تخرجه.
- يحدد إجمالي رسوم الخدمة التعليمية للفصل الصيفي بناءً على عدد الساعات المعتمدة التي يسجل فيها الطالب وبزيادة ٢٥٪ مقارنة بالفصول الدراسية الرئيسية ، مع مراعاة عدم تطبيق أي نسب خصم (منح وخلافه) في رسوم المقررات في الفصل الصيفي.

مادة (١٠): متطلبات الحصول على درجة البكالوريوس:

- للحصول على درجة البكالوريوس في الهندسة بنظام الساعات المعتمدة، لابد للطالب أن يستوفى كل الشروط التالية:
- 1- أن يجتاز الطالب عدد ١٦٥ ساعة معتمدة، طبقاً لجدول النظام الكودى للمقررات الدراسية لكل برنامج والتي تعرضها هذه اللائحة، وبمتوسط نقاط تراكمي لا يقل عن ٢٠٠٠ .
- ۲-النجاح في المقررات التي يقيم الطالب فيها على أساس ناجح/راسب (Pass/Fail) والتي لا تدخل في
 حساب متوسط النقاط التراكمي مثل مقررات التدريب والندوات .. الخ طبقا لما ورد في هذه اللائحة.
 - ٣- أن يجتاز الطالب مشروع التخرج بشقيه بنجاح.
 - ٤- إجتياز مقرر التربية العسكرية بنجاح.





• إتمام تدريب ميدانى (صيفي) بنجاح لمدة لا تقل عن ثمانية أسابيع على الأقل، متصلة أو على مرتين، في أحد المنشآت الصناعية أو الخدمية ذات الصلة بتخصصه، ويكون تحت إشراف الكلية بالكامل ويقدم الطالب تقريرا وافيا عن فترة التدريب تعتمده الكلية ويتم مناقشته في محتواه.

مادة (١١) المرشد الأكاديمي:

- و تتيح الكلية نظاما للارشاد الاكاديمي ، مستعينة بطرق الاتصال الحديثة وتكنولوجيا المعلومات في اجراء عمليات التسجيل والانسحاب ، والاطلاع على أداء الطالب ، وإعلان درجات الاعمال الفصلية وامتحانات نصف الفصل الدراسي والامتحانات النهائية ... الخ، اضافة الى التواصل المستمر مع الطلاب عن طريق عدد من المرشدين الاكاديميين.
- يعين منسق البرنامج ، لكل طالب ، عند التحاقه بالدراسة، مرشداً أكاديمياً من بين أعضاء هيئة التدريس، يمكن أن يستمر معه حتى نهاية الدراسة.
 - يلتزم المرشد الأكاديمي بمتابعة أداء الطالب، ومعاونته في اختيار المقررات كل فصل دراسي.

مادة (١٢): شروط التعديل والإلغاء والانسحاب:

- يحق للطالب تعديل تسجيله بحذف أو إضافة مقررات خلال أسبوعين من بدء الدراسة في فصلى الخريف والربيع ، أو الاسبوع الأول من الفصل الدراسي الصيفي.
- يحق للطالب الانسحاب من المقرر (ولا ترد له الرسوم)، خلال عشرة أسابيع على الأكثر من بداية الدراسة بفصلى الربيع و الخريف وأربعة أسابيع على الأكثر في الفصل الصيفي ، وفى هذه الحالة يحصل الطالب على تقدير (W) فى المقررات التى إنسحب منها ولا يدخل فى حساب متوسط النقاط ، كما يقوم الطالب بإعادة دراسة المقرر الذى انسحب منه فى فصل دراسى لاحق دراسة وإمتحانا بعد دفع رسوم الخدمة التعليمية المقررة.
- الطالب الذي يرغب في الانسحاب من فصل دراسي، لظروف المرض أو بعذر تقبله الكلية، عليه التقدم بطلب لشئون الطلاب، ويحصل على موافقة مجلس البرنامج على الانسحاب، ويرصد للطالب تقدير (W) في مقررات هذا الفصل الدراسي ويقوم بإعادة المقررات التي سجل فيها، في فصل دراسي لاحق دراسة وامتحانا وليس امتحانا فقط بعد دفع رسوم الخدمة التعليمية المقررة.
- يحق للطالب إعادة التسجيل في أي مقرر رسب فيه، ويعيد المقرر دراسة وإمتحاناً، بعد دفع رسوم الخدمة التعليمية المقررة.، ويحتسب له التقدير الأخير فقط بحد أقصى للتقدير +B، على أن يذكر كلا التقديرين في سجل الطالب الأكاديمي





يجوز للطالب الذي أنهي حضور حصص المحاضرات والتمارين والامتحانات الدورية وامتحان نصف الفصل الدراسي بنجاح في مقرر ما ، أن يتقدم بالتماس الي مجلس ادارة البرنامج بتأجيل الامتحان التحريري النهائي وذلك بعذر يقبله المجلس وبعد موافقة أستاذ المقرر وفي هذه الحالة يتم رصد تقدير الطالب في هذه المقرر بوذلك بعذر مكتمل" ، على أن يكمل الامتحان التحريري النهائي في لجنة خاصة قبل مضى اسبوعين على الاكثر من الفصل الدراسي الرئيسي التالي ويتم تعديل التقدير واعتماده طبقا لذلك. وفي حالة عدم استكمال الطالب الامتحان التحريري في المدة الزمنية المقررة يعدل تقديره في المقرر الي راسب (F).

مادة (١٣): متطلبات الدراسة:

تحتوى برامج البكالوريوس بنظام الساعات المعتمدة على البرامج التالية:

١ - هندسة مدنية تخصص هندسة الإنشاءات وادارة التشييد

٢ - هندسة ميكانيكية تخصص هندسة الميكاترونيات

٣- هندسة ميكانيكية تخصص هندسة الطيران ومركبات الفضاء

ولجميع هذه البرامج متطلبات مشتركة للجامعة (UR) و متطلبات مشتركة للكلية (FR) بالإضافة إلى متطلبات التخصص العام والتخصص الدقيق (MR) لكل برنامج على حدة وذلك بإجمالي ١٦٥ ساعة معتمدة كما يلى:

متطلبات هندسية تخصصية	متطلبات مشتركة للكلية	متطلبات مشتركة للجامعة	متطلبات الدراسة
علوم هندسية تخصصية	علوم أساسية وهندسية	إنسانيات وثقافة إجتماعية	نوعية المقررات
٥٦.٩٧ (٩٤ ساعة)	۲٦.٦٧٪ (4٤ ساعة)	٨٤.٨٥ (٨ ساعة)	نسبة الساعات الإجبارية
٦.٦٧ % (١١ ساعة)	۱۱۲۱٪ (۲ ساعتان)	٣.٦٦٪ (6 ساعات)	نسبة الساعات الاختيارية
٦٣.٦٤٪ (١٠٥ ساعة)	۲۸.۸۸٪ (٤٦ ساعة)	٨٠٤٨٪ (١٤ ساعة)	النسبة الاجمالية

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مادة (١٤) تقديرات مقررات متطلبات الدراسة

• تقدر نقاط كل ساعة معتمدة على النحو التالى:

	(%	المكافئة (، الدرجات	مدی	النسبة المئوية الحاصل عليها الطالب	التقدير	عدد النقاط
١	99	٩٨	9 ٧		۹۷ فأعلى	A ⁺	4.00
97	90	9 £	98		۹۳٪ حتى أقل من ۹۷٪	Α	4.00
97	٩١	٩.	٨٩		۸۹٪ حتى أقل من ۹۳٪	Α·	3.70
٨٨	٨٧	人て	٨٥	٨٤	۸۶٪ حتی أقل من ۸۹٪	B ⁺	3.30
۸۳	٨٢	٨١	۸.		۸۰٪ حتی أقل من ۸۶٪	В	3.00
٧٩	Y X	٧٦			٧٦٪ حتى أقل من ٨٠٪	B	2.70
٧٥	٧٤	٧٣			٧٣٪ حتى أقل من ٧٦٪	Ċ	2.30
77	Y1	٧.			۷۰٪ حتى أقل من ۷۳٪	С	2.00
79	٦٨	7 \			٦٧٪ حتى أقل من ٧٠٪	Ċ	1.70
٦٦	70	٦٤			٦٤٪ حتى أقل من ٦٧٪	D ⁺	1.30
٦٣	٦٢	٦١	٦.		٦٠٪ حتى أقل من ٦٤٪	D	1.00
					أقل من ۲۰٪	F	0.00

المقررات التي يسجل فيها الطالب كمستمع، أو التي يطلب فيها النجاح فقط ، أو لم يكملها لسبب قبلته الكلية، ولا تدخل في حساب متوسط النقاط ، ويرصد لها أحد التقديرات التالية:

التقدير	المدلول		
W	Withdrawn	منسحب	
AU	Audit	مستمع	
F	Fail	راسب	
P	Pass	ناجح	
I	Incomplete	غير مكتمل	

مادة (١٥): حساب متوسط النقاط:

• يحسب مجموع النقاط النوعية (QP) Quality Points (QP) التى حصل عليه الطالب فى كل مقرر على أنها عدد الساعات المعتمدة للمقرر مضروبة في النقاط المخصصة للتقدير الذى حصل عليها الطالب حسب الجدول الوارد بالمادة (٢٥).

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- يحسب متوسط النقاط (GPA) Grade Point Average (GPA) لأى فصل دراسى على أنه ناتج قسمة مجموع النقاط النوعية التي حصل عليها الطالب في المقررات التي سجل فيها في الفصل الدراسي مقسوما على مجموع الساعات المعتمدة لهذه المقررات بما فيها المقررات التي رسب فيها وحصل على تقدير F.
- يحسب متوسط النقاط التراكمي Cummulative Grade Point Average (CGPA) عند نهاية كل فصل دراسي على أنه ناتج قسمة مجموع كل النقاط النوعية التي حصل عليها الطالب منذ التحاقه بالبرامج مقسوما على مجموع الساعات المعتمدة لكل هذه المقررات.
- فى حالة اعادة الطالب دراسة مقرر سبق أن رسب فيه وحصل على تقدير F ، يحتسب له التقدير الذى حصل عليه فى الإعادة بحد أقصى +B ، وعند حساب متوسط النقاط التراكمي يحسب له التقدير الأخير فقط ، على أن يذكر كلا التقديرين فى سجل الطالب الأكاديمي.
- فى حالة إعادة الطالب دراسة مقرر سبق دراسته وإجتيازه بنجاح وحصل فيه علي الحد الأدني للتقدير (D) ، وذلك بغرض التحسين يحتسب له التقدير الأخير الذى حصل عليه فى الإعادة، وعند حساب متوسط النقاط التراكمي يحسب له التقدير الأخير فقط ، على أن يتم حذف التقدير الأول من سجل الطالب.
- إذا سجل الطالب في مقرر إختياري من مجموعة ما ونجح فيه ، ثم عاد وسجل في مقرر إختياري أخر من نفس المجموعة كمقرر إضافي وذلك لتحسين درجة المقرر الذي إنتهي من دراسته سابقا ، يحسب له التقدير الذي حصل عليه في المقرر الإختياري الأخير إضافة إلى عدم حساب المقرر الإختياري الأول الذي أتمه من قبل وحذفه من سجل الطالب.

مادة (١٦): تعريف حالة الطالب:

تعرف مستويات الدراسة بعدد الساعات المعتمدة التي إجتازها الطالب بنجاح وطبقا للحدود والمسميات الاتية:

	•		
Level (000)	Freshman	العام	مستوی (۰۰۰)
Level (100)	Sophomore	الأول	مستوی (۱۰۰)
Level (200)	Junior	الثاني	مستوی (۲۰۰)
Level (300)	Senior 1	الثالث	مستوی (۳۰۰)
Level (400)	Senior 2	الر ابع	مستوی (۲۰۰)

كلما إجتاز الطالب ٢٠ % من متطلبات التخرج بنجاح ، أعتبر منتقلا من مستوى إلى مستوى أعلى منه (المستويات من صفر إلى ٤٠٠.





مادة (۱۷): أسلوب تقييم الطالب:

- توضح التفاصيل الموضحة بهذه اللائحة توزيع درجات كل مقرر بين :أعمال الفصل، إمتحان عملي/شفوي، إمتحان نصف الفصل، الامتحان التحريري النهائي.
- يعقد لكل مقرر إمتحان تحريرى في نهاية الفصل الدراسي لا تقل درجته عن ٤٠ % من مجموع درجات المقرر باستثناء المقررات التي تحددها اللائحة مثل مشروع التخرج والتدريب الصيفي والندوات والأبحاث.
- يعقد لكل مقرر إمتحان تحريرى في منتصف الفصل الدراسي لا تقل درجته عن ٢٠ % من مجموع درجات المقرر باستثناء المقررات التي تحددها اللائحة مثل مشروع التخرج والتدريب الصيفي والندوات والأبحاث.
 - لابد أن يحضر الطالب نسبة لا تقل عن ٧٥٪، ليسمح له بدخول الأمتحان النهائي للمقرر.
- يشترط لكى يعد الطالب ناجحا فى مقرر أن يحصل على ٦٠٪ (تقدير D) على الأقل فى مجموع درجات المقرر وأن يحصل أيضا على ٣٠ % على الاقل من درجات الامتحان التحريري النهائي.

مادة (١٨) التحويل من والى برامج الساعات المعتمدة:

- يجوز تحويل الطالب المقيد بنظام الساعات المعتمدة الى نظام الفصلين الدراسيين طالما لم يجتاز ٦٠٪ من إجمالى الساعات المعتمدة اللازمة للتخرج ، ويتم إجراء مقاصة للمقررات التى إجتازها الطالب فى نظام الساعات المعتمدة وتحدد المقررات المكافئة لها فى البرنامج الدراسى المطلوب التحويل إليه.
- لا يجوز تحويل الطالب من نظام الساعات المعتمدة إلى نظام الفصلين الدراسيين إذا لم يحقق شروط القبول لنظام الفصلين الدراسيين عند إلتحاقه بالكلية.
- لا يجوز تحويل طلاب نظام الفصلين الدراسيين المفصولين لإستنفاذ مرات الرسوب في السنة الإعدادية أو السنوات اللاحقة إلى نظام الدراسة بالساعات المعتمدة .
- يجوز تحويل الطالب التحويل من نظام الفصلين الدراسيين إذا كان الطالب ناجح باخر فصل دراسي بالفصليين الدراسيين ويتم إجراء مقاصة مكافئة للمقررات التى إجتازها الطالب بنجاح فى نظام الفصلين الدراسيين وتحسب الساعات المعتمدة المكافئة لهذه المقررات ضمن متطلبات التخرج وتكتب تقديراتها بشهادة التخرج (مع الإشارة بانها محولة "Transferred") دون احتساب تقديرها عند حساب متوسط النقاط التراكمي ، وعلى ألا تزيد إجمالي الساعات المعتمدة لهذه المقررات عن ٣٤ ساعة معتمدة.
- يتم إحتساب المقررات التحويلية المشار إليها في الفقرة السابقة إلى حساب متوسط النقاط التراكمي للطالب في المقارنة لحالات التميز العلمي (منح التفوق أو تعيين معيدين) للمفاضلة و تطبيق مبدأ تكافؤ الفرص.
 - تستخدم الجداول التالية لحساب التقديرات المكافئة عند تحويل الطلاب بين النظامين:





جدول تكافؤ التقديرات عند التحويل من نظام الساعات المعتمدة إلى نظام الفصلين الدراسيين

نظام الفصلين الدراسيين	ات المعتمدة	نظام الساء
النسبة المئوية المناظرة	التقدير	عدد النقاط
% 9 A	A ⁺	4.00
% 9 ٣	А	4.00
% ^	A ⁻	3.70
% \ ٣	B ⁺	3.30
% v A	В	3.00
% v ٣	B ⁻	2.70
%v •	C ⁺	2.30
% \'\	С	2.00
% ٦٣	C-	1.70
% o A	D ⁺	1.30
% 0.	D	1.00
_	F	0.00

جدول تكافؤ التقديرات عند التحويل من نظام الفصلين الدراسيين الى نظام الساعات المعتمدة

عتمدة	نظام الساعات الم	نظام الفصلين الدراسيين
التقدير	عدد النقاط	النسبة المئوية المناظرة
A ⁺	4.00	من ۹۰٪ الی ۱۰۰٪
А	4.00	من ۹۰٪ الى أقل من ۹۰٪
A ⁻	3.70	من ۸۵٪ الى أقل من ۹۰٪
B ⁺	3.30	من ۸۰٪ الى أقل من ۸۰٪
В	3.00	من ۷۵٪ الى أقل من ۸۰٪
B ⁻	2.70	من ۷۱٪ الى أقل من ۷۰٪
C+	2.30	من ٦٨٪ الى أقل من ٧١٪
С	2.00	من ٥٥٪ الى أقل من ٦٨٪
C-	1.70	من ٦٠٪ الى أقل من ٦٥٪
D ⁺	1.30	من ٥٥٪ الى أقل من ٦٠٪
D	1.00	من ٥٠٪ الى أقل من ٥٥٪
F	0.00	أقل من ٥٠٪

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مادة (١٩) خاصة التمييز (مراتب الشرف ومنح التفوق):

- يشترط لمنح مراتب الشرف ألا يكون الطالب قد حصل على تقدير F في أي مقرر خلال دراسته بالكلية أو خارج الكلية.
- تمنح مرتبة الشرف للطالب الذي لا يقل إجمالي متوسط النقاط التراكمي عند التخرج عن3.6 مع تحقيق مثل هذا المعدل على الأقل خلال جميع فصول الدراسة ببرامج الساعات المعتمدة أو عند التحاقه بالدراسة من البرامج ذات الفصلين الدراسيين وذلك بعد عمل مقاصة.
- عند التحاق أى من الطلاب الثلاثون الاوائل فى الثانوية العامة المصرية تخصص رياضيات بالبرامج ، يعفى من كافة الرسوم والمصروفات الدراسية خلال الفصل الدراسي التالى لالتحاقه، ويظل هذا الإعفاء ساريا طالما حصل الطالب على متوسط نقاط تراكمي 3.60 أو أكثر. ولا يسرى ذلك على رسوم الفصل الدراسي الصيفى.
- تضع الكلية نظاما لتشجيع الطلاب المتفوقين عن طريق تخفيض المصروفات الدراسية بنسب متدرجة مع متوسط النقاط التراكمي للطالب ، وتعلن في بداية كل فصل دراسي رئيسي قائمة الطلاب المتفوقين ونسب تخفيض المصروفات لكل طالب ، ولا تسرى منح التفوق على رسوم الفصل الدراسي الصيفي.

مادة (٢٠) الإنذار الأكاديمي – الفصل من الدراسة – آليات رفع المعدل التراكمي:

- إذا انخفض المعدل التراكمي للطالب إلى أقل من 2.00 في أي فصل دراسي، يوجه له إنذار أكاديمي، يقضى بضرورة رفع الطالب لمعدله التراكمي إلى 2.00 على الأقل.
- يفصل الطالب المنذر أكاديميا من الدراسة ببرامج الساعات المعتمدة إذا تكرر انخفاض معدله التراكمي عن 2.00 ستة فصول دراسية رئيسية متتابعة.
- اذا لم يحقق الطالب شروط التخرج خلال الحد الأقصى للدراسة وهو عشر سنوات ، عدا الفصول التي يتم فيها إيقاف قيد الطالب لعذر يقبله مجلس الكلية ، يتم فصله.
- يفصل الطالب اذا انقطع عن التسجيل بالدراسة لمدة فصلين دراسيين متصلين و بحد أقصى ستة فصول دراسية رئيسية منفصلة.
- يجوز لمجلس الكلية أن ينظر في إمكانية منح الطالب المعرض للفصل نتيجة عدم تمكنه من رفع معدله التراكمي إلى 2.00 إلى 2.00 على الأقل، فرصة واحدة وأخيرة مدتها فصلين دراسيين رئيسيين لرفع معدله التراكمي إلى 90 من الساعات المعتمدة المطلوبة للتخرج على الأقل.





• يجوز للطالب إعادة دراسة المقررات التي سبق نجاحه فيها بغرض تحسين المعدل التراكمي، وتكون الإعادة دراسة وامتحانا، ويحتسب له التقدير الذي حصل عليه في المرة الأخيرة لدراسة المقرر، وذلك بحد أقصي خمسة مقررات، ويذكر كلا التقديرين في سجله الأكاديمي.

مادة (۲۱) قواعد اضافية:

يعرض على مجلس الكلية كافة الموضوعات التى لم يرد فى شأنها نص فى مواد هذه اللائحة، وقد يتطلب الأمر الرفع للجامعة للتصديق على قرار مجلس الكلية ووفقاً للقواعد العامة التي يحددها المجلس الأعلي للجامعات.





منظومة تكويد المقررات الدراسية

فى مقررات برامج الساعات المعتمدة تستخدم الرموز المعمول بها فى اللائحة الداخلية الحالية بنظام الفصلين الدراسيين كالآتى:

جدول (أ) رموز مجموعات المقررات طبقا للاقسام العلمية

الرمز	مجموعات المقرر
رفهـ EMP	مقررات من قسم الرياضيات والفيزياء الهندسية (Eng. Mathematics & Physics)
انس HUM	مقررات الانسانيات (Humanities)
لغف TFL	مقررات اللغة الاجنبية الفنية (Technical Foreign Language)
همـو MTE	مقررات من قسم هندسة المواد (Materials Engineering)
هنش STE	مقررات من قسم الهندسة الانشائية (Structural Engineering)
هتش CUE	مقررات من قسم هندسة التشبيد (Construction and Utilities Engineering)
همی WSE	مقررات من قسم هندسة المياه و المنشآت المائية (Water and Water Structres Engineering)
هـقم MPE	مقررات من قسم هندسة القوى الميكانيكية (Mechanical Power Engineering)
ھتج DPE	مقررات من قسم هندسة التصميم الميكانيكي والانتاج (Mechanical Design & Production Engineering)
هکت ECE	مقررات من قسم هندسة الالكترونيات والاتصالات الكهربية (Electronics & Electrical Communications Engineering)
هحس CSE	مقررات من قسم هندسة الحاسبات والمنظومات (Computer & Systems Engineering)
ه <u>ق</u> ك EPE	مقررات من قسم هندسة القوى والآلات الكهربية (Electrical Power & Machines Engineering)
هـصن INE	مقررات من قسم الهندسة الصناعية (Industrial Engineering)
هبی ENE	مقررات قسم الهندسة البيئية (Environmental Engineering)
همع ARE	مقررات قسم الهندسة المعمارية (Architectural Engineering)

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ثالثا: تفاصيل متطلبات الدراسة

تحتوى برامج البكالوريوس بنظام الساعات المعنمدة على متطلبات مشتركة للجامعة والكلية بالإضافة الى متطلبات التخصص العام والتخصص الدقيق كما يلى:

متطلبات هندسية تخصصية	متطلبات مشتركة للكلية	متطلبات مشتركة للجامعة	متطلبات الدراسة
علوم هندسية تخصصية	علوم أساسية وهندسية	إنسانيات وثقافة إجتماعية	نوعية المقررات
٥٦.٩٧ (٩٤ ساعة)	۲٦.٦٧٪ (4٤ ساعة)	٤.٨٥٪ (٨ ساعة)	نسبة الساعات الإجبارية
٦.٦٧ % (١١ ساعة)	۱.۲۱٪ (۲ ساعتان)	٣.٦٦٪ (6 ساعات)	نسبة الساعات الاختيارية
١٠٥) ٪٦٣.٦٤	(تع ساعة) ٪۲۸.۸۸	٨٠٤٨٪ (١٤ ساعة)	النسبة الاجمالية

(أ) متطلبات مشتركة للجامعة

الغرض الرئيسي من التعليم الجامعي ليس فقط تَهْيِئة الطلابِ للمهنِ الناجحةِ لكن أيضاً لتَزويدهم بالمعرفةِ والمهاراتِ لتَطوير وجعل الطالب الجامعي ذو شخصية عقلانية وناجحة. علاوة على ذلك، تُساعدُ جامعة الزقازيق الطلاب علي اكتساب القدرات والتثقيف من البيئات التي يعيشون فيها وتنمية أدوارَهم في المجتمع بالاضافة الي الخدمات الإجتماعيةِ. إنّ متطلباتَ الجامعةَ تُصمّمُ للمُسَاعَدة على إنْجاز هذه الأهدافِ في كافة المقررات سواء الإجبارية بنسبة ٥٨.٤٪ أو الاختيارية بنسبة ٣٠٦٦ % بإجمالي ١٤ ساعة معتمدة بنسبة. ٨٤.٨٪ وهي موضحة بالجدول (ب) للمقررات الإجبارية والجداول من جـ١ إلي جـ٣ للمقررات الإختيارية.

(ب) متطلبات مشتركة للكلية

تُزود الكليّة الطلابَ بالمعرفة والمهاراتِ الضرورية لتَطوير مهندس ناجح. تَحتوي متطلباتُ الكليّة المقررات الرئيسية والمعرفة الأساسية والتي يجب أن يلم بها المهندس. متطلبات الكليّة تَشْملُ ٤٦ ساعة معتمدة تمثل حوالي ٢٧٠٨٨٪ (بواقع ٤٤ ساعة معتمدة بنسبة ٢٦٠٦٪ مقررات إجباريو و ٢ ساعتان بنسبة ١٠١١٪ مقررات إختيارية) مِنْ المجموعِ الكلي للساعات المعتمدة في شَهَادَةِ البكالوريوس. قائمة متطلباتِ الكليّة مختارة من عدة مقرراتِ: الكيمياء الهندسية والفيزياء الهندسية والرياضيات الهندسية والميكانيكا الهندسية والرسم الهندسي و الإسقاط ومهاراتِ حاسبِ وأخرى ، وهي موضحة بالجدولين (د١) و (د٢).





جدول (ب) متطلبات الجامعة (۱۶ ساعة معتمدة بنسة ۸,٤٨٪ (٥٨,٤٪ مقررات إجبارية و ٣,٦٦ % مقررات إختيارية) من إجمالي ١٦٥ ساعة معتمدة)

ساعات الأتصال	معمل	تمرين	محاضرة	الساعات المعتمدة	متطلبات الجامعة		a
Contact Hrs	Lab	Tutorial	Lecture	Credit Hrs	7 1		,
۳	7		,	لغف ٠٠١ اللغة الأجنبية الفنية		لغف ۲۰۱	,
1	١ ،	-	'	'	Technical Foreign Language	TFL001	,
Y			۲	~	تاريخ الهندسة والتكنولوجيا	أنس ۰۰۱	۲
'	_	-	'	'	History of Engineering and Technology	HUM001	'
4	7	,	,	مقدمة في الحاسبات والبرمجة ب ب ب		هحس ۲۰۰۱	٣
2	1	,	1	1	Introduction to Computers & Programing	CSE001	,
Υ			۲	مدخل إلي القانون		أنس ۱۰۱	4
,	_	-	'	,	Introduction to Law	HUM101	4
Υ			۲	4	مقررإختاري جامعة (١)	إخ-١	0
'	_	_	,	,	University Elective (1)	HUMxxx	
٧			۲	مقرر إختاري جامعة (٢)		إخ-٢	7
,	-	-	1	,	University Elective (2)	HUMxxx	`
Υ			7	مُقرر إختاري جَامعة (٣)		إخ -٣	· ·
<u>'</u>	-	-	'		University Elective (3) HU		V
١٧	٤	١	١٢	١٤	جمالــــــي الســـاعـــات =		

**عدد المقررات الاختيارية غير الهندسية ثلاثة مقررات بإجمالي عدد ٦ ساعات معتمدة وعلي الطالب اختيار مادة واحدة فقط لكل مقرر والمقررات الاختيارية موضحة بالجداول من (ج١) الى (ج٣)

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جدول (جـ١) المقرر الاختياري الاول (أخ- ١) المستوي الجامعي المطلوب (الاول)

ساعات الأتصال	معمل	تمرین	محاضرة	الساعات المعتمدة	إسم المقرر	الكود	م
Contact Hrs	Lab	Tutorial	Lecture	Credit Hrs	Course Title	Code	Ser
					إدارة الموارد البشرية	إنس ۱۰۲	
7	-	-	۲	۲	Human Resources Management	HUM 10 ^۲	١
					تاريخ الحضارة العربية والإسلامية	أنس ۱۰۳	
۲	-	-	۲	۲	History of Arabian & Islamic Civilization	HUMIT	۲
					جغرافيا الإنسان والبيئة	أنس٤ ٠١	
۲	-	-	۲	۲	Geography of Mankind & Environment	HUM10 [£]	٣
Y			۲	۲	مدخل إلي المنطق	أنس٠٠١	£
,	_	-	'	,	Introduction to Logic	HUM).0	•

جدول (جـ2) المقرر الاختياري الثاني (أخ- ٢) المستوي الجامعي المطلوب (الثاني)

ساعات الأتصال	معمل	تمرین	محاضرة	الساعات المعتمدة	إسم المقرر	الكود	م
Contact Hrs	Lab	Tutorial	Lecture	Credit Hrs	Course Title	Code	Ser
					مدخل إلي الإتصال الجماهيري	أنس ۲۰۱	
۲	-	-	۲	Communications Introductory Mass		HUMY・1	1
۲			۲	۲	مقدمة في علم الإجتماع	أنس ۲۰۲	Ų
,	_	-	,	,	Introductory to Sociology	HUMY·Y	'
~			Ų	Į.	تاريخ مصر القديم	أنس٢٠٣	
,	_	-	,	,	History of Ancient Egypt	HUMY0°	,
۲	_	_	۲	۲	مقدمة في علم النفس	أنس ۲۰۶	٤
,	_	_	,	,	Introductory to Psychology	HUMΥ·٤	
					سيمنار إنسانيات ١	إنس ۲۰۵	5
,	-	-	,	\	Humanities Seminar 1	HUM 205	

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جدول (جـ٣) المقرر الاختياري الثالث (أخ-٣) المستوي الجامعي المطلوب (الثالث)

ساعات الأتصال	معمل	تمرین	محاضرة	الساعات المعتمدة	إسم المقرر	الكود	م
Contact Hrs	Lab	Tutorial	Lecture	Credit Hrs	Course Title	Code	Ser
۲	_	_	۲	۲	سيمنار إنسانيات ٢	إنس ٣٠١	,
·					Humanities Seminar 2	HUM ٣٠١	
					طرق البحث العلمي	أنس٣٠٣	
۲	-	-	۲	۲	Methods of Scientific research	нимт•т	۲
					مقدمة في علم النفس الصناعي	أنس٤٠٠	
۲	-	-	۲	۲	Introductory to industrial Psychology	HUM ٣٠٤	٣
					مدخل لعلم الإجتماع الصناعي	أنس ٣٠٥	
۲	-	-	۲	۲	Introductory to industrial Sociology	нимт.о	ŧ

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جدول (د-۱) متطلبات الكلية ٤٦ ساعة معتمدة (بإجمالي نسبة ٢٨,٨٨٪ بواقع ٢٦,٦٧ % مقررات إجبارية و ١,٢١ % مقررات إختيارية) من إجمالي ١٦٥ ساعة معتمدة

					.		
ساعات الأتصال	معمل	تمرين	محاضرة	الساعات المعتمدة	متطلبات الكلية		م
Contact Hrs	Lab	Tutorial	Lecture	Credit Hrs	Faculty Requirements		,
٤		۲	۲	٣	الرياضيات الهندسية (١)	رفهـ٠٠١	,
ζ	-	\	\	,	Engineering Mathematics (1)	EMP001	,
0	۲	,	۲	٣	الفيزياء الهندسية (١)	رفهـ۲۰۰	۲
	١	1	\	,	Engineering Physics (1)	EMP002	,
0	٣		۲	٣	الرسم الهندسي والإسقاط (١)	هتج ١١٠	٣
3	,	-	\	,	Engineering Drawing and Projection (1)	DPE 011	,
ź	۲	,	١	۲	الميكانيكا الهندسية (١)	رفهـ۰۰۳	٤
2	١	'	1	,	Engineering Mechanics (1)	EMP003	-
0	٣		۲	٣	الكيمياء الهندسية	هبي ۲۰۰	٥
J	'	-	1	1	Engineering Chemistry	ENE001	
٤	_	۲	۲	٣	الرياضيات الهندسية (٢)	رفه_٥٠٠	٦
2	_	1	1	1	Engineering Mathematics (2)	EMP00°	,
٥	۲	,	۲	٣	الفيزياء الهندسية (٢)	رفه-۲۰۰	٧
J	,	,	1	1	Engineering Physics (2)	EMP007	•
ź	۲	,	,	۲	الميكانيكا الهندسية (٢)	رفه_۲۰۰۷	٨
-	,	,	1	'	Engineering Mechanics (2)	EMP00 ^V	,
٥	۲	,	۲	٣	تكنولوجيا إنتاج	هتج ۲۰۰۱	٩
, and the second	,	,	1	'	Production Technology	DPE001	•
٥	٣	_	۲	٣	الرسم الهندسي والإسقاط (٢)	هتج ۱۲۰	10
J	'	-	1	1	Engineering Drawing and projection (2)	DPE012	10
٣		7	,	۲	الرياضيات الهندسية (٣)	رفه ۱۰۱	
1	-	\	1	'	Engineering Mathematics (3)	EMP	۱1
,					رع) د المحتود	هقك ١٠١	
٤	۲	١	١	۲	Electerical systems	EPE 101	١٢
					ديناميكا حرارية وأنظمة ميكانيكية (طلاب برنامج تشييد)	<u>هقم ۱۰۱</u>	
٤	۲	١	١	۲	Thermodynamics and Mechanical systems	,	۱۳
					(Construction Program students)	MPE1·1	
					دیناُمیکا حراریة (طلاب میکاترونیات وطیران)	هقم۱۰۲	
٤	_	۲	2	٣	Thermodynamics (For mechactronics and Aero-	, ,	14
					Spacecraft engineering students)	MPE1·۲	
٥	۲	,	۲	٣	هندسة المواد	همو ۱۰۱	15
5	١	1	\	,	Engineering Materials	MTE101	15
4	Ų	,	,	V	تطبيقات الحاسب	هجس ۱۰۱	17
٤	۲))	۲	Computer Applications	CSE101	16
					إقتصاديات الهندسة (طلاب برنامج تشييد)	هتش ۲۰۷	
٤	-	۲	۲	٣	Engineering Economics	CHE 20V	17
					(Construction Program students)	CUE 20 ^V	
					اقتصاد هندسی (طلاب میکاترونیات وطیران)	هصن ۲۰۷	
<u>,</u>		J		Į į	` "	J	10
٣	-	7	١	۲	Engineering Economy (For mechactronics and Aero-Spacecraft	INE 20 ^V	18
					engineering students)	INE ZU	
					engmeering students) الإحصاء الهندسي	هصن۲۰۲	1
۲	-	-	۲	۲	Engineering Statistics	INE ۲۰۲	19
					Engineering Stausucs اختیاری کلیة (۱)	Xxx	+
۲	-	-	۲	۲	بکتیاري کتب Faculty Elective (1)	Xxxx	20
\ <u>\</u>	J.	.		4 =	•	ΛΛΛΛ	1
٧ ٢	71	۲۱	٣.	٤٦	إجمالـــــي السـاعــات =		

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جدول (د-2) مقرر إختياري كلية (١) (أخ- ك1)

ساعات الأتصال	معمل	تمرين	محاضرة	الساعات المعتمدة	إسم المقرر	الكود	۴
Contact Hrs	Lab	Tutorial	Lecture	Credit Hrs	Course Title	Code	Ser
۲	_	_	4	*	إدارة المشروعات الهندسية	هتش ۲۰۸	,
,	_	-	,	,	Engineering Project Managment	CUE 20^	,
					الطرق االكمية في الهندسة	هصن ۲۰۸	
۲	-	-	۲	۲	Quantitive Methods in	INE 208	۲
					Engineering	INL 200	
					التقويم البيئي للمشروعات الهندسي	هبي ۲۰۲	
۲	-	-	۲	۲	Environmental Evaluation of	ENE 202	٣
					Enginnering Projects	ENE 202	

(ج) : المقررات التخصصية

- يَعْرِضُ البرنامجُ الهيكل الاساسي التعليمي ويشمل ١٠٥ ساعة إعتماد تمثل حوالي ٦٣.٦٤٪ مِنْ المجموع الكلي للساعات المعتمدة في شَهَادَةِ البكالوريوس.
- يُركّزُ برنامج هندسة الانشاءات وادارة التشييد على مقررات في الهندسة الانشائية وإدارة التشييد وتكنولوجيا البناء مثل تحليل الانشاءات وميكانيكا التربةِ والاساسات وتصميم المنشآت الخرسانية والمعدنية وادارة مشروعات التشييد والمعقود والمواصفات وحصر الكميات وادارة معدات التشييد وادارة جودة التشييد وهذه المقررات واردة في الجداول (ه۱) للمقررات الإجبارية و (ه۲) للمقررات التخصصية الإختارية و (ه۳) لنموذج الدراسة الإسترشادية بالبرنامج.
- ويُركّزُ برنامج هندسة الميكاترونيات على مقررات في مجالات: النظم الكهروميكانيكية -الماكينات الدقيقة القياسات واجهزة القياس لمنظومات الميكاترونيات تصميم المنظومات الميكاترونيات الروبوتات المواد الذكية للميكاترونيات المواد الذكية للميكاترونيات -

Y.Y. _ YY _





المحركات والمشغلات لنظم التحكم - أنظمة التحكم الألية - النظم المتكاملة وهذه المقررات واردة في المحركات والمشغلات لنظم التحكم الألية المحركات والمشغلات الإجبارية و (و ٢) للمقررات التخصصية الإختارية و (و ٣) لنموذج الدراسة الإسترشادية بالبرنامج.

• بينما يُركّزُ برنامج هندسة الطيران والمركبات الفضائية على مقررات في مجالات الطيران والمركبات الفضائية – الفضائية وتشمل: بيئة الفضاء – تحليل المهام الفضائية – تصميم هياكل الطائرات والمركبات الفضائية – المدارات ومسارات الطيران – الثبات والتحكم – تصميم أنظمة دفع الطائرات – تصميم أنظمة دفع الصواريخ – ميكانيكا الطيران والتحكم – التوجيه والتحكم وهذه المقررات والمركبات الهوائية بدون طيار وهذه المقررات واردة في الجداول (ز.١) للمقررات الإجبارية والجداول من (ز ٢) إلى (ز ٨) للمقررات الإختيارية والجدول (ز ٩) لنموذج الدراسة الإسترشادية بالبرنامج.

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اولا:

المقررات التخصصية لبرنامج هندسة الانشاءات وادارة التشييد

Y.Y. _ Y \(\xi \)





Faculty of Engineering

جدول (هـ١) متطلبات التخصص لبرنامج هندسة الانشاءات وادارة التشييد (١٠٥ ساعة معتمدة بنسبة ٢٣,٦٤ %)

91 m291 m1 - 1			,	الساعات	المتطلبات التخصصية		مسلسل
ساعات الأتصال	معمل	ىمرىن	محاضرة	المعتمدة	Speciality Courses		Serial
		۲	J	٣	تحليل الانشاءات(1)	هنش ۱۰۱	_
٤	_	'	۲	١	Structural Analysis 1	STE101	1
,		J	J		ميكانيكا الانشاءات(1)	هنش ۱۰۲	_
٤	_	۲	۲	٣	Structural Mechanics 1	STE102	2
,			J		هندسة التشبيد	هتش ۱۰۲	_
٤	_	۲	۲	٣	Construction Engineering	CUE102	3
	,				الرسم المدنى	همی ۱۰۱	_
٥	٤	_	١	٣	Civil Eng. Drawing	WSE101	4
					مو اد التشييد	هنش ۱۰۳	_
0	۲)	۲	٣	Construction Materials	STE103	5
					الجيو لوجيا الهندسية	هنش ۱۰۶	
۲	_	-	۲	۲	Engineering Geology	STE104	6
					تحليل الانشاءات(2)	هنش ۲۰۱	
٤	_	۲	۲	٣	Structural Analysis 2	STE201	7
					المساحة المستوية	متش ۲۰۳	
٥	۲	١	۲	٣	Plane Surveying	CUE203	8
					ميكانيكا الموائع	همي ۲۰۱	
٥	١	۲	۲	٣	Fluid Mechanics	WSE201	9
					تقدير التكلفة و المناقصات	۲۰۶ <u>متش</u> ۲۰۶	
۲	_	_	۲	۲	Cost Estimating and Tendering	CUE204	10
					الهندسة الصحية والبيئية(1)	<u>۲۰۱</u> هبی	
٥	١	۲	۲	٣	Sanitary & Environmental Engineering	تبي ENE201	11
					تخطيط مشر و عات التشييد (1)	۲۰۵ شت <i>ه</i>	
٤	_	۲	۲	٣	Construction Projects Planning (1)	CUE205	12
					میکانیکا التربة(1)	منش ۲۰۲	
٥	١	۲	۲	٣	میت اسرب(۱) Soil Mechanics 1	STE202	13
					ا Son Mechanics تصميم الخرسانة المسلحة(1)	311:202 هنش ۲۰۳	
٤	_	۲	۲	٣	Reinforced Concrete Design 1	STE203	14
					Reinforced Concrete Design 1 المو اصفات و حصر الكميات	الالے 311203 متش ۲۰۶	
۲	_	_	۲	۲	Specifications and Quantity Surveying	CUE206	15
					specifications and Quality Surveying میکانیکا الانشاءات(2)	۲۰۶ هنش	
٤	_	۲	۲	٣	Structural Mechanics 2	STE204	16
					2 Structural Mechanics تصميم الخرسانة المسلحة(2)	31E2U4 هنش ۳۰۱	
٤	_	۲	۲	٣		_	17
		-			Reinforced Concrete Design 2 تصميم المنشات المعدنية(1)	STE301 هنش ۳۰۲	
٤	_	۲	۲	٣		_	18
		-			Steel Structures Design 1 هندسة النقل والمرور	STE302 هتش ۳۰۱	
٤		۲	۲	٣		_	۱۹
		-			Traffic and Transportation Engineering	CUE301	
٤		۲	۲	٣	تخطيط مشروعات التشييد(2)	هتش ۳۰۲	20
	_				Construction Projects Planning (2)	CUE302	

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تابع جدول (هـ١) متطلبات التخصص لبرنامج هندسة الانشاءات وادارة التشييد (٥٠٥ ساعة معتمدة بنسبة ٢٣,٦٤ والمرارة التشييد (٥٠٠ ساعة معتمدة بنسبة ٢٣,٦٤ والمرارة التشييد (٥٠٠ ساعة معتمدة بنسبة ٢٣,٦٤ والمرارة التشييد (١٠٠ ساعة معتمدة بنسبة ٢٠,٦٤ والمرارة التشييد (١٠٠ ساعة معتمدة بنسبة ٢٠,١٠٤ والمرارة المرارة الم

ساعات				الساعات	المتطلبات التخصصية		مسلسل
الأتصال	معمل	تمرین	محاضرة	المعتمدة	Speciality Courses		Serial
			_	_	هندسه القيمه	هتش ۳۰۰	
2	_	_	2	2	Value Engineering	CUE305	21
_		J	J		میکانیکا التربة (۲)	هنش ۳۰۳	
٥	١	۲	۲	٣	Soil Mechanics 2	STE303	24
4		۲	۲	٣	هندسة الطرق	هتش ۳۰۳	70
٤	_	'	1	١	Highway Engineering	CUE303	۲3
۲			۲	۲	التحليل الإنشائي المتقدم	هنش ۲۰۶	7 £
'	_	-	'	'	Advanced Structural Analysis	STE304	1 2
۲			۲	۲	عقود التشييد	هتش ۳۰۶	70
1	_	_	1	'	Construction Contracts	CUE304	, ,
٤		۲	۲	٣	مقرر اختياري هندسي (١)	جدول(هـ٢)	77
2	_	'	'	'	Engineering Elective 1		1 •
٤		۲	۲	٣	مقرر اختياري هندسي (٢)	جدول(هـ٢)	77
	_	'	'	'	Engineering Elective 2		1 4
٤		۲	۲	٣	مقرر اختياري هندسي (٣)	جدول(هـ٢)	28
	_	'	'	'	Engineering Elective 3		20
۲			۲	۲	الادارة المالية في التشبيد	هتش ۲۰۲	29
,	_	_	'	'	Financial management in Construction	CUE402	23
٤		۲	۲	٣	الاساسات	هنش ۲۰۱	30
	_	,	,	·	Foundations	STE401	30
٤		۲	۲	٣	المنشآت المركبة	هنش ۲۰۶	31
	_	·			Composite Structures	STE402	<u> </u>
٤		۲	۲	٣	تصميم الخرسانة المسلحة (٣)	هنش ۲۰۳	32
	_				Reinforced Concrete Design 3	STE403	52
٤		۲	۲	٣	تصميم المنشات المعدنية (٢)	هنش ۲۰۶	77
	_				Steel Structures Design ⁷	STE404	
۲			۲	۲	إدارة جودة التشييد	هتش ۲۰۳	34
	_	_			Construction Quality Management	CUE403	•
۲			۲	۲	إدارة معدات التشبيد	هتش ٤٠٤	35
	_	_			Construction Equipment Management	CUE404	
٥	١	۲	۲	٣	الهندسة الصحية والبيئية (٢)	هبي ۲۰۱	36
					Sanitary & Environmental Engineering 2	ENE401	
۲			۲	۲	مقرر اختياري هندسي (٤)	جدول(هـ٢)	37
	_	_			Engineering Elective 4	٤١ . ي	
٣	_	۲	١	۲	مشروع التخرج (١) (1) مدونوروي التخريج (١)	هتش ۲۱۰	38
					Graduation Project (1)	CUE £) ·	
٣		۲	١	۲	مشروع التخرج (٢) (2) معرفيم Project (2)	هنش ۲۱۱ ۲۳۶۸۱۱	39
·	_		,	,	Graduation Project (2)	STE411	
1 £ 7	۱۳	٥ ٤	۷٥	1.0	ــــــــــــــــــــــــــــــــــــــ	إجمال	

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جدول (هـ ٢) بيان بالمقررات الأختيارية للمتطلبات التخصصية لبرنامج هندسة الانشاءات وادارة التشييد

علي الطالب اختيار مقرر واحد فقط من كل مجموعة من المقررات التالية

سندس من معرور ما معروب المعني	ب میرر وس
(هتش ٣٢٠) إدارة المخاطر في التشبيد	
CUE320 Risk Management in Construction	
(هتش ۳۲۱) مواد الرصف	
CUE321 Pavement Materials	مقرر اختياري (١)
(هنش ٣٢٢) هندسة وتخطيط السكك الحديدة	Engineering
CUE322 Railway Engineering	Elective (1)
(هنش ٣١٣) ديناميكا المنشات وهندسة الزلازل	Zicctive (1)
STE 313 Structural Dynamics & Earthquake Engineering.	
(هنش ٣١٤) الكباري الخرسانية والمركبة	
STE314 Concrete and Composite Bridges	
(هنش ٣١٥) طريقة العناصر المحددة	مقرر اختياري (٢)
STE315 Finite Element Analysis	Engineering
(هتش ٣٢٣) ادارة الرصف وصيانته	Elective (2)
CUE323 Pavement Management and Maintenance	
(هتش ٣٢٤) التشبيد الثقيل	
CUE324 Heavy Construction	
(هنش ٤١٣) الخرسانة الخاصة	
STE413 Special Concrete	
(هنش ٤١٤) تصميم وتشييد الانفاق	
STE414 Design and Construction of Tunnels	
(هنش ٤١٥) تدعيم وتقوية المنشات	مقرر اختياري (٣)
STE415 Repair and Strengthening of Structures	
(هتش ٤٢٤) المنشآت المؤقتة في التشييد	Engineering
CUE424 Temporary Structures in Construction	Elective (3)
(هتش ٤٢٥) انتاجيه التشييد	
CUE425 Construction Productivity	مقرر اختياري (٤)
(هتش ٤٢٦) إدارة الامان والصحة البيئية في التشييد	
CUE426 Safety, Health and Environ. Management in Construction	Engineering
(هنش ٤١٦) المباني المرتفعة والمنشآت الخاصه	Elective (4)
STE 416 High Rise buildings and special structures	
(هنش ٤١٧) الخرسانه سابقه التجهيز	
STE 417 Prestressed Concrete	

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جدول (هـ٣) نموذج إسترشادي يوضح خطة تدريس مقررات برنامج هندسة الانشاءات وادارة التشييد.

		Lev	el 000 (Fre	eshman)					
	Semester (1)	Fall		Semester (2) Spring					
	Course name	Code	СН	Course name	Code	СН			
1	رياضيات هندسية ١	EMP001	3	رياضيات هندسية ٢	EMP005	3			
2	فيزياء هندسية ١	EMP002	3	فيزياء هندسية ٢	EMP006	3			
3	رسم هندسي وإسقاط ١	DPE011	3	رسم هندسي وإسقاط ٢	DPE 012	3			
4	میکانیکا هندسیة ۱	EMP004	2	میکانیکا هندسیة ۲	EMP007	2			
5	كيمياء هندسية	ENE001	3	تكنولوجيا إنتاج	DPE001	3			
6	لغة أجنبية فنية	TFL001	2	مقدمه حاسب وبرمجة	CSE001	۲			
7				تاريخ الهندسة والتكنولوجيا	HUM001	۲			
	Total		١٦	Total		۱۸			

		Lev	el 100 (Sop	ohomore)					
	Semester (1)	Fall		Semester (2) S	Spring				
	Course name	Code	СН	Course name	Code	CH			
1	ریاضیات هندسیهٔ ۳	EMP101	۲	ميكانيكا الإنشاءات ١	STE102	3			
2	تطبيقات الحاسب	CSE101	2	مواد التشييد	STE103	3			
3	تحليل الأنشاءات ١	STE101	٣	الجيولوجيا الهندسية	STE104				
4	هندسة المواد	MTE101	3	الرسم المدنى	WSE101	3			
5	ديناميكا حراريه وأنظمه ميكانيكيه	MPE101	2	هندسة التشييد	CUE102	3			
6	أنظمة كهربية	EPE101	2	أختياري جامعة ١	HUMxxx	2			
7	مدخل الى القانون	HUM101	2						
	Total		١٦	Total	Total				
	Level 200 (Junior)								
	Semester (1) Fall Semester (2) Spring								
	Course name	Code	СН	Course name	Code	СН			
1	اقتصاديات الهندسه	CUE207	3	تخطيط التشييد ١	CUE205	3			
2	المواصفات وحصر الكميات	CUE206	2	الهندسة الصحية والبيئية ١	ENE201	3			
3	تحليل الأنشاءات ٢	STE201	3	إختياري كلية ١	xxxxxx	2			
4	ميكانيكا التربة ١	STE202	3	خرسانة مسلحة ١	STE203	٣			
5	ميكانيكا الموائع	WSE201	3	ميكانيكا الأنشاءات٢	STE204	3			
6	المساحه المستويه	CUE 203	3	الأحصاء الهندسى أختياري جامعة 2	INE202	2			
7	تقدير التكلفة والمناقصات	CUE204	۲	أختياري جامعة 2	HUMxxx	2			
	Total		19	Total		18			
		Le	evel 300 (Se	enior 1)					
	Semester (1) F	all		Semester (2) S	pring				
	Course name	Code	CH	Course name	Code	CH			
1	خرسانة مسلحة ٢	STE301	3	هندسة الطرق	CUE303	3			
2	تصميم منشآت معدنية ١	STE302	3	ميكانيكا التربة ٢	STE303	3			
3	هندسة النقل والمرور	CUE301	3	عقود التشييد	CUE304	۲			
4	تخطيط التشييد ٢	CUE302	3	هندسة القيمة	CUE305	2			
5	مقرر اختیاری۳	HUMxxx	2	مقرر اختیاری هندسی ۱	xxxxxx	3			
6	التحليل الإنشائي المتقدم	STE304	2	مقرر اختیاری هندسی ۲	xxxxxx	3			
	Total		16	Total	·	16			

		Lev	el 400 (Se	nior 2)				
	Semester (1) Fal	1		Semester (2) Spring				
	Course name	Code	СН	Course name	Code	СН		
1	تصميم منشآت معدنية ٢	STE404	3	أدارة جودة التشييد	CUE403	۲		
2	الأداره الماليه في التشييد	CUE402	2	أدارة معدات التشييد	CUE404	۲		
3	أساسات	STE401	3	هندسة صحية وبيئية ٢	ENE401	٣		
4	منشآت مركبة	STE402	3	مقرر هندسی اختیاری ۳	XXXXXX	3		
5	خرسانة مسلحة ٣	STE403	3	مقرر هندسی اختیاری ٤	xxxxxx	2		
6	مشروع التخرج ١	CUE410	2	مشروع التخرج ٢	STE411	2		
	Total	•	١٦	Total	•	14		

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Description of Course Contents and Details

Course Contents and Details for Structural Engineering and Construction Management

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LEVEL (000) Semester 1

	Freshmen LEVEL 000 COURSES											
Code	Course Title	Droroguioito		С	ontact hou	urs				Marks		
Code	Course ritte	Prerequisite	Cr Lec		Tutorial	Lab	Total	CW	O/P	FE	Total	
EMP001	Engineering	None	3	2	2		4	50	•	50	100	
EIVIPUUI	Mathematics 1	None	う		2	-	4	50%	-	50%	100%	
Catogary		Compulsory (FR)										
Objective	To learn the main co	oncepts of diff	ferer	itiatio	n and alge	ebra.						
Topics	Limits-Newoton's r functions)-Macclaur	Fo learn the main concepts of differentiation and algebra. Functions-Elementary functions-Inverse function-Polar and parametric coordinates- Limits-Newoton's method-Derivatives (chain rule, derivation of implicit and inverse functions)-Macclaurin's and Taylor's expansins-Theory of equations-Matrices-Gauss elimination method-Matrix Eigen value problem.										

	Course Title	Prerequisite		Co	ntact ho	urs			ľ	/larks	
EMP002	Course Title	rierequisite	Cr	Lec	Tutorial Lab		Total	CW	O/P	FE	Total
EIVIP 002	Engineering	None	3	¥	1	2	5	30	20	50	100
	Physics 1	None	3	'	ı		3	30%	20%	50%	100%
Catogary			Co	mpul	sory (FR)					
Objective	o learn about matter properties and applications of Newton's laws.										
Topics	Field of gravitation Temperature-First 1 Thermodynamics-Ga Simple Pendulum-Coefficient of heat C Lab: Simple and c viscosity of liquid measurement of the	al Force-Flu aw of The as Theory-S Complex P	id sta ermod ound endul	atics lynam Wa um-L	and Dyr nics-Heat ves-Wav iquid V	namic t En ves i Visco	s-Viso gines- n ela sity-Li	cosity Entro stic iquid	py-Se Medi Sur	econd a-Expo face	law of eriments: Tension-

Code	Course Title Prerequisite		C	ontact ho	urs			ı	Marks			
Code	Course Title	Frerequisite	Cr	Lec	Tutorial	Lab	Total	CW	O/P	FE	Total	
EMP003	Engineering	None	2	4	1	2	4	30	20	50	100	
EIVIPUUS	Mechanics (1)	None	4	I			4	30%	20%	50%	100%	
Catogary		Compulsory (FR)										
Objective	To learn the basic co	earn the basic concepts of engineering mechanics.										
	Vector applications- Equilibrium-Reaction machines-Experimen	n-Friction-Ve	ector	calcu	lus-Equil	_	•		-			

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Codo	Course Title	Droroguioito		С	ontact ho	urs			N	/larks			
Code	Course ritte	Prerequisite	Cr	Lec	Tutorial	Lab	Total	CW	O/P	FE	Total		
DPE011	Eng. Drawing &	None	3	2	_	3	5	50	-	50	100		
DEEDII	Projection (1)	None	3		-	3	3	50%	-	50%	100%		
Catogary			(Comp	ulsory (FR	?)							
Objective	Introductory concep	troductory concepts of engineering drawing and descriptive geometry											
	Introduction (drawing	ng instrumer	nts a	nd th	eir use)-H	Engin	eering	grapl	nics,	techni	ques and		
	skills-Geometric con	nstructions ar	nd ta	ngeno	y-Rules a	and co	onvent	ions o	of line	s, lette	ering and		
Topics	dimensioning-Ortho	graphic pro	jecti	on o	f engine	ering	bodi	es-Fra	ames	of r	eference-		
	Orthogonal project	ion-Represen	tatic	n of	a straig	ght li	ne-Str	aight	lines	inter	sections-		
	Representation of a	plan-Position	pro	blems									

Code	Course Title	Droroguioito		С	ontact ho	urs			N	/larks			
Code	Course Title	Prerequisite	Cr	Lec	Tutorial	Lab	Total	CW	O/P	FE	Total		
ENE001	Eng. Chemistry	None	3	,		2	5	30	20	50	100		
ENEOUT	Elig. Chellistry	None	3		•	٥	3	30%	20%	50%	100%		
Catogary			(Comp	ulsory (FR	?)							
Objective	To learn basic conce	earn basic concepts of chemistry											
	The atomic structure	emical and	d nuc	lear ch	nanges	-chen	nical f	ormulae-					
	Percent composition	-Thermoche	mist	ry-Ch	emical ec	quilib	rium-T	The ga	aseous	s state	-Solutes-		
Tanina	Electrolytic dissocia	ition & ionic	equ	uilibri	um-Chen	nical	kinem	atics	& rat	e of r	eactions-		
Topics	Sources of elemen	ts-Chemical	indu	ıstries	-Building	mat	erials	and	ceram	nics in	dustries-		
	Corrosion-Fuels-Co	mbustion-Ex	perir	nents:	3 5 30 20 50	ations of							
	acids.	•	-					•					

Code	Course Title	Prerequisite		С	ontact ho	urs			N	/larks		
Code	Course Title	Frerequisite	Cr	Lec	Tutorial	Lab	Total	CW	O/P	FE	Total	
TEL 004	Tech. Foreign	None	2	4	2		3	50	-	50	100	
TFL001	Language	None		1	2	-	3	50%	-	50%	100%	
Catogary		Compulsory (UR)										
Objective	To learn basics of fo	earn basics of foreign (English) technical language.										
	Introduction: Basic	concepts of	tech	nical	English-F	Reviev	w of e	essenti	als o	f gram	mar and	
Tonica	mechanics rules for	effective Sen	tenc	es-Sty	le errors.	Build	ling Pa	aragra	phs: N	Main ic	lea-types	
Topics	of paragraphs-Read	ding and an	alys	is of	technica	al pa	ssages	that	cov	er eng	gineering	
	disciplines for devel	oping commu	ınica	tion s	kills.	•						

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LEVEL (000) Semester 2

		Freshmen L	EVE	L 000	COURSI	ES							
Code	Course Title	Prerequisite		С	ontact ho	urs			N	Marks			
Code	Course Title	Frerequisite	Cr	Lec	Tutorial	Lab	4 50 - 50 50% - 50%	Total					
EMP005	Engineering	None	3	2	2		4	50	-	50	100		
EINIPUUS	Mathematics 2	None	う		2	-	4	50%	-	50%	100%		
Catogary			С	ompu	lsory (FR)							
Objective	To learn the main co	o learn the main concepts of differentiation and algebra.											
	Indefinite integratio	n-Methods of	f inte	egrati	on-Defini	te int	egrals	-Appl	icatio	ons (ar	c length,		
	areas, volumes, cen	ter of gravity,	, firs	t orde	er differen	itial e	quatic	n)-Nı	umeri	cal me	ethods of		
	work and different l	kinds of syste	ms o	of coc	ordinates-S	Straig	ht line	e in sp	pace-	Plane i	in space-		
	Surfaces of the seco	nd degree-Th	e ge	neral	equation	of the	surfa	ces of	f the s	second	degree.		

		Freshmen I	LEVE	L 000	COUR	SES					
	Course Title	Proroguisito		Co	ntact ho	urs			N	Marks	
EMP006	Course Title	Prerequisite	Cr	Lec	Tutorial	Lab	Total	CW	O/P	FE	Total
EIVIFUU	Engineering	None	3	¥	1	2	5	30	20	50	100
	Physics 2	NOHE	J	'	•		3	30%	20%	50%	100%
Catogary			Co	ompul	sory (FR	2)					
Objective	To learn the main con	ncepts of integ	gratio	n and	analytica	al geo	metry.				
	Charge and Matter-Electric Field-Gauss Law-Electric Potential-Capacitors and Dielectrics-Current, resistance and electromotive Force-Magnetic Field-Ampere's law- (Biot-Savart)										
	Current, resistance a	and electrome	otive	Force	-Magnet	ic Fi	<u> </u>			ot-Savart)	
	law-Fraday's law of	Induction-In	ducta	nce n	nagnetic	prope	erties o	of Ma	tter-P	hysica	1 Optics-
	Interference and Def	lection-Laser	Physi	cs-El	ectromag	netic	Induct	ion-P	ropert	ties of	magnetic
Topics	materials-A/C Curre	nt-Electromag	gnetic	Wav	es-Expe	rimen	ts: Ca	pacito	r Cap	oacity-	Magnetic
	Field-Ohm's Law-So	nic speed									
	Lab: Verification measurement of mag	of Ohm's 1	law -	- me	asuremer	nt of	capa	citance	e of	a car	oacitor –
	measurement of mag and focal length of	netic field and	d mag	gnetic	moment	– det	ermina	ation (of radi	ius of	curvature
	measurements of ligh	it velocity	asure	inciits	OI ICIIa	ictive	mucx	or g	1435 -	- IIIICI	oscope –

		Freshmen I	LEVE	L 000	COUR	SES							
	Course Title	Prerequisite		Co	ntact ho	urs			N	Marks			
HUM001	Course Title	rielequisite	Cr	Lec	Tutorial	Lab	Total	CW	O/P	FE	Total		
HOWIOUT	History of Eng. &	None	2	ų			2	50	-	50	100		
	Tech.	None	2	'	_	•		50%	-	50%	100%		
Catogary			Co	mpul	sory (UR	2)							
Objective	To learn about the h	learn about the history of engineering and technology											
	Definitions of Art, s	cience, techn	ology	and	engineer	ing-C	Civiliza	ations	and t	heir			
	relationship with nat	ural and hun	nan so	cience	s-Histyo	ry of	differ	ent te	chnol	ogy ar	nd		
Topics	engineering specialis	zations-Histo	rical	relati	ons betw	een s	cience	and t	echn	ology-	Relation		
	between developmen	nts in enginee	ering,	socia	ıl, econo	mical	and c	ultura	l env	ironm	ents-		
	Practical examples of	n developme	ent of	engir	neering a	ctivit	ies.						

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		Freshmen	LEVE	L 000	COUR	SES							
	Course Title	Prerequisite		Co	ntact ho	urs			N	/larks			
EMP007	Course Title	Frerequisite	Cr	Lec	Tutorial	Lab	Total	CW	O/P	FE	Total		
EIVIPUUI	Eng. Mechanics (2)	None	2	1	2	1	4	30	20	50	100		
	Ling. Wechanics (2)	None				ı	4	30%	20%	50%	100%		
Catogary		Compulsory (FR)											
Objective	Continuing learning	ontinuing learning the basic concepts of engineering mechanics.											
	Displacement, veoli	city and acce	elerat	ion ir	n Cartesi	an, c	urvilin	ear, t	anger	ntial, p	olar and		
Tonico	cylindrical coordin	ates-relative	mot	ion-pı	rojectiles	-Mot	ion u	nder	centi	rifugal	forces-		
Topics	Work-Energy-Mome	entum-Impul	se an	d coll	ision-Ex	perin	nents:	Mom	entun	n cons	ervation-		
	Projectiles-Free falli	ng.											

		Freshmen	LEV	'EL 0	00 COUR	SES							
Code	Course Title	Prerequisite		С	ontact ho	urs			N	Marks			
Code	Course Title	rierequisite	Cr	Lec	Tutorial	a scriptive good section of section cle-Helix-	Total	CW	O/P	FE	Total		
DPE 012	Eng. Drawing &	DPE011	3	2		٥	_	50	•	50	100		
DPE 012	Projection (2)	DPEUII	3		•	3	3	50%	•	50%	100%		
Catogary		Compulsory (FR)											
Objective	Continuing learning	ontinuing learning of engineering drawing and descriptive geometry.											
	Pictorial drawing of	f engineering	boo	lies-D	erivation	of vi	ews o	f a giv	ven b	ody-D	erivation		
	of a missing view	from two	give	n vie	ws-Rules	of s	ection	ing a	nd se	ectiona	l views-		
Topics	Drawing of steel se	•	_					_					
•	Sphere-Cone-Cyline		•								•		
	revolution.				~			01		3 0012			

	Freshmen LEVEL 000 COURSES												
Code	Course Title	Prerequisite		С	ontact ho	urs			N	/larks			
Code	Course Title	Frerequisite	Cr	Lec	Tutorial	Lab	Total	CW	O/P	FE	Total		
DPE001	Production	None	3	2	1	2	5	50	30	50	100		
DPEOUT	Technology	None	?		ı		3	20%	30%	50%	100%		
Catogary			(Comp	ulsory (FF	₹)							
Objective	To learn the main c	learn the main concepts of production technology											
	Introduction in industrial safety-Engineering materials (types and properties)-Metall												
	alloys-Casting proc	esses-Formin	ng p	roces	ses (forg	ing, 1	rolling	, drav	wing,	extru	sion and		
-	spinning)-Joining p				, ,	_	_		_				
Topics	Machining processe	*	_	-	_			_		- 1			
	(vernier calipers an	, ,	-	_	_	_	_		·		_		
	systems-Practical pr					-							

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	Freshmen LEVEL 000 COURSES													
Code	Course Title	Prerequisite		С	ontact ho	urs			N	/larks				
Code	Course Title	Frerequisite	Cr	Lec	Tutorial	Lab	Total	CW	O/P	FE	Total			
	Introduction to							30	20	50	100			
CSE001	Computers and Programming	None	2	1	1	2	4	30%	30% 20% 50% 100%					
Catogary		Compulsory (UR)												
Objective	To learn basic conce	epts of comp	uters	and l	high-level	l prog	ramm	ing la	nguag	ges.				
	Information process flow charts) – Progand administration,	gramming la	ngua	ges-	Application	ons: I	Mathe	matica	•	_				

LEVEL (100) Semester 3

Sophomore LEVEL 100 COURSES											
Code	Course Title	Prerequisite		С	ontact hou	urs			N	/larks	
Code	Course Title	Frerequisite	Cr	Lec	Tutorial	Lab	Total	CW	O/P	FE	Total
STE101	Structural	None	3	2	2		1	50	-	50	100
SILIUI	Analysis-1	None	3	4	4	-	4	50%	-	50%	100%
Category			С	ompu	Isory (MR)					
	The course of Structural Analysis (1) aims to provide students with high quality										
Objective		duce									
	graduates take the r	esponsibility	of A	nalys	sis the stru	icture	es	career, and produce			
	Types of loads – S	upports – De	etern	ninati	on of reac	ctions	s – In	ternal	forc	es in s	statically
	determinate beams,	frames, arche	es an	d trus	sses – Infl	uence	e lines	in be	eams,	frame	s, arches
Topics	and trusses - Virtua	l work metho	od fo	r infl	uence line	es - N	M axin	num b	endin	ig mor	nent and
	shearing force				naximum		bsolut		endi	\mathcal{C}	moment.
	Experimental Tests:	Computer ap	plic	ations	on intern	al fo	rces o	f simp	ole be	ams	

Sophomore LEVEL 100 COURSES												
Code	Course Title	Prerequisite		С	ontact ho	urs			N	/larks		
Code	Course Title	Frerequisite	Cr	Lec	Tutorial	Lab	Total	CW	O/P	FE	Total	
MTE101	Materials	None	3	2	1	2	5	30	20	50	100	
	Engineering	None	3 2	•	_		30%	20%	50%	100%		
Category	Compulsory (FR)											
	The course of Engineering Geology aims to provide students with high quality education											
Objective	and to prepare them for a successful professional career, and produce graduates											
	.Understanding characteristics of building materials											
	Engineering materials; an introduction: types, structure, properties, applications -											
	Stresses and strains - Elasticity and plasticity - Standards - Mechanical testing for											
	metallic materials (tension, compression, bending, shear, torsion, hardness, impact,											
Tanias	fatigue, creep) – Co	nstruction m	ateri	ials a	nd their te	ests –	Testi	ng re	sults	and ev	valuation	
Topics	reporting. Experime	ntal tests: Te	nsio	n test	for mild	steel	and ca	ast iro	n, Co	mpres	ssion test	
	for mild steel, cast iron and brass, Pending test, Torsion test for mild steel and cast iron,											
	Direct shear test, C	old bend tes	st fo	r mil	d steel, Ir	npact	test	for m	ild s	teel ar	nd brass,	
	Hardness test for mi	ld steel, cast	iron	and b	rass, Fati	gue te	est.					





	Sophomore LEVEL 100 COURSES											
Codo	Course Title	Droroguioito		С	ontact hou	urs			N	/larks		
Code CSE101 Category Objective	Course Title	Prerequisite	Cr	Lec	Tutorial	Lab	Total	CW	O/P	FE	Total	
CSE101	Computer	CSE001	2	1		2	4	30	20	50	100	
CSETUT	applications	CSEUUI	~	ı				30%	20%	50%	100%	
Category	Compulsory (FR)											
	The aim of this course is to explore current AutoCAD technologies and develop skills in											
	the use of specialist CAD software to produce 2D and 3D design specifications, to											
Objective	transform CAD drawings into photo realistic virtual products and to gain an awareness											
	of CAD data and how such information can be transformed to engineering drawings.											
	AutoCAD drawing, 2-D, 3-D Home, Photoshop, Excel, PowerPoint, Word.											
Topics												
iopios												

Sophomore LEVEL 100 COURSES											
Code	Course Title	Prerequisite		С	ontact ho	urs				Marks	
Code	Course Title	Trerequisite	Cr	Lec	Tutorial	Lab	Total	CW	O/P	FE	Total
EMP101	Engineering	EMP005	۲	,	١ 2	_	٣	50	-	50	100
LIVIFIOI	Mathematics 3	LIVIFUUS	'			_	,	50%	-	50%	100%
Category	Compulsory (FR)										
	The class will remediate basic skills, provide activities that will reinforce the preparatory										
Objective	Math Standards concepts, and provide time to work on homework in a structured setting										
	under the supervision of a math teacher										
	Linear vector space- vector spaces linear independence- subspaces and spanning sets,										
	linear maps- change of basis - Linear programming- simplex method- Numerical										
	solutions for linear	equations-	Num	erical	solution	s for	non	- linear	equ	ations	- Curve
Topics	fitting - Approximat	e Interpolation	on ar	nd pol	lynomial.	Firs	t ordei	diffe	renti	al equa	ation and
	their applications -	- Linear and	l hig	gher o	order D.E	anc	l their	app	licati	ons N	umerical
	Solutions for ordinary differential equation – Numerical solutions for Partial Differential										fferential
	equation – Partial D	\dot{E} – Solution	by s	separa	ation of va	ıriabl	e				

	Sophomore LEVEL 100 COURSES											
Code	Course Title	Contact hours						N	/larks			
Code	Course Title	Prerequisite	Cr	Lec	Tutorial	Lab	Total	CW	O/P	FE	Total	
HUM101	Introduction to law	None	None 2	2	-	-	2	50	•	50	100	
HUMIUI	introduction to law	None	4	2 2				50%	•	50%	100%	
Category	Compulsory (UR)											
Objective	The course helps the The relation between economically and currents.	n engineering		-				_				
	Law bases and source Law – public adm organization – centra	ninistration	orga	nizati	on – Ge	eneral	base	es of	the	admir		

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Sophomore LEVEL 100 COURSES											
Codo	Course Title	Droroguioito		С	ontact hou	urs			N	Marks	
Code		Prerequisite	Cr	Lec	Tutorial	Lab	Total	CW	O/P	FE	Total
MPE101	Thermodynamics							50	-	50	100
	and mechanical systems	None	2	1	2	-	3	50%	-	50%	100%
Category			C	ompu	lsory (FR))					
Objective	Provide the understanding of different types of thermodynamic passive and active										
Objective	elements and different mechanical systems.										
	Fundamental concepts, state variables, definition of heat and work, properties of gases,										of gases,
Topics	application of the 1st and 2nd fundamental theorem for the analysis of closed or open										_
•	systems, heat transfe							, ~-			F

Sophomore LEVEL 100 COURSES											
Code	Carrage Title	Droroguioito	Contact hours							/larks	
Code	Course Title	Prerequisite-	Cr	Lec	Tutorial	Lab	Total	CW	O/P	FE	Total
EPE101	Electrical	None	2	1	1	2	4	30	20	50	100
EPEIUI	Systems	None	<u> </u>	1	1	4	4	30%	20%	50%	100%
Category	Compulsory (FR)										
	Provide basic knowledge, and understand the magnetic circuit analysis, types of DC										
Objective	generators, construction, the theory of operation, the steady state performance										
	characteristics and parallel operation of generators.										
	Introduction to electrical circuits, electrical installation in residential and industrial										ndustrial
_	buildings (illuminat										
Topics	control of air conditioning, lift) - requirements of audio systems - alarm devices (fire -										
	security - gas). Plumbing elements and features										es (me
	security gas). I full	ionig cicincii	is an	u ica	iuics						

LEVEL (100) Semester 4

Sophomore LEVEL 100 COURSES											
Code	Course Title	Prerequisite		С	ontact ho	urs			N	Marks	
Code	Course Title	rierequisite	Cr	Lec	Tutorial	Lab	Total	CW	O/P	FE	Total
STE102	Structural	None	3	2	2		4	50	-	50	100
SILIUZ	Mechanics -1	None			_	_	7	50%	-	50%	100%
Category	Compulsory (MR)										
	This course covers the fundamental concepts of structural mechanics with applications to										
	civil structures. Topics include the major properties of section that used in the civil										
Objective											
	forces. Also, can calculate the principal stresses (Normal and shear) due to all cases of										
	loading by including examples from civil,										
	Geometrical properties of sections (first, second, mixed, polar and principal moment of										nent of
	area), Mohr's circle					_		_	_		
Topics	Thermal stresses, De	erivation of b	endi	ng fo	rmula, No	rmal	stress	es, Ne	eutral	Axes,	Core of
Topics	sections, shear stresses, Derivation of shear formula, shear stress distribution in thin										
	walled sections, she	ar center, To	sion	, com	bined stre	esses,	Mohr	's circ	ele of	stress	es,
	principal shear & no	rmal stresses									

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	Sophomore LEVEL 100 COURSES												
Code	Course Title	Prerequisite		С	ontact ho	urs			N	/larks			
Code	Course Title	Frerequisite	Cr	Lec	Tutorial	Lab	Total	CW	O/P	FE	Total		
STE103	Construction	None	3	2	1	2	5	30	20	50	100		
SILIUS	Materials	None	3	4	1	4	3	30%	20%	50%	100%		
Category			С	ompu	lsory (MR	.)							
Objective	Introduce the studen	it to concrete	con	npone	ent, concre	ete m	ixes, t	est of	f fresh	n and l	hardened		
Objective	concrete, concrete manufacture and concrete cracks and the affect the work of engineers												
	Concrete component & technology, concrete mixes, aggregate-cement type-cement technology,												
	specifications & classification of cement, admixtures, mix water, design of concrete mix, tests of												
	fresh & hardened concrete-mechanical properties of concrete, effect of surrounding environment												
	on concrete, special	concrete, frac	ture	mech	anics (crac	cks in	mate	rial uı	nder 1	oad), d	creep and		
Topics	fatigue tests, non-dest	ructive tests, c	_l ualit	y cont	rol. Exper	iment	al Test	s: Agg	gregat	e sieve	analysis-		
	impact resistance of aggregate-initial and final setting time of cement-friction and w												
	resistance of aggregate-crushing resistance of aggregate fineness of cement test-compressive &												
	tensile strength of cement-soundness of cement-slump test-Kelly ball test-compaction factor test-												
	compressive & tensile	and flexural s	streng	gth tes	ts, splitting	g test.							

	Sophomore LEVEL 100 COURSES													
Codo	Course Title	Droroguioito		С	ontact ho	urs			N	Marks				
Code	Course Title	Prerequisite	Cr	Lec	Tutorial	Lab	Total	CW	O/P	FE	Total			
CUE102	Construction	None	2	2	2		4	50	-	50	100			
CUEIUZ	Engineering 50% - 50% 100%													
Category	Compulsory (MR)													
Ohioativa	Work in a team, communicate with others effectively, lead individuals, deal with others													
Objective	according to the rul	es of the profe	essic	nal E	thics, eng	age in	n-self	and li	fe- lo	ng lea	rning.			
	Design of concrete forms, Concrete construction (Mixing, Transporting, Placing, Curing,													
Topics	Quality elements), Maintenance and repair of concrete structures, Bridge construction													
	Tunnel construction, Cranes, Blasting in construction.													

Sophomore LEVEL 100 COURSES													
Code	Course Title	Droroguioito		С	ontact ho	urs			N	Marks			
Code	Course rittle	Prerequisite	Cr	Lec	Tutorial	Lab	Total	CW	O/P	FE	Total		
STE104	Engineering	None	¥	2			٧	50	-	50	100		
S1E104	Geology	Geology - 50% - 50% 100%											
Category	Compulsory (MR)												
Objective	Understanding basic theoretical engineering geology. Learning basic laboratory tests for												
Objective	rocks including determining their physical and mechanical properties.												
	General Introducti	on for Geo	olog	y an	d Engin	eerin	g Ge	ology	, M	ineral	s, Rock		
Tonico	Classifications Rock weathering mass wasting and erosion Rock Composition Fa												
Lonics	and folds, groundy	_			_								
	Mechanical Properti				,	Í			•				

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	Sophomore LEVEL 100 COURSES													
Code	Course Title	Droroguicito		С	ontact ho	urs			N	Marks				
Code	Course Title	Prerequisite	Cr	Lec	Tutorial	Lab	Total	CW	O/P	FE	Total			
WCE101	Civil Eng. Drawing	None	3	1	0	4	5	50	-	50	100			
WSE101	Civil Elig. Drawling	50% - 100%												
Category	Compulsory (MR)													
Objective	To ensure The relation between engineering development and developing the													
Objective	environment socially, economically and culturally.													
	Basic Symbols, Eart	hen works, I	Differ	rent ty	ypes of cu	ulvert	s, Brio	lges,	Regul	ators,	Syphons,			
Tonico	Basic Symbols, Earthen works, Different types of culverts, Bridges, Regulators, Syphons, Aqueducts, Escapes, weirs, Locks, Different examples civil engineering works.													
Topics	Differnt types of stee	el works, Me	tallic	bridg	ges, Conce	ert Sti	ucture	s, Dif	ferent	exam	ples civil			
	Differnt types of steel works, Metallic bridges, Concert Structures, Different examples civil engineering works.													

Elective (1) Humanities

	Sophomore LEVEL 100 COURSES													
Code	Course Title	Prerequisite		C	ontact ho	ours			N	/larks				
Code	Course Title	Prerequisite	Cr	Lec	Tutorial	Lab	Total	CW O/P FE Total						
HUM103	History of Arabian and	None	2	2			2	50	•	50	100			
HUMIUS	Islamic Civilization	None			-	-	_	CW O/P 50 - 50% Short ac - 'Its dev terial conc - the Ara he Arabia	-	50%	100%			
Catogary		Unive	ersit	y Ele	ctive (1)	(UR)								
Objective	Knowledge of the history of arabian and islamic civilization													
	Defining civilization in generation	civilization in general - theories and terminology - Short account of the												
	Arabic community pre	-Islam - sett	ing	up 1	he Islan	nic s	ociety	-'Its	deve	elopme	ent and			
Topics	main 'features - Islami		_	-			•		ort account developme concepts - Arabian la					
Topics	values - the basic c	oncepts - t	he	mair	charac	eteris	tics ·	- the	Ara	bian	Islamic			
	achievements in the fie	lds of science	e kn	owle	dge and	cult	ure - t	he A	abiar	contr	ribution			
	to the world. civilizatio	n an human p	rog	ress	- the con	temp	orary	Arab	-Isla	mic W	⁷ orld			

Sophomore LEVEL 100 COURSES													
Code	Course Title	Prerequisite		C	ontact ho	ours				Marks			
Code	Course Title	Frerequisite	Cr	Lec	Tutorial	Lab	Total	CW	O/P	FE	Total		
HUM104	Geography of Mankind	None	2	2	_		2	50	-	50	100		
HOWITU4	& Environment - - 50% - 50% 100%												
Catogary	University Elective (1) (UR)												
Objective	Knowledge of the geography of mankind & environment												
	Environment of the co	ntemporary r	nan	- the	e role of	f ma	n in c	hangi	ing th	e envi	ironment		
Tanias	Analytical studies for models of the environment - some environmental problems -												
Topics	overpopulation and food shortage -'Pollution - depletion of the natural resour										ources –		
	desertification.												

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	Sophomore LEVEL 100 COURSES												
Code	Course Title	Droroguioito		C	ontact ho	ours			N	/larks			
Code	Course Title	Prerequisite	Cr	Lec	Tutorial	rial Lab Total CW O/P FE 50 - 50 50% - 50%	Total						
HUM102	Human Resources	None	2	2			2	50	-	50	100		
HUWITUZ	Management	None			-	•		50%	-	50%	100%		
Catogary	University Elective (1) (UR)												
Objective	Knowledge of the huma	Knowledge of the human resources management.											
	Activities of HR mana	gement - HR	pla	nnin	g: Job a	nalys	sis, De	emanc	l for	HR, S	upply of		
Tanias	HR - Staffing: Recru	Activities of HR management - HR planning: Job analysis, Demand for HR, Supply of IR - Staffing: Recruitment, Selection - Training and development - Performance											
Topics	Appraisal – Compensation: Type of equity, Designing the pay structure, Employee												
	benefits – Labor/manag	gement relation	ns -	- Mo	tivation	- Lea	adersh	ip – (Comn	nunica	tion.		

	Sophoi	nore LEVEI	L 10	0 C(DURSES	5								
Code	Course Title	Prerequisite			ontact ho				N	Marks				
Code	Course Title	Frerequisite	Cr	Lec	Tutorial	Lab	Total	CW	O/P	FE	Total			
HUM105	Introduction to Logic	None	•	2			0	50	•	50	100			
HOWITOS		None 2 2 - - 2 50% - 50% 100%												
Catogary	University Elective (1) (UR)													
Objective	Knowledge of the logic	and relation	wit	h the	other sc	ience	es							
	Definition of logic and	its relation w	ith t	the o	ther scie	nces	– type	es of v	ariou	ıs dedi	actions -			
Topics	· ·	efinition of logic and its relation with the other sciences – types of various deductions - odern Logic and the various methods of research - Mathematical Logic –prepositional,												
	relationships, form and									1 1	,			

LEVEL (200) Semester 5

Junior LEVEL 200 COURSES												
Code	Course Title	Prerequisite		(Contact ho	urs			N	larks		
Code	Course Title	Prerequisite	Cr	Lec	Tutorial	Lab	Total	CW	O/P	FE	Total	
CUE 20 [∨]	Engineering	None	3	2	2		4	50	•	50	100	
CUE 20	Economics	None	3			-	4	50%	-	50%	100%	
Category				Comp	ulsory (FF	₹)						
Objective	Student understanding fundamentals of engineering economy. Student awareness											
Objective	of main application	ons applied tec	hniq	ues ii	n structure	ire						
	Time value of money: Interest, Interest formulae, the concept of equivalence, Irregular											
	cash flow, Defer	red annuities,	Inte	rest r	ates that v	vary v	with ti	me, Û	nifor	m gra	dient of	
T	cash flows, Nom	inal and effect	ive	intere	est rates, I	nteres	st com	pound	ed m	ore th	an once	
Topics	per year. Project	appraisal: Proj	ect a	pprai	sal backgr	ound	, Proje	ct app	raisal	metho	ods, Net	
	present work me	thod (NPW),	Equi	ivalen	t annual o	cost r	nethod	(EAC	C), Pa	ayback	period	
	method, Average	annual rate of	retu	rn me	thod, Disc	counte	ed cash	flow	yield	metho	od.	

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Junior LEVEL 200 COURSES												
Code	Course Title	Prerequisite		(Contact ho	urs			N	larks		
Code	Course Title	Prerequisite	Cr	Lec	Tutorial	Lab	Total	CW	O/P	FE	Total	
STE201	Structural	STE 101	3	2	2		4	50	-	50	100	
S1E201	Analysis 2	31L 101	3	4	4	-	4	50%	-	50%	100%	
Category			(Comp	ulsory (MF	₹)						
	Student awareness of the importance of the calculation of deflection of structures.											
Objective	Students understand the methods and procedures for the calculation of deflection of											
Objective	different types of structure. Students are studying how to distinguish between stable /											
	unstable and deter	rminate / indet	erm	inate	structures							
	Deflection of st	atically deteri	nina	ite st	ructures,	Statio	cally i	ndete	rmina	te str	uctures,	
Tanias	Method of consistent deformation, Method of 3-moment equations, moment											
Topics	distribution, Appr	roximate meth	ods	to so	lve indeter	rmina	te stru	ctures	, infl	uence	lines of	
	Statically indeterr	ninate structur	es									

Junior LEVEL 200 COURSES														
Code	Course Title	Prerequisite		(Contact ho	urs			M	arks				
Code	Course Title	rierequisite	Cr	Lec	Tutorial	Lab	Total	CW	O/P	FE	Total			
STE202	Soil Mechanics 1	STE 104	3	2	2	1	5	30	20	50	100			
S1E202	Son Mechanics 1	31E 104	3		4	1	3	30%	20%	50%	100%			
Category		Compulsory (MR)												
Objective	Identify the different types of soil and its properties. Understand the importance of soil													
LINIACTIVA	classification and how to classify soils													
	Phase Relationsh	ips and Basic	Phy	ysical	Propertie	es of	Soils,	Grain	Size	Distr	ibution,			
-	Consistency of I	Phase Relationships and Basic Physical Properties of Soils, Grain Size Distribution, Consistency of Fine Grained Soils, Soil Classification Systems, Soil Compaction,												
Innice	Hydraulic Properties of Soils, Stress Distribution in Soils, Consolidation of Soils. Lab.:													
	Index properties,						•							

Junior LEVEL 200 COURSES												
Code	Course Title	Proroquisito		С	ontact ho	ours				Marl	ks	
Code	Course Title	Prerequisite	Cr	Lec	Tutorial	Lab	Total	CW	O/P	FE	Total	
WSE201	Fluid Mechanics	None	3	2	2	1	5	30	20	50	100	
WSEZUI	Fluid Mechanics	None	3	4		1	3	30%	20%	50%	100%	
Category			Co	ompu	ılsory (M	R)						
Objective	Understand the fundamental concepts of fluid mechanics											
	Dimensions and units, Fluid Properties, Fluid Statics (Pressure measurement, Pressure											
	forces, Buoyancy of bodies), fluid Kinematics (Fluid motion, Continuity & energy											
T '	principals), Fluid dynamics (momentum principal), resistance to Fluid motion, Flow in											
Topics	closed conduits, introductions to flow in open channels, unsteady flow, Hydraulics of											
	network systems. Ex				-				•		•	
	Characteristics of flov				•				,		ζ,	

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		Junior LI	EVE	L 20	Junior LEVEL 200 COURSES												
Code	Course Title	Prerequisite		C	Contact ho	urs			M	arks							
Code	Course Title	rielequisite	Cr	Lec	Tutorial	Lab	Total	CW	O/P	FE	Total						
CUE203	Plane Surveying	EMP101	3	2	1	2	5	30	20	50	100						
	r lane car veying	2.0 101			1			30%	20%	50%	100%						
Category			(Comp	ulsory (M	R)											
Objective	Provide a general	l introduction	to th	ie bas	ic concep	ts of j	plane s	survey	7.								
Objective	Introduce students to the concepts of basic surveying computations																
	Principles, Theory of measurements & errors, Linear measurements surveying																
	corrections, Elect	tronic distance	me	asure	ments, Ai	ngula	r meas	surem	ents u	sing c	compass						
	& theodolite, Tra	verses, Areas	& 1	and d	ivision, M	lap p	reparir	ıg, Le	veling	g, Vol	umes &						
	land grading, Vo	lumes of cut &	k fil	l, Top	graphing	g surv	eying	, Tach	omet	ric sui	rveying,						
Topics	Plane table surve																
-	measure bearings									-	-						
	optical and digit																
	meter, Level cali										_						
	& height differen							, 1.104	- 	, or u	13111100						
l	a neight differen	ces asing tach	OHI	JU10 B	ar veying	•••											

		Junior Ll	EVI	EL 20	0 COUR	SES								
Code	Course Title	Prerequisite		C	Contact ho	ours			N	larks				
Code	Course Title	rierequisite	Cr	Lec	Tutorial	Lab	Total	CW	O/P	FE	Total			
	Specifications &							50	-	50	100			
CUE206	Quantity Surveying	None	2	2	•	-	2	50%	-	50%	100%			
Category	Compulsory (MR)													
Objective	Discuss the Technical management of projects. Practice Quantity Surveying of project													
	P Role of specific	Role of specifications, Types of specifications, Technical specifications, Descriptive												
	specifications,	Performance	•	spec	ifications,	, N	Von-te	chnica	ıl	specif	ications,			
Topics	Specifications w	pecifications, Performance specifications, Non-technical specifications, Specifications writing techniques, Objectives of quantity surveying, Preparation of												
	Bill of Quantity	Il of Quantity (BOQ), Measurements and quantity takeoff of construction project												
	items.													

		Junior L	EVI	EL 20	0 COUR	SES							
Code	Course Title	Droroguioito			Contact ho	urs			N	/larks			
Code	Course ritte	Prerequisite	Cr	Lec	Tutorial	Lab	Total	CW	O/P	FE	Total		
CUE204	Cost Estimating	None	2	2			2	50	-	50	100		
CUE204	and Tendering	None	4	2	-	-		50%	-	50%	100%		
Category	Compulsory (MR)												
Objective	Discuss the Cost estimating methods; Early cost estimating methods and Detailed cost												
Objective	estimating methods.												
	Structures - Tene	dering decisio	ns a	and p	rocess - (Cost e	estimat	ing n	nethoo	ds - E	arly cost		
-	Structures - Tendering decisions and process - Cost estimating methods - Early cost estimating methods - Detailed cost estimating methods - The estimating process -												
Topics	Method statement - Materials cost estimating - Equipment cost estimating - Labor cost												
	estimating - Estimating inaccuracy												

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<u>LEVEL (200) Semester 6</u> <u>Faculty elective (1)</u>

Junior LEVEL 200 COURSES													
Cada	Comes Title	Duomo aminido		(Contact hou	ırs			ľ	Marks			
Code	Course Title	Prerequisite	Cr	Lec	Tutorial	Lab	Total	CW	O/P	FE	Total		
CUE208	Engineering Project	None	2	2			2	50	-	50	100		
CUE208	Management	None		L	-	-	2	50%	-	50%	100%		
Catogary	Faculty Elective (FR)												
Objective	Competence to plan	, lead and su	cces	sfully	close pro	jects							
Topics	Project management, settlement of projects, timetable, cost planning, management models, human resources management.												

Junior LE	EVEL 200 COURSES	S										
Code	Course Title	Prerequisite		(Contact hou	ırs			I	Marks		
Code	Course Title	Frerequisite	Cr	Lec	Tutorial	Lab	Total	CW	O/P	FE	Total	
INE208	Quantitative Methods	None	2	2	_	_	2	50	-	50	100	
	in Engineering	Tione					_	50%	-	50%	100%	
Catogary			Fa	culty 1	Elective (Fl	R)						
Objective	 To understand definition, scope, objectives, phases, models & limitations of operations research. To understand different application areas of operations research like transportation problem, assignment model, sequencing models, dynamic programming, game theory, replacement models & inventory models. Formulate simple reasoning, learning and optimization problems, in terms of the representations and methods presented. 											
Topics	Historical study of operation research. Linear Programming: Methods to solve LP models. The simplex methods: Degeneracy and cycling. Artificial variables. Further topics in linear programming: Duality. The dual simplex method. Sensitivity analysis. Methods of solving transportation and assignment problems. Game theory. Network analysis. Solution of CPM and PERT problems by mathematical methods and using CP model queuing theory.											

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Junior LF	CVI	EL 200 COURSE	S											
Code		Course Title	Prerequisite		(Contact hou				I	Marks			
Code		Course Title	Trerequisite	Cr	Lec	Tutorial	Lab	Total	CW	O/P	FE	Total		
		Environmental							50	-	50	100		
ENE202	_	Evaluation of	None	2	2	-	-	2	50%	_	50%	100%		
G .	E	ngineering Projects			1, 1									
Catogary	~ .			Fa	culty 1	Elective (Fl	K)							
	St	udents should be	able to:											
	•	Effectively use	basic engine	ering	g eco	nomics to	ols to	o eval	luate	majo	r infra	structure		
	projects.													
	•	Understand when to complement this basic analysis with more sophisticated tools.												
Objective	•	Critique the process used to evaluate typical infrastructure projects.												
Sofective	•	Understand a broad range of project types of relevance to Civil and Environmental												
		Engineering and related fields.												
	•	Understand some ways in which project performance can be measured and improved.												
	•	Understand the r	ole of uncert	ainty	in pi	oject eval	luatio	n.						
	•	Do an end-to-end	d project eva	luati	on.									
	This course covers methodologies for evaluating engineering projects, which typically													
	are	e large-scale, lon	ny ec	onom	ic, fii	nanci	al, so	cial, and						
Topics	en	environmental factors. Students learn the basic techniques of engineering economics,												
	ino	ncluding net present value analysis, life-cycle costing, benefit-cost analysis, and other												
	ap	proaches to projec	t evaluation.											

Junior LEVEL 200 COURSES													
Code	Course Title	Prerequisite		C	Contact ho	urs			M	arks			
Code	Course Title	Frerequisite	Cr	Lec	Tutorial	Lab	Total	CW	O/P	FE	Total		
	Sanitary &							30	20	50	100		
ENE201	Environmental	None	3	2	2	1	5	30%	20%	50%	100%		
	Engineering (1)							30 /0	20 /0	30 /0	100 /6		
Category	Compulsory (MR)												
Objective	Analyze and design of sanitary engineering (water treatment and supply) projects												
	Introduction to Treatment and water supply works and its importance for urba												
	communities, P							-					
	quality, Water co	-											
Topics	water				bution				(works).		
	Experimental: Suspended solids concentration, dissolved materials concentration,												
	determining PH, Turbidity, Bacterial counting, Jar test to determine material dose, for Optimum Coagulation, determine water hardness, water conductivity.												

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		Junio	r L	EVE	EL 200 C	OUI	RSES						
Codo	Course Title	Droroguioito		С	ontact ho	ours				M	arks		
Code	Course Title	Prerequisite	Cr	Lec	Tutorial	Lab	Total	CW	O/P	FE	Total		
	Reinforced							50	-	50	100		
STE203	Concrete Design 1	STE102	3	2	2	-	4	50%	-	50%	100%		
Category				(Compulso	ory (N	ИR)						
Objective	Introduce the c	oncepts of th	e a	nalys	sis and de	esign	of Re	einfor	ced (Conci	ete Elements		
	Load distributi	on, design r	net	hods	, limit st	ate o	design	met	hod:	flexu	ire design, shear		
Topics	design, torsion design, beams, solid slabs, hollow block slabs, axially loaded												
	members, and reinforcement detailing.												

	Junior LEVEL 200 COURSES Contact hours Marks													
Code	Course Title	Prerequisite		C	ontact ho	urs				M	arks			
Code	Course Title	Frerequisite	Cr	Lec	Tutorial	Lab	Total	CW	O/P	FE	Total			
	Construction	CUE204,						50	-	50	100			
CUE205	Projects Planning (1)	CUE206	3	2	2	-	4	50%	-	50%	100%			
Category				(Compulso	ory (N	IR)							
Objective	Cost control: meaning and definitions, methods, functions, reporting systems,													
Objective	implementation,													
Topics	Characteristics Contracting Cor Meaning, Defin Assignment, Ob Process, Project Definition, Object stages; Planning	of the constructions, Type itions, Conce ojectives and Manager Fur ectives, Score techniques: lanalysis, acti	es of pts, Orgoniction of the pts	f Cor Fund ganiz ons ar Impo charts	nstruction etions, St ation. P nd Activit rtance, a s and link	Projyles, Projecties. Ond Ted ba	ects. I and T et mar Constr Trends ar char	Manag Frends nagem ruction . Plants, cu	gemens. Properties. Properties	nt: Ba ojects: Defin nagen g: mea	Team, Types of ackground, Nature, Life Cycle, Task ition, Ingredients, nent: Meaning and aning, definitions, roject progress - S ns, PERT, project			

		Junior L	EVE	L 200	O COURS	ES									
Code	Course Title	Droroguioito		(Contact ho	urs			M	arks					
Code	Course Title	Prerequisite	Cr	Lec	Tutorial	Lab	Total	CW	O/P	FE	Total				
STE204	Structural	STE102	3	2	2		4	50	-	50	100				
S1E204	Mechanics 2	chanics 2 50% - 50% 100%													
Category	Compulsory (MR)														
01.1	Student studying methods for solving of statically indeterminate structures and practice on														
Objective	the application by									•					
Tanias	Moment distribution method, Plates, Shells, Modeling. Computer applications for Plates														
Topics	Moment distribution method, Plates, Shells, Modeling. Computer applications for Plates and shells and Approximate method														

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	Junior LEVEL 200 COURSES Contact hours													
Code	Course Title	Prerequisite		(Contact ho	urs			N	/larks				
Code	Course Title	Prerequisite	Cr	Lec	Tutorial	Lab	Total	CW	O/P	FE	Total			
INE202	Engineering	None	2	2	_		2	50	-	50	100			
1111202	Statistics - - 50% - 50% 100													
Category				Comp	oulsory (F	R)								
	The class will remediate basic skills, provide activities that will reinforce the preparatory													
Objective	Math Standards	Math Standards concepts, and provide time to work on homework in a structured setting												
	under the supervision of a math teacher													
	Graphical presentation of data: Frequency distributions, Histograms, Stem-and-leaf													
	Diagrams – Measures of central tendency: Sample mean for ungrouped data, sampl													
	mean of groupe	d data, weigh	ited	mear	n, Median	, Mo	ode –	Meas	ures	of Dis	spersion:			
Topics	Variance and sta													
-	deviation for gro	uped sample da	ata, l	Range	e – Bivaria	ate da	ıta: Sca	tter d	iagrar	ns, Co	rrelation			
	Coefficient, Line	ear Regression	ı —]	Proba	bility Dis	tribut	tions -	Sam	pling	and s	sampling			
	Coefficient, Linear Regression – Probability Distributions – Sampling and sampling Distributions.													

Elective (2) Humanities

	(=) 11411141111100	Junior LEV	VEI	200	COURSE	'S								
					ontact hou				N	Marks				
Code	Course Title	Prerequisite	Cr	Lec	Tutorial		Total	CW	O/P	FE	Total			
HUM 201	Introductory Mass	None	2	2	_	_	2	50	-	50	100			
HOW 201	Communication	Communication - - - 50% - 50% 100%												
Catogary	University elective (2) (UR)													
Objective	Knowledge of the ma	ss communic	atio	n.										
	General introduction-	concept of N	Mass	Com	municatio	n- hi	story	of Ma	ass C	ommu	nication-			
Topics	structure of the functions of Mass Communication - mass media and technology- Ethics													
		nd traditions of Mass Communications.												

	Junior LEVEL 200 COURSES															
Code	Course Title	Prerequisite		С	ontact hor	urs			N	Marks						
Code	Course ritle	Frerequisite	Cr	Lec	Tutorial	Lab	Total	CW	O/P	FE	Total					
HUM 202	Introductory	None	2	2			2	50	-	50	100					
HOW 202	Sociology	None		2	-	-		50% - 50% 100								
Catogary		University elective (2) (UR)														
Objective	Knowledge of the bas	ic concept of	soc	iology	٧.											
	Community - Social	Community - Social relations - primary and secondary groups - Models .of topics in														
Topics		ociology - the sociologist - Social control - Planning and development - Research														
		rricula and tools in Sociology - Surveys in Sociology.														

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		Junior LEV	VEL	200	COURSE	S								
Codo	Course Title	Prerequisite		С	ontact hou	urs				Marks				
Code	Course ritle	Prerequisite	Cr	Lec	Tutorial	Lab	Total	CW	O/P	FE	Total			
HUM 203	History of Ancient	None	2	2			2	50	•	50	100			
HUW 203	Egypt	Egypt - - - 50% - 50% 100%												
Catogary	University elective (2) (UR)													
Objective	To learn bases and na	o learn bases and nature of the Ancient Egyptian history.												
	Earth: natural resource	es and wealth	1 - b	ases a	nd nature	of th	e Egy	ptian	histo	ry - St	one ages			
	(ancient, medieval an	d modern) p	rehis	storic	age - An	cient	state	- the	first	medie	val age -			
Topics	medieval age - the se													
	periods of independen													

		Junior LEV	VEL	200	COURSE	S						
Code	Course Title	Droroguioito		С	ontact hou	ırs			N	/larks		
Code	Course Title	Prerequisite	Cr	Lec	Tutorial	Lab	Total	CW	O/P	FE	Total	
HUM 204	Introductory	None	2	2			2	50	-	50	100	
HUW 204	Psychology	None			•	•	2	50%	-	50%	100%	
Catogary		University elective (2) (UR)										
Objective	To learn the basic cor	ncepts of psyc	cholo	ogy.								
Lonics		ture of psychology - motives - emotions - attitudes depression, and personal stress - nscientiousness and psychotherapy - recall and forgetfulness.										

LEVEL (300) Semester 7

	Senior 1 LEVEL 300 COURSES											
Code	Course Title	Prerequisite		С	ontact ho	urs			N	Marks		
Code	Course Title	Prerequisite	Cr	Lec	Tutorial	Lab	Total	CW	O/P	FE	Total	
STE301	Reinforced Concrete	STE203	3	2	2		4	50	-	50	100	
SIESUI	Design 2	31E203	312203 3 2 2	-	4	50%	-	50%	100%			
Category		Compulsory (MR)										
Objective	Introduce the concepts	s of the analy	sis a	ınd de	sign of R	einfo	rced C	Concre	ete El	ement	s.	
Lonics		esign members under combined flexural and axial loading –Design and detailing of times and arches – Hinge design – Short cantilever – stairs – R.C. walls – flat slabs.										

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	Senior 1 LEVEL 300 COURSES												
Code	Course Title	Prerequisite		С	ontact ho	urs				Marks			
Code	Course Title	Frerequisite	Cr	Lec	Tutorial	Lab	Total	CW	O/P	FE	Total		
STE302	Steel Structure	STE201	3	2	2		4	50	-	50	100		
S1E302	Design 1	SILZUI	3	4	4	•	4	50%	-	50%	100%		
Category			Co	mpul	sory (MR)								
	Increase the student	awareness	of	the d	ifferent s	struct	ural (eleme	nts c	compo	sing the		
Objective	industrial steel structu	re. The design	gn to	ols fo	or the elen	nents	in dif	fferen	t cod	es will	be fully		
	explained	•									J		
	Introduction to steel	structures -	Prop	perties	and type	es of	steel	- Ind	lustria	al buil	dings -		
	Design of :- (Tension	n members	- Co	mpre	ssion mer	nbers	Bolte	ed cor	nnect	ions –	Welded		
	connections - High s	trength bolts	- P	urlins	-Bracings	- (Crane	girder	·s –	ase pla	ates) – It		
Tonico	includes as well diff	erent method	ds f	or acl	nieving	the	design	n and	drav	vings-	-Detailed		
Topics	drawings for the diff	ferent items	and	comp	onents	of in	dustri	al bui	lding	s - 1	Different		
	methods of fabricatio	n and erection	on of	indu	strial bui	ilding	s - c	Comp	uter a	aided o	design of		
	steel structures - Ex	ecution and	work	shop	drawing	gs –	Tests	on w	elded	d steel	sections		
	includes: - Visual insi	pection – Lia	uid r	enetr	ation tests	- s – Ul	trasor	nic tes	$ts - \Sigma$	X-ray t	ests		

	Senior 1 LEVEL 300 COURSES Contact bours Marks												
Code	Course Title	Prerequisite		С	ontact ho	urs				Marks			
Code	Course Title	Frerequisite	Cr	Lec	Tutorial	Lab	Total	CW	O/P	FE	Total		
	Traffic and							50	-	50	100		
CUE301	Transportation	EMP202	3	2	2	-	4	50%	_	50%	100%		
	Engineering							0070		0070	10070		
Category		Compulsory (MR)											
	The students will be able to act professionally in planning and design of highways												
Objective	engineering disciplines and use the codes of practice of highways and traffic engineering												
	disciplines effectively	and professi	onal										
	Principals of transpor	tation, data c	olled	ction,	trip gener	ation	& dis	stribut	ion,	method	ds of trip		
	distribution, modal sp	lit, network p	olanı	ning, t	raffic ass	ignme	ent, ev	aluati	ion o	f trans	portation		
Tanias	projects. Traffic engi	ineering, trai	ffic	strear	n charact	eristi	es, tra	affic v	volun	ne stu	dies and		
Topics	characteristics, metho	ds of traffic	cour	it, spc	t speed st	tudies	s, trav	el tim	e and	delay	studies,		
	characteristics, methods of traffic count, spot speed studies, travel time and delay studies, parking studies and characteristics, highway capacity and level of service, traffic control												
	devices, road marking		_										

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		Senior 1 LE	VE	300	COURS	ES							
Code	Course Title	Prerequisite		С	ontact ho	urs				Marks			
Code	Course Title	Frerequisite	Cr	Lec	Tutorial	Lab	Total	CW	O/P	FE	Total		
CUE302	Construction Projects	CUE205	3	2	2		1	50	-	50	100		
CUESUZ	Planning (2)	CUEZUS	3	4	4	_	4	50%	-	50%	100%		
Category			Co	mpul	sory (MR)								
	Aims to provide an u	Aims to provide an understanding of some advanced topics in planning and scheduling of											
Objective	construction projects and their implementation in practice using common software (like												
-	Primavera and Micros		•		•		·				`		
	Project time reduction	on. Project	resou	irce i	manageme	ent (Resou	rce a	lloca	tion, l	Resource		
	leveling, Limited-reso	ource conside	eratio	ons). I	Project co	st co	ntrol (Mear	ning a	nd de	finitions,		
T	Methods, Functions,												
Topics	value method, and Pe				-								
	Solve problems associate			,			•		-				
	software, and MS pro			···	- J	1		<i>J</i>	r				

		Senior 1 LE	VE	300	COURS	ES					
Code	Course Title	Prerequisite		С	ontact ho	urs			M	Marks	
Code	Course Title	Frerequisite	Cr	Lec	Tutorial	Lab	Total	CW	O/P	FE	Total
STE304	Advanced Structural	STE201,	ų	2			Ų	50	-	50	100
S1E304	Analysis	STE204	'	4	•	-	,	50%	-	50%	100%
Category	Compulsory (MR)										
	Students are studying how to distinguish between stable / unstable and determinate /										
Objective	indeterminate structures. Students are studying methods for solving of statically										
	indeterminate structures and practice on the application by using the stiffness method										
	Matrix algebra by co	omputers – S	Statio	cally	and kinar	natic	ally in	ndeter	mina	te stru	ictures –
-	Matrix approach (1) to solve the kinematical indeterminate structures – Analysis of										
Topics		minate structures by stiffness method - Grids - Plane and space									
	trusses, and frames. C	omputer Appli	catio	ns for	trusses, b	eams,	, and fi	ames			

Elective (3) Humanities

	Senior 1 LEVEL 300 COURSES												
Codo	Course Title	Droroguioito		С	ontact hou	urs			N	Marks			
Code	Course ritle	Prerequisite	Cr	Lec	Tutorial	Lab	Total	CW	O/P	FE	Total		
HUM 303	Scientific Research	None	2	2			2	50	-	50	100		
HOW 303	Methods												
Catogary		University elective (3) (UR)											
Objective	To learn about Scient	ific Research	Met	hods									
	Setting up, developme	ent and meth	ods	of sci	entific thi	nking	- Sci	entific	c Res	earch (curricula		
Topics	and tools - Selecting	d tools - Selecting and developing topics - deducing results - Methods of gathering and											
	_	nd tools - Selecting and developing topics - deducing results - Methods of gathering and resenting data - methods of using the library - Report writing.											

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		Senior 1 LE	VE	L 300	COURS	ES										
Codo	Course Title	Prerequisite		С	ontact hor	urs			N	Marks						
Code	Course ritle	Prerequisite	Cr	Lec	Tutorial	Lab	Total	CW	O/P	FE	Total					
LILIM 204	Seminar 1	None	2	2			2	50	-	50	100					
HUM 301	Seminar i	none	4		•	-		50%	50% - 50% 100%							
Catogary	University elective (3) (UR)															
Objective	To learn about charac	learn about characteristics of good seminar presentation.														
	Talks and presentation	ns are invited	l fro	m ind	ustrial est	ablisl	nment	s rele	vant t	o the	program.					
Tanina	The guest speaker sh	ould discuss	the	organ	ization, m	nanag	ement	t, and	recei	nt tech	nologies					
Topics	implemented in his/h	er industrial	estal	blishn	nent. Stud	lents	exerci	se wr	iting	brief t	technical					
	reports on the guest p															

		Senior 1 LE	VEI	300	COURS	ES							
Codo	Course Title	Droroguioito		С	ontact ho	urs			N	Marks			
Code	Course Title	Prerequisite	Cr	Lec	Tutorial	The property of the property o	FE	Total					
HUM 304	Introductory	None	2	2			2	50	-	50	100		
HUW 304	Industrial Psychology	None	4		•	-		50%	-	50%	100%		
Catogary		University elective (3) (UR)											
Objective	To learn an Introductory Industrial Psychology												
	Definition of fields ar	nd aims of Ps	sych	ology	and its ir	nport	ance i	in pra	ctical	life -	Bases of		
	human behaviour and	nan behaviour and motives - conscientiousness, learning. and recall - intelligence and											
							_			_			
Topics					U I	-		•					
Industrial Psychology - realizing convenience between the individual and, his profundational profundation with the Industrial organizations. Industrial Psychology - realizing convenience between the individual and, his profundation with the Industrial organization and its Psychological Psycholo													

		Senior 1 LE	VE	L 300	COURS	ES						
Code	Course Title	Prerequisite		С	ontact ho	urs			N	Marks		
Code	Course Title	Frerequisite	Cr	Lec	Tutorial	Lab	Total	CW	O/P	FE	Total	
HUM 305	Introductory	None	2	2			2	50	-	50	100	
HOW 303	Industrial Sociology	None	4		•	-		50%	-	50%	100%	
Catogary		Ur	iver	sity el	ective (3)	(UR)						
Objective	To learn an introduction of Industrial Sociology											
	Concepts of the social structure - levels of the social, cultural and bringing up relation											
	Processes of organizi	ng the social	l sys	stems	and the s	ocial	chan	ge so	cial c	ases r	elated to	
	industry and industr	rialization ii	n th	e de	veloping	cour	ntries	- th	e ne	cessar	y social	
Topics	requirements to face	the industria	ılizat	tion c	hallenges	- the	e cont	empo	rary	theorie	es of the	
	industrial organizatio	ns and its s	uitab	oility	with the	facts	of th	e dev	elopi	ng co	untries -	
	analyzing the relation	n 'between in	dust	rializ	ation and	the s	social	syste	ms -	Analy	zing the	
	relation between indu	strialization a	and t	he url	oan devel	opme	nt in I	Egypt.				

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LEVEL (300) Semester 8

		Senior 1 LE	VE	300	COURS	ES					
Code	Course Title	Prerequisite		С	ontact ho	urs			M	Marks	
Code	Course Title	Frerequisite	Cr	Lec	Tutorial	Lab	Total	CW	O/P	FE	Total
		CUE203,						50	-	50	100
CUE303	Highway Engineering	STE202, CUE301	3	2	2	-	4	50%	-	50%	100%
Category			Co	mpul	sory (MR)	1					
Objective	The students will be able to act professionally in maintenance, construction pf pavement layers and use the codes of practice of highways and traffic engineering disciplines										
Topics	effectively and profes Basic design controls lanes, cross section classification, measur flexible pavement, ty construction of difference	s, sight distant elements, ring soil strent ypes of aspl	inte gth, alt	ersecti stress mater	ions. Typeses and str	pes rains	of hi	ghwa xible	y pa paver	ivemei nent, d	nts, soil design of

		Senior 1 LE	VEI	300	COURSI	ES					
Code	Course Title	Prerequisite		С	ontact hou	ırs	them for a succesibility of constructive tendering, senitions. Types of age, cost plus fix contracts, Unit profild contracts - Tofa a contractor at	Marks			
Code	Course Title	Prerequisite	Cr	Lec	Tutorial	Lab	Total	CW	O/P	FE	Total
CUE304	Construction	CUE204,	2	2			2	50	-	50	100
CUE304	Contracts	CUE206	4	4	•	•	4	50%	-	50%	100%
Category			Co	mpul	sory (MR)						
	Provide students with	high quality	educ	cation	and to pr	epare	them	for a	succe	essful	
Objective	professional career, ar	nd produce gr	radua	ates ta	ake the res	spons	ibility	of co	nstru	ction	
	.management of proje	cts				-	•	em for a successful ity of construction tendering, serial tendering, serial tendering, serial tendering, cost plus fixed fee racts, Unit price contracts - The price contracts a contractor and			
	Methods of contracto	ors' selection	: op	en te	ndering, s	elect	ive te	nderii	ng, se	erial te	endering,
	negotiated tenders. C	onstruction o	ontr	acts b	pasics and	defi	nition	s. Ty	pes (of con	struction
	contracts: cost reimbu	irsement con	tract	s, cos	st plus per	rcenta	age, c	ost pl	us fiz	ked fe	e, Target
Tonico	cost, Price given in	advance con	ntrac	ts:	Lump su	ım c	ontrac	ets, U	nit p	rice c	ontracts,
Topics	Contracts based on a	a schedule o	of ra	tes, I	Design an	d bu	ild co	ontrac	ts -	The p	rivatized
	approach - Concept of	f managemer	nt co	ntract	ing - Sele	ction	of a c	contra	ctor a	and a c	contract -
	Identification of strate	egic factors. I	Lega	l Asp	ects of Co	nstru	ction	Proje	cts "I	eessful action erial te of constant fee cons	an Law",
	Legal Aspects of Con	struction Pro	jects	"FID	IC", Cons	struct	ion C	laims			•

		Senior 1 LE	VE	300	COURS	ES								
Code	Course Title	il Mechanics 2 STF202 3 2 2 1 5 30 20 50												
Code	Course ritie	Prerequisite	Cr	Lec	Tutorial	Lab	Total	CW	O/P	FE	Total			
STE303	Sail Machanias 2	STE202	2	2	2	1	_	30	20	50	100			
S1E303	Son Wechanics 2	31E202	ว	<i>_</i>	4	1	3	30%	20%	50%	100%			
Category		Compulsory (MR)												
Objective	the students will be ab	ole to Identify	the the	diffe	rent types	of so	il and	its pr	opert	ies and	d			
Objective	understand the import													
Topics	Earth Pressure - Reta Soils.	aining Walls	- S	heet 1	Piles - Sl	ope S	Stabili	ty - I	Bearir	ng Cap	pacity of			

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		Senior 1 LE	VE	L 300	COURS	ES						
Code	Course Title	Droroguioito		С	ontact ho	urs				Marks		
Code	Course Title	Prerequisite	Cr	Lec	Tutorial	Lab	Total	CW	O/P	FE	Total	
CUE305	Value Engineering	CUE201	2	2			2	50	-	50	100	
CUESUS	Value Engineering	CUEZUI	4	4	-	-	2	50%	-	50%	100%	
Category		Compulsory (MR)										
	Value Engineering aims to provide students with high quality education and to prepare											
Objective	them for a successful	professional	care	er, an	d produce	grad	uates	ducation and to prepare ts take the responsibility	bility of			
-	.construction manage	-		,	1	U				1	J	
	Definitions of value			e eng	gineering	requ	iremen	ts, In	centiv	e prov	visions in	
T								nents, Incentive provisions g value engineering conce				
Topics										FE 50 50% It to pre sponsible ve proveneering		
	Fundamentals of value engineering, Methodology in generating value engineering proposals, Creativity in value engineering, Life cycle cost analysis, Weighted evaluation.											

Engineering Elective (1)

		Senior 1 LE	VE	L 300	COURS	ES						
Code	Course Title	Droroguioito		С	ontact ho	urs				Marks		
Code	Course Title	Prerequisite	Cr	Lec	Tutorial	Lab	Total	CW	O/P	FE	Total	
CHESSA	Pavement Materials	LEVEL 300	3	2			2	50	-	50	100	
CUE321	Pavement waterials	LEVEL 300	3		-	-		50%	-	50%	100%	
Catogary	Engineering Elective (1) (MR)											
Objective		This content of the course aims to defining the components of the paving materials used and their different characteristics and the tests that should be conducted to test the validity										
Topics	Subgrade soil- subba tests- material quality		soil	– we	earing sur	face-	pavin	g soil	tests	s- asph	ıalt layer	

		Senior 1 LE	VE	300	COURS	ES					
Code	Course Title	Prerequisite		С	ontact ho	urs			N	Marks	
Code	Course Title	rielequisite	Cr	Lec	Tutorial	Lab	Total	CW	O/P	FE	Total
CUE322	Railways Engineering	1 EVEL 200	3	2			2 50 - 50 100				
CUE3ZZ	Railways Engineering	LEVEL 300	っ		•	-		50%	-	50%	100%
Catogary		Eng	jinee	ring E	lective (1)) (MR)				
Objective	Support the graduate students with high-quality level of theoretical knowledge and esearch skills to enable them add value in their professional practice and furthermore, for the master conduct high-quality theoretical and applied research in various fields of Railways.										
Topics	Types of railways l railways for High spec Effective and suitable	eds, Vertical	Alig	nmer	nt, Horizo	ntal A	Alignn	nent, S	Super	elevat	ion Rate,

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		Senior 1 LE	VEI	L 300	COURS	ES							
Codo	Course Title	Droroguioito		С	ontact hor	urs			N	/larks			
Code	Course ritte	Prerequisite	Cr	Lec	Tutorial	Lab	Total	CW	O/P	FE	Total		
CUE320	Risk Management in	LEVEL 300	3	2			2	50	-	50	100		
CUE320	Construction.	LEVEL 300	ာ		-	-		50%	-	50%	100%		
Catogary		Engineering Elective (1) (MR)											
Ohioatius	Risk Management in Construction aims to help students develop their abilities for												
Objective	knowing the needed k	nowledge ab	out I	Risk M	lanagemer	nt in C	onstru	ction.					
	Roots of uncertainty	in constru	ction	pro	jects, nee	d fo	r risk	man	agem	ent, s	steps for		
	managing project risk								_	FE 50 50% ir abil ent, s qualita	-		
Topics	quantitative approach	*		,				•	,				
	during project execut	tion, organiz	ing	for ri	isk manag	geme	nt, rol	e of	risk	ir abil	ger, risk-		
	based decision making, risk considerations for various project participants.												

	Senior 1 LEVEL 300 COURSES Contact hours Marks												
Code	Course Title	Prerequisite							N	Marks			
Code		Frerequisite	Cr	Lec	Tutorial	Lab	Total		O/P	FE	Total		
STE313	Structural Dynamics & Earthquake .Engineering	LEVEL 300		2	-	-	2	50 50%	-	50 50%	100%		
Catogary		Eng	jinee	ring E	Elective (1)) (MR)						
Objective	Aims to provide formulation of the dyn there solution under hazard, analysis of s range of design tech response spectrum r practice, using the Eg	namic equation different type tructures submiques (simple thod, and	on of oes conject olifie tim	f motion f dyr to each do mode his	on of sing namic loa arthquake dal respo tory anal	gle an ds ar -indu onse s	nd mul nd pro ced lo spectro	ti-deg vide oads a um m	grees (also and e aethoc	of free the ea evaluat d, mul	edom and arthquake tion of a ti modal		
Topics	Equation of motion of Multi-degrees of fr mechanism and charlateral resistance system to be the mechanism and charlateral resistance system to be the seismic earthquakes. Know the problems associated to seismic control system.	reedom systemateristics are for the build force in the earthquaker of the architecture.	em nd its nildin ne st e pro	modas eng ngs Caructur ovision	analysineering shoose the ral elements in the	is. I signif suita nts to Egyp	Responicance ble modes designation c	nse se, Detection ethodes and safe ode o	pectr termine of se fe stru f load	a. Eane the bismic uctures ding. S	arthquake suitable analysis. s against Solve the		

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Engineering Elective (2)

		Senior 1 LE	VE	L 300	COURSI	ES							
Codo	Course Title	Draraguiaita		С	ontact hou	urs				Marks			
Code	Course Title	Prerequisite	Cr	Lec	Tutorial	Lab	Total	CW	O/P	FE	Total		
STE315	Finite Element	LEVEL 300	3	2			2	50	-	50	100		
31E313	Analysis Method	LEVEL 300	3		•	-		50%	-	50%	100%		
Catogary		Engineering Elective (2) (MR)											
Objective	The students will be	oe able to un	ders	tand t	he Finite I	Eleme	ent Me	ethod.					
	Stiffness matrix method	od for grid, S	Stiffi	ness n	natrix met	thod t	for spa	ace tri	uss, S	Stiffnes	s matrix		
Topics	method for space fran	ne, Finite ele	emer	it met	hod and a	ıdvan	tages,	shap	e fun	ction,	mapping		
-	function	,					υ,	•		,	11 0		

	Senior 1 LEVEL 300 COURSES Contact hours Marks												
•									N	/larks			
Code	Course Title	Prerequisite	Cr	Lec	Tutorial		Total		O/P	FE	Total		
CUE324	Heavy Construction	LEVEL 300	3	2	-	-	2	50 50%	-	50 50%	100 100%		
Catogary		End	inee	rina E	l Elective (2)) (MR)	30 /6		30 /6	100 /6		
Objective	Teach students and econstruction that are a	enhance their	kno estru	owled ction	ge about of some n	recer nega	nt syst civil p	roject	ts.				
Topics	Construction methodengineering tasks and applications and discibuildings, sewage and structures, earth filler other mega projects. The structural system projects will demonst the presented material should be supplementally well as identifying the This approach is projects. They typically and innovative developmentally and innovative developmentally. A quick operated. Emphasis megal projects. The presented. The relation project, on one hand, hand, is discussed.	nd activities. plines in civ d drinking w d dams and The pertaining n and equiparate the applate the applate that the applate that with a define required in the properties of appropriate on the properties of th	Tyjil en vater level g coomen licati lies of quatres technologie assignation content to the cont	pical ginee netw e syst nstruct ton of on pre e cho cures nnolog in civit tinuou sociate damer n sele nstruc he ge	large scaring: transorks, water terms, heard terms, advanced construction of a tion methological/s	ale proportion of the proporti	rojects ation, leatment adustria will be entation of the ction rapporary vy civapplica ats in a n equip v and nate fo and urface	s span bridge at plan al and e demo sound project metho y pha vil en tions constructions deep oundat key cond	n a ves, turnts, and powers on seld import regular of and ses of and foundation sequipitions	wide innels, irports ver plated al ected lemen quirem I equip f conservicula n tech suppledation ystem oment and i	range of high rise s, marine ants, and ong with real-life station of ents that pment as struction. Special rly meganologies ementary s will be s for the will be nature of		

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		Senior 1 LE	VE	L 300	COURS	ES					
Code	Course Title	Prerequisite		С	ontact ho	urs				Marks	
Code	Course Title	rierequisite	Cr	Lec	Tutorial	Lab	Total	CW	O/P	FE	Total
STE314	Composite &	LEVEL 300	3	2	_	_	2	50	-	50	100
	Concrete Bridges							50%	-	50%	100%
Catogary		Eng	jinee	ring E	Elective (2)) (MR)				
	The objective of cours	se is to introd	luce	the th	neory and	appli	cation	of an	alysi	s and	design of
Objective	concrete composite bri	idges. The co	urse	focus	ses on und	lersta	nding	the be	ehavio	or of c	composite
	bridge components (be	am, slab and	colu	mn) sı	ubjected to	grav	ity as	well a	s late	ral loa	ds.
	Identify composite s	tructures, th	eir	types	and con	npone	ents.	Explai	in th	e beh	navior of
	constituents in the con	nposite struct	ures	. Dete	rmine stre	esses	and st	rains 1	elatio	on in c	omposite
	bridge members. Illum	inate the kno	wlec	lge an	d analysis	skills	s for c	oncret	e con	nposite	e bridges.
Topics	To make the students	to learn the	e ad	vantag	ges and d	is ad	vantag	es of	conc	crete c	composite
Topics	bridges. Be able to an	nalyze comp	osite	bridg	ge structui	ral sy	stems	unde	r gra	vity ar	nd lateral
	loads. Be able to design	n different ele	emer	its of	composite	bridg	ge stru	ctural	syste	ms sub	jected to
	gravity and lateral loa	ds. Be able t	o pr	oduce	a comple	ete pr	oject o	docum	ent a	nd pre	esent in a
<u> </u>	concise and complete r	nanner to inc	lude	struct	ural drawi	ngs a	nd stru	ictural	l calc	ulation	ıs.

		Senior 1 LE	VE	300	COURS	ES					
Code	Course Title	Prerequisite		С	ontact ho	urs				Marks	
Code	Course Title	rierequisite	Cr	Lec	Tutorial	Lab	Total	CW	O/P	FE	Total
	Pavement							50	-	50	100
CUE323	Management & Maintenance.	LEVEL 300	3	2	•	-	2	50%	-	50%	100%
Catogary		Eng	jinee	ring E	lective (2) (MR)				
Objective	Provide students Maintenance and to graduates take the resp	prepare the	m f	or a	successfu	l pro				_	
Topics	Introduction to Pav Pavement Distresses, Road Test, Performa Pavements, Structural	Condition S	urve ncre	y, Sk te Pa	id Resista	ance a	and Partion	avemo	ent S esign	afety,	AASHO

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LEVEL (400) Semester 9

	Se	enior 2 LEV	EL	400 (COURSI	ES						
Code	Course Title	Prerequisite		С	ontact ho	ours			N	Marks		
Code	Course Title	Prerequisite	Cr	Lec	Tutorial	Lab	Total	CW	O/P	FE	Total	
	Financial Management &	CUE201,						50	-	50	100	
CUE402	Accounting in	CUE304	2	2	-	-	2	50%	_	50%	100%	
	Construction		<u> </u>	L	/n.m.\							
Category					ory (MR)							
	Provide students with high quality education and to prepare them for a successful											
Objective	professional career, and produce graduates take the responsibility of cons		struction									
	management of projects.											
	Project financial management: Cash flow prediction, Cash flow analysis, Cost of finance -											
	Basics of accounting: 1	pase of accor	unti	ng, a	ccountin	g co	nventi	ons,	Meth	ods of	income	
	recognition - Compar	y financial	do	cume	ents: Ba	lance	e shee	et, Ir	com	e stat	ement -	
T:	Compilation of financia	d statement:	Tra	nsact	ion reco	rding	, Bool	k kee	ping :	fundar	nentals -	
Topics	Analysis of financial s	tatement: Ve	rtica	al an	alysis, H	Iorizo	ontal a	analys	sis, R	atio a	nalysis -	
	Construction financing:	Sources of f	inar	ice, c	cost of fi	nance	e and	comp	any c	ost of	capital -	
	Risk return relationship	o: Evaluation	of	retu	rn on in	vestr	nent a	and a	ssocia	ated ri	sks, risk	
	return tradeoff relations	hip										

Senior 2 LEVEL 400 COURSES												
Code	Course Title	Prerequisite		С	ontact he	ours			N	Marks		
Code	Course Title	Prerequisite	Cr	Lec	Tutorial	Lab	Total	CW	O/P	FE	Total	
STE404	Steel Structures Design 2	STE 302	3	2	2		1	50	-	50	100	
3112404	Steel Structures Design 2	31L 302	3	4	4	•	7	50%	-	50%	100%	
Category	Compulsory (MR)											
	Provide students with	high quality	y e	ducat	tion and	to 1	prepar	e the	m fo	r a sı	uccessful	
Objective	professional career, and produce graduates take the responsibility of construction the steel											
	structures.											
	Parts of steel bridges - Types of steel bridges - Loads on bridges - Working stresses -											
	Plate girder bridges – F	looring of ro	adw	ay b	ridges - l	Floor	ing of	railw	ay bi	idges	- Design	
- .	Plate girder bridges – Flooring of roadway bridges - Flooring of railway bridges - Design of: - Bracings - Bearings – Main girder including buckling in web plate and design of											
Topics	Flanges – Curtailment	· ·			_		_		•		_	
	splices - Computer aide	~ 1			_						_	
	Tension Tests – Shear T	_			S			J		•	,	

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	Se	enior 2 LEV	EL	400	COURSI	ES						
Code	Course Title	Droroguioito		С	ontact ho	ours				Marks		
Code	Course Title	Prerequisite	Cr	Lec	Tutorial	Lab	Total	CW	O/P	FE	Total	
STE403	Reinforced Concrete	STE 301	3	2	2		4	50	-	50	100	
S1E403	Design 3	31E 301	3		4	-	4	50%	-	50%	100%	
Category	Compulsory (MR)											
Objective		Provide students with high quality education and to prepare them for a successful professional career, and produce graduates take the responsibility of construction the										
	reinforced concrete stru	ctures										
Topics	Waters tanks - Deep loading – Shells.	beams - Larg	ge s	pan	systems	– De	sign (of bui	lding	s und	er lateral	

	Senior 2 LEVEL 400 COURSES													
Codo	Course Title	Droroguioito		С	ontact ho	ours			M	/larks				
Code	Course Title	Prerequisite	Cr	Lec	Tutorial	Lab	Total	CW	O/P	FE	Total			
STE 402	Composito Stantaturas	STE301,	2	2	2		4	50	•	50	100			
STE402	Composite Structures	S1E302												
Category	Compulsory (MR)													
Objective	Understand the method	s and procedu	ıres	for o	design the	e con	nposite	e struc	ctures	S.				
	Introduction – Types of	Introduction – Types of composite beams–Degrees of interaction– Design philosophy – Shear												
Topics	onnectors – Design of composite beams – Types of composite slabs – Design of slabs – Types of													
	columns – Design of columns	mns. Experime	ental	Test	s: Push ou	ıt test	- Tens	sion te	st – S	liding	test.			

	Se	enior 2 LEV	EL	400	COURS	ES						
Code	Course Title	Prerequisite		С	ontact ho	ours			N	Marks		
Code	Course Title	Prerequisite	Cr	Lec	Tutorial	Lab	Total	CW	O/P	FE	Total	
STE401	Foundations	STE303	3	2	2		1	50	-	50	100	
S1E401	roundations	312303	7	4	4	-	4	50%	-	50%	100%	
Category	Compulsory (MR)											
	Students with high quality education and to prepare them for a successful professional											
Objective	career, and produce graduates Understanding site investigations and design of											
	foundations				C			Ü			C	
	Site investigations- Choice of type of Foundation- design of shallow foundations- Design											
Topics	of deep foundations- (Construction	dev	vater	ing and	grou	nd wa	ater c	ontro	l- Pro	blematic	
	soils.											

	S	enior 2 LEV	EL	400	COURS	ES					
Codo	Course Title	Droroguioito		С	ontact he	ours			N	larks	
Code	Course Title	Prerequisite	Cr	Lec	Tutorial	Lab	Total	CW	O/P	FE	Total
		CSE001+						50	50		100
CUE410	Graduation Project 1	Project 1 1 1 CH completed	2	1	2	-	3	50%	50%		100%
Category			Con	npuls	ory (MR)						
Objective	Applications on structural engineering and construction management projects										
Topics	Applications on structural engineering and construction management projects										

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LEVEL (400) Semester 10

	Se	enior 2 LEV	EL.	400 (COURS	ES					
Code	Course Title	Broroguicito		С	ontact he	ours			Ŋ	Marks	
Code	Course Title	Prerequisite	Cr	Lec	Tutorial	Lab	Total	CW	O/P	FE	Total
CUE403	Construction Quality	CUE205,	2	2			2	50 - 50 50% - 50% The sum of th	100		
CUE403	Management	CUE206	4	4	•	-	4	50%	-	50%	100%
Category			Con	npuls	ory (MR)						
	Provide students with high quality education and to prepare them for a successful										
Objective	professional career, as	nd produce	gra	duate	es take	the	respo	nsibili	o/P FE - 50 - 50%	struction	
	management of projects	-	_				•		•		
	Terms & definitions,Qua	lity managem	ent,	Qual	ity contro	ol,Stat	istical	qualit	y con	trol, P	rocess Q.
Topics	control, Q. assurance, Q.	systems, Fact	ors	affec	ting cons	tructi	on qua	ality, (Costs	of poo	r quality,
	ISO series, Quality culture	e, Continuous i	mpı	oven	nent cycle	, Tota	ıl quali	ity ma	nagen	nent.	

Senior 2 LEVEL 400 COURSES												
Code	Course Title	Prerequisite		С	ontact ho	ours			N	Marks		
Code	Course Title	Prerequisite	Cr	Lec	Tutorial	Lab	Total	CW	O/P	FE	Total	
CUE404	Construction Equipment	CUE201,	2	2			2	50	-	50	100	
CUL404	Management	STE202	4	4	•	•	4	50%	-	50%	100%	
Category		(Con	npuls	ory (MR)							
	Provide students with	high quality	y e	ducat	ion and	to p	orepar	e the	m fo	r a si	uccessful	
Objective	professional career, an	nd produce	gra	duate	es take	take the responsibility of cons	struction					
	management of projects						prepare them for a suresponsibility of constant, Matching of eart a suitable crane type an					
	Fundamentals of moving earth: Material properties, Excavating equipment, Loading and											
	hauling equipment, G	rading and	con	npac	tion equ	iipme	ent, N	Iatchi	ing c	of ear	th work	
	equipment - Cranes: M	ajor types of	cra	nes,	Selecting	g of a	a suita	ble c	rane 1	type a	nd size -	
Topics	Pile driving equipment	: Types of p	oile	driv	ing equi	pmen	nt, Sel	ection	n of	a suit	able pile	
	driving machine - Conc	rete equipme	nt:]	Movi	ng and p	olacin	g con	crete,	Selec	cting a	a suitable	
	method for moving a	nd placing	con	crete	, Produ	ction	rate	estir	nating	g - F	Pavement	
	equipment: Mix plant, 7	ransport equi	ipm	ent, l	Paver, Co	ompa	ctor.	Equip	ment	replac	cement	

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	Senior 2 LEVEL 400 COURSES Contact hours											
	O T'			С	ontact he	ours			N	/larks		
Code	Course Title	Prerequisite	Cr	Lec	Tutorial	Lab	Total	CW	O/P	FE	Total	
	Sanitary &							30	20	50	100	
ENE401	Environmental Engineering (2)	None	3	2	2	1	5	30%	20%	50%	100%	
Category	Compulsory (MR)											
Objective	basic skills necessary for	nderstand the fundamental concepts of collection and treatment of wastewater to develop the asic skills necessary for the rational design of collection, treatment and control systems used in astewater engineering as well as for an understanding of those processes at work in the natural										
Topics	An introduction about was quantities and sources – (preliminary, biological + concentration - volatile di chemical oxygen – nitrate	design of was - sludge dispos ssolved solids	tewa sal). con	ater n Expe	etworks a eriments t ation –cor	and p to det nsume	ump s ermine ed bioc	tations e: Vola themic	s- trea atile s al oxy	tment uspend gen –	processes led solids	

Engineering Elective (3)

		Senior 2 LE	VE	L 400	COURS	ES								
Code	Course Title	Prerequisite		С	ontact ho					Marks				
Code	Course Title	Frerequisite	Cr	Lec	Tutorial	Lab	Total	CW	O/P	FE	Total			
STE413	Special Concrete &	LEVEL 400	3	2	-	_	2	50	-	50	100			
	Steel Structures.	_		<u> </u>				50%	-	50%	100%			
Catogary		Eng	jinee	ring E	lective (3) (MR)							
	Provide students v	Provide students with high quality knowledge of Special Concrete & Steel Structures.												
Objective and to prepare them for a successful professional career, and produce graduates to										take the				
	responsibility of desig		-			,	, and produce graduates tak							
	Design special concr	ete and stee	l str	ucture	es under	latera	ıl loac	ls; ea	rthqu	ake a	nd wind.			
Topics	Lateral load resisting and Reinforced concrete special considerations	bridges; loa	•		_		_							

	Senior 2 LEVEL 400 COURSES											
Code	Course Title	Prerequ		С	ontact ho				N	/larks		
Code	Course Title	isite	Cr	Lec	Tutorial	Lab	Total	CW	O/P	FE	Total	
STE414	Design and Construction	LEVEL	3	2			2	50	-	50	100	
315414	of Tunnels	400	う		•	-		50%	-	50%	100%	
Catogary		Eng	jinee	ring E	lective (3)) (MR))					
Objective	Engineering Elective (3) (MR) Provide students with high quality knowledge of Design and Construction of Tunnels. and o prepare them for a successful professional career, and produce graduates take the responsibility of design the well-known											
Topics	Project Development, Sof advanced Design and Con					ete Li	ning,	Hard	Grou	nd Tu	nnelling,	

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	Senior 2 LEVEL 400 COURSES Contact hours Marks											
Code	Course Title	Proroguisito		С	ontact ho	urs				Marks		
Code	Course Title	Prerequisite	Cr	Lec	Tutorial	Lab	Total	CW	O/P	FE	Total	
	Repair and							50	-	50	100	
STE415	Strengthening of Structures.	LEVEL 400	3	2	-	-	2	50%	-	50%	100%	
Catogary		Eng	ginee	ring l	Elective (3) (FR)					
	Provide students v	vith high qua	lity	know	ledge of I	Desig	n and	Repa	ir and	Stren	gthening	
Objective							produce					
	graduates take the responsibility of design the well-known											
	Introduction Repair and Strengthening of Structures., Causes of Deterioration and needs											
	for Repair, Methodology and strategy of repair, the type and extent of deterioration-											
	causes of deteriorati	ion and wh	nethe	er the	e deterior	ration	is s	still a	active	, the	rate of	
Tanias	deterioration, the time	e remaining b	efoi	re rep	air or repl	lacen	nent, tl	he eff	ects o	of dete	rioration	
Topics	on serviceability if re	epair or repl	acen	nent i	s deferre	d, the	e mos	t cost	-effe	ctive 1	means to	
	prevent further deter	ioration to t	he s	tructi	ire, Conc	rete	defect	s, Co	lumn	jacke	et, Beam	
	jacket, Slab jacket, F	oundation re	epair	, Insp	ection of	cond	crete s	tructi	ıres,	Concr	ete tests,	
	Repair materials											

		Senior 2 LE	VEI	L 400	COURS	ES					
Code	Course Title	Prerequisite		Contact hours						Marks	
Code	Course Title	rielequisite	Cr	Lec	Tutorial	Lab	Total	CW	O/P	FE	Total
	Temporary							50	-	50	100
CUE425	Structures in Construction	LEVEL 400	3	2	•	-	2	50%	-	50%	100%
Catogary	Engineering Elective (3) (MR)										
Objective	Construction. and t	Provide students with high quality knowledge of Temporary Structures in Construction. and to prepare them for a successful professional career, and produce graduates take the responsibility of design the well-known									
Topics	Introduction to construction applications of concrete, Economy and safety of formwork, Material properties and allowable stresses, Design loads of formwork (vertical loads, lateral pressure), Method of analysis, Forms for footings, Forms for walls and columns, Forms for beams and floor slabs, Failures of formwork, Shores and scaffolding.										

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Engineering Elective (4)

	Se	enior 2 LEV	EL	400	COURS	ES						
On do	Correct Title	Duana maiaita		С	ontact ho	ours		Marks				
Code	Course Title	Prerequisite	Cr	Lec	Tutorial	Lab	Total	CW	O/P	FE	Total	
CUE425	Construction Productivity	LEVEL 400	2	2			2	50	-	50	100	
CUE423	Construction 1 roductivity				-	•		50%	-	50%	100%	
Category	Engineering Elective (4) (MR)											
	Provide students with high quality education and to prepare them for a successful											
Objective	professional career, and produce graduates take the responsibility of construction											
	management of projects											
	Construction productiv	ity basics,	Ter	ms	and def	initio	ns, C	Constr	uctio	n pro	ductivity	
	measures, Factors as	ffecting pro	oduc	tivit	y, Prod	luctio	n ra	tes:	meas	sureme	ent and	
Topics	improvement, Productivity measurement system, Modeling production rate variability,											
	Productivity and quality, Measurement and improvement of utilization, Construction											
	productivity in Egypt											

		Senior 2 LE	VEI	400	COURSI	ES					
Code	Course Title	Prerequisite		С	ontact hou	urs			ı	Marks	
Code		-	Cr	Lec	Tutorial	Lab	Total		O/P	FE	Total
	Safety, Health &			_			_	50	-	50	100
CUE426	•	LEVEL 400	2	2	-	-	2	50%	-	50%	100%
Catogary	Construction.										
Catogary	Durani da esta da esta				` '	_	•	1 141			•
	Provide students with high quality knowledge of Safety , Health & Envir. Manag. in Construction and to prepare them for a successful professional career, and produce										
Objective						-	tessio	nal c	areer	, and	produce
	graduates take the resp	graduates take the responsibility of design the well-known.									
	Health and safety issues to be managed in the construction industry to protect employees,										
	contractors, neighbours and others, The basics of local law The importance of risk										
Tonics	assessments and meth	nod statemen	nts an	nd the	e develop	ment	proce	ess, Si	ite re	quiren	nents for
Topics	the welfare of construction workers on site, Hazards and controls associated with										
	construction sites and	d activities i	nclu	ding	working a	at he	ight a	nd co	onfine	ed spa	ces, Site
	environmental management including management of waste and ecology										

		Senior 2 LE	VE	400	COURS	ES						
Code	Course Title	Prerequisite Contact hours							Marks			
Code	Course Title	Frerequisite	Cr	Lec	Tutorial	Lab	Total	CW	O/P	FE	Total	
	High Rise buildings							50	•	50	100	
STE416	and special structures	LEVEL 400	2	2	-	-	2	50%	-	50%	100%	
Catogary		Eng	jinee	ring E	Elective (4)) (MR)					
Objective	structures and to prep	Provide students with high quality knowledge of High Rise buildings and special structures and to prepare them for a successful professional career, and produce graduates ake the responsibility of design the well-known.										





	Introduction to high-rise buildings and their classification. Vertical Load Structural
	systems – Lateral Force resisting systems – Wind loads and design requirements- Seismic
	Loads and methods of earthquake design - Analysis and Design of High rise building
Topics	elements- High rise construction techniques – Foundation Systems – Introduction to Long
	Span Bridges structural systems – Cable stayed bridges – Cable suspended Bridges –
	Prestressed Box Girder Bridges – Segmental Bridges – Outlines of Bridge design.

		Senior 2 LE	VE	400	COURSI	ES					
Code	Course Title	Prerequisite		С	ontact hou	ırs			N	Marks	
Code	Course Title	Frerequisite	Cr	Lec	Tutorial	Lab	Total	CW	O/P	FE	Total
STE417	Prestressed Concrete	I EVEL 400	2	2	_	_	2	50	-	50	100
	Trockrocoda Gonoroto							50%	-	50%	100%
Catogary	Engineering Elective (4) (MR)										
	Provide students v	vith high qua	ality	know	ledge of I	Prest	ressec	d Con	crete	and to	prepare
Objective	them for a successful professional career, and produce graduates take the responsibility of										
	design the well-known.										
	Prestressed concrete: basic concepts of prestressing, fibre stresses in a prestressed beam,										
	load balancing, permissible stress in concrete and steel, prestressing systems, prestress										
Topics	partial losses, flexure, shear and torsion design of prestressed concrete elements,										
	indeterminate PC st	ructures, pr	estre	essed	concrete	slab	s. A	pplica	tions	on	common
	commercial software										

	Senior 2 LEVEL 400 COURSES										
Codo	Course Title	Contact hours						Marks			
Code	Course Title	Prerequisite	Cr	Lec	Tutorial	Lab	Total	CW	O/P	FE	Total
STE41	Craduation Project 2	CUE410	2	1	•	-	2	50 50 50% 50%	50		100
SIL4I	Graduation Project 2	COE410	4	1	4		3		50%		100%
Category			Con	npuls	ory (MR)						
Objective	Applications on structural engineering and construction management projects										
Topics	Applications on structural engineering and construction management projects										

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ثانيا:

المقررات التخصصية لبرنامج هندسة الميكاترونيات

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جدول (و۱) متطلبات التخصص لبرنامج هندسة الميكاترونيات (۱۰٥ ساعة معتمدة بنسبة ٢٣,٦٤ %)

ساعات				الساعات	المتطلبات التخصصية		مسلسل
الأتصال	معمل	تمرین	محاضرة	المعتمدة	Speciality Courses		Serial
					مقدمة في الميكاتر ونيك	هقم 104	
٤	-	۲	۲	٣	Introduction to Mechatronics	MPE 104	1
					نظرية الدوائر	هقك ۱۰۲ مقلك	
٥	۲	١	۲	٣	Circuit Theory	EPE 102	2
					الطرق العددية	ر فهـ ۱۰۶	_
٤	1	١	۲	۲	Numerical Techniques	EMP104	3
			.,		میکانیکا الألات	هتج ۱۰۱	_
٤	-	۲	۲	٣	Mechanics of Machines	DPE	4
			.,	_	رسم الماكينات	هتج ۱۰۲	_
٥	٣	-	۲	3	Machine Drawing	DPE102	5
,			.,		تحليل الإجهادات	هتج۱۰۳	
٤	-	۲	۲	٣	Stress Analysis	DPE103	6
			.,		تصميم أجز اء الماكينات	هتج 202	_
٥	-	٣	۲	٣	Machine Elements Design	DPE202	7
,			.,		نظرية الماكينات والأليات	هتج 203	
٤	-	۲	۲	٣	Theory of Machines and mechanisms	DPE203	8
,			.,		ميكانيكا الموائع	هقم ۲۰۱	_
٤	,	۲	۲	٣	Fluid Mechanics	MPE201	9
_	L L				هندسة الالكتر ونيات	هکت ۲۰۱	4.0
٥	۲	١	۲	٣	Electronics Engineering	ECE 201	10
_		J	۲		الإهتزازات الميكانيكية	هتج ۲۰۱	11
٥	1	۲	'	٣	Mechanical Vibrations	DPE 201	11
4		J	J		الدوائر الالكترونية	هکت ۲۰۲	10
٤	-	۲	۲	٣	Electronic Circuits	ECE 202	12
_	۲	,	۲	٣	انتقال الحرارة والكتلة	هقم ۲۰۲	12
٥	'	١	')	Heat and Mass Transfer	MPE 202	13
٣	,		۲	۲	المعالجات الدقيقة	هحس ۳۰۱	1.4
1	'	_	'	,	Microprocessors	CSE 301	14
4		۲	۲	٣	عمليات التصنيع	هتج ۲۰۶	15
4	-	'	'	'	Manufacturing Processes	DPE204	15
٤		۲	۲	٣	نظرية التحكم	هنج 308	16
2	-	'	'	'	Control Theory	DPE308	10
٤	,	١ ،	۲	٣	التصميم المنطقي الرقمي	هحس 202	17
		,	'	'	Digital Logic Dsign	CSE 202	1/
0	۲	,	۲	٣	آلات الموائع	هقم ۳۰۲	18
	,	,	'	'	Turbomachinery	MPE 302	10
٤		۲	۲	٣	تصميم منظومات الميكاترونيات	ھتج 302	19
		'			Mechatronics Systems Design	DPE 302	19
٤	,	,	۲	٣	المحركات والمشغلات	هحس ۲۰۶	20
	,	,	'	'	Drives and Actuators	CSE 304	20
٤	1	١	۲	٣	الكترونيات القدرة	هقك ٣٠٢	21
2	'	,		'	Power Electronics	EPE 302	41

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تابع جدول (و۱) متطلبات التخصص لبرنامج هندسة الميكاترونيات (۱۰٥ ساعة معتمدة بنسبة ٢٣,٦٤ %)

ساعات الأتصال	.1.00.0	*	م دافر د	الساعات	المتطلبات التخصصية		مسلسل
	معمل	لري	محاصره	المعتمدة	Speciality Courses		Serial
٥	٣	-	۲	٣	التصميم والتصنيع بالحاسب CAD/ CAM	ھنج 406 DPE 406	22
٣	١	-	۲	۲	النمذجة والمحاكاة Modeling and Simulation	هنج 307 DPE 307	23
٣	-	١	۲	۲	نظرية النظم المتكاملة	هکت ۳۰۰	24
٣	١	-	۲	۲	Theory of Integrated systems الروبوتات (۱)	ECE 305 هنج ۳۰٦	25
0	٣	-	۲	٣	Robotics (1) تكنولوجيا المحاكاة Simulation Technology	DPE 306 دنج ۶۰۷ DPE 407	26
٣	-	١	۲	۲	المتحكمات المنطقية Logic Controllers	محس ۳۰۲ هحس CSE302	27
٤	-	۲	۲	٣	تصميم المنظومات الميكانيكية Mechanical Systems Design	متج 301 DPE 301	28
٤	-	۲	۲	٣	مقرر هندسی أختیاری ۱ Engineering Elective (1)	جدول (و۲)	29
٣	١	1	۲	۲	مقرر هندسی أختیاري ۲ Engineering Elective (2)	جدول (و۲)	30
٣	١	ı	۲	۲	مقرر هندسی أختیاري ۳ Engineering Elective (3)	جدول (و۲)	31
٤	۲	1	۲	۲	القياسات وأجهزة القياس Measurements and Instrumentation	هـقم 308 MPE 308	32
٤	٣	-	١	۲	تطبيقات الحاسب في الميكاترونيك Computer Applications in Mechatronics	هنج ۲۰۱ DPE 401	٣٣
٣	١	-	۲	۲	المتحكمات الدقيقة Microcontrollers	هحس ٤٠١ CSE401	34
0	١	۲	۲	٣	الروبوتات (۲) Robotics (2)	هنج ۴۰۳ DPE 403	35
٥	١	۲	۲	٣	أنظمة قوي الموائع Fluid Power Systems	هقم ه۰ ٤ MPE 405	36
٣	١	-	۲	۲	مقرر هندسی أختیاري ٤ Engineering Elective (4)	جدول (و٢)	37
٣	١	-	۲	۲	مقرر هندسی أختیاري ه Engineering Elective (5)	جدول (و۲)	38
٤	٣	-	١	۲	مشروع تخرج (۱) Graduation Project (1)	هقم ۲۰۲ MPE 402	39
٤	٣	_	1	۲	مشروع تخرج (2) Graduation Project (2)	404 هتج DPE 404	40
١٦٢	££	٤١	٧٧	1.0	الساعات =	إجمال	1

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جدول (و ۲) بيان بالمقررات الأختيارية للمتطلبات التخصصية لبرنامج هندسة الميكاترونيات قائمة المقررات الاختيارية (۱)، (۲)، (۳) ،(٤) ، (٥)

ملاحظات	المقرر	الكود
مقرر إختياري	الات الإحتراق الداخلي Internal Combustion Engines	هقم 309 (MPE 309)
مطرر إحسيري هندسي (۱)	الطاقة المتجددة Renewable Energy	هقم 310 (MPE 310)
() ي	إدارة التصنيع Manufacturing Management	هصن 301 (INE301)
	Electro Mechanics & Motion Control	هتج ٤٠٨
مقرر إختياري	الأنظمة الكهر وميكانيكية والتحكم الحركي	(DPE 408)
هندسي (۲)	التحكم في قوي الموائع Fluid Power Control	(DPE 409) 409 هنج
	CNC Machines & Material Cutting Processes ماكينات التشغيل بالتحكم الرقمي و عمليات قطع المواد	(DPE 410) 410 هنج
	معالجة الصور والرؤية بالحاسب	هحس 405
1 1	Image Processing and Computer Vision	(CSE 405)
مقرر إختياري	تصميم الأنظمة المدمجة Embedded Systems Design	هکت 406
هندسي (۳)	Elifoedded Systems Design معتمرة المعتمرة المعت	(ECE 406)
	ديناميكا أنظمة السيارات والتحكم فيها Vehicle System Dynamics and Control	(DPE 411) 411 هنج
	أجهزة الإستشعار ومعالجة الإشارات	(ECE 404) ٤٠٤ هكت
مقرر إختياري	Sensors and Signal Processing Power Plants محطات الطاقة	هقم MPE 409) 409 هقم
هندسي (٤)	أنظمة التحكم الألي المتقدمة Advanced automatic control systems	(DPE 412) 412 هنج
	المان الصناعي Industrial Safety Engineering	هصن ۲۰۳ (INE 403)
مقرر إختياري	المنظومات الإلكترونية الرقمية Digital Electronic Systems	هکت ۴۰۳ (ECE)
هندسي (5)		403
	Artificial intelligence الذكاء الإصطناعي	هحس ۲۰۲ (CSE402)

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جدول (و٣) نموذج إسترشادي يوضح خطة تدريس مقررات برنامج هندسة الميكاترونيات

		Le	vel 000 (Fr	reshman)		
	Semester (1)	Fall		Semester (2) S	pring	
	Course name	Code	СН	Course name	Code	СН
1	ریاضیات هندسیة ۱	EMP001	3	رياضيات هندسية ٢	EMP005	3
2	فيزياء هندسية ١	EMP002	3	فيزياء هندسية ٢	EMP006	3
3	رسم هندسي وإسقاط ١	DPE011	3	رسم هندسي وإسقاط ٢	DPE012	3
4	میکانیکا هندسیة ۱	EMP004	2	میکانیکا هندسیة ۲	EMP007	2
5	كيمياء هندسية	ENE001	3	تكنولوجيا إنتاج	DPE001	3
6	لغة أجنبية فنية	TFL001	2	مقدمه حاسب وبرمجة	CSE001	۲
7				تاريخ الهندسة والتكنولوجيا	HUM001	۲
	Total		١٦	Total	•	١٨

		Leve	el 100 (So	ophomore)		
	Semester (1) I		CI 00 (B0	Semester (2) S	pring	
	Course name	Code	СН	Course name	Code	СН
1	رياضيات هندسية ٣	EMP101	۲	مدخل إلى القانون	HUM101	۲
2	المواد الهندسية	MTE101	3	رسم الماكينات	DPE102	3
3	ميكانيكا الات	DPE101	٣	مقدمة في الميكاترونيات	MPE 104	3
4	تطبيقات الحاسب	CSE101	۲	تحليل الإجهادات	DPE103	3
5	ديناميكا حرارية	MPE102	3	أنظمة كهربية	EPE101	2
6	نظرية الدوائر	EPE102	٣	الطرق العددية	EMP104	2
7				إختياري جامعة ١	XXXXX	2
	Total		١٦	Total		1 7
		L	evel 200 ((Junior)		
	Semester (1) I	all		Semester (2) S	pring	
	Course name	Code	СН	Course name	Code	СН
1	إختياري كلية ١	XXXX	2	الدوائر الإلكترونية	ECE202	3
2	ميكانيكا الموائع	MPE201	3	إقتصاد هندسي	INE207	2
3	هندسة الإلكترونيات	ECE201	3	تصميم أجزاء الماكينات	DPE202	3
4	نظرية الماكينات والأليــــات	DPE 703	3	إهتزازات ميكانيكية	DPE201	٣
5	عمليات التصنيع	DPE204	3	إنتقال الحرارة والكتله	MPE202	3
6	إحصاء هندسي	INE202	2	التصميم المنطقي الرقمي	CSE202	٣
7	إختياري جامعة ٢	XXXXX	۲			
	Total		18	Total		17
		Le	evel 300 (S	Senior 1)		
	Semester (1) I	all		Semester (2) S	pring	
	Course name	Code	CH	Course name	Code	СН
١	تصميم منظومات الميكاترونيات	DPE 302	٣	نظرية التحكم	DPE308	٣
2	القياسات وأجهزة القياس	MPE308	۲	نظرية النظم المتكاملة	ECE 305	۲
3	تصميم المنظومات الميكانيكية	DPE301	3	الروبوتات ١	DPE 306	۲
4	إختاري هندسي ١	XXX	٣	النمذجة والمحاكاه	DPE 307	2
5	الكترونيات القدرة	EPE 302	3	المحركات والمشغلات	CSE 304	3
6	إختياري جامعة ٣	XXXXX	2	الات موائع	MPE302	3
7	المعالجات الدقيقة	CSE301	۲	المتحكمات المنطقية	CSE302	۲
	Total		18	Total		١٧

		Lev	el 400 (S	enior 2)		
	Semester (1) F	all		Semester (2) S	pring	
	Course name	Code	СН	Course name	Code	СН
1	مشروع مختار ۱	MPE 402	۲	الروبوتات ٢	DPE 403	3
2	تكنولوجيا المحاكاه	DPE 407	3	مشروع مختار ۲	DPE 404	۲
3	المتحكمات الدقيقة	CSE401	2	أنظمة قوي الموائع	MPE 405	٣
4	تطبيقات الحاسب في الميكاترونيات	DPE 401	۲	إختياري هندسي ٣	xxxxx	۲
5	التصميم والتصنيع المدعم بالحاسب	DPE 406	٣	إختياري هندسي ٤	xxxxx	۲
6	إختياري هندسي 2	XXXXX	2	إختياري هندسي 5	xxxxx	2
	Total	•	١٤	Total		1 4

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Description of Course Contents and Details

Course Contents and Details for Mechatronics Engineering Program

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LEVEL (000) Semester 1

		Freshmen L	EVE	L 000	COURS	ES							
Codo	Course Title	Dravanuiaita		С	ontact hou	urs			N	Marks			
Code	Course Title	Prerequisite	Cr	Lec	Tutorial	Lab	Total	CW	O/P	FE	Total		
EMD004	Engineering	None	2	1	2		4	50	-	50	100		
EMP001	Mathematics 1 None 3 2 2 - 4 50% - 50% 100%												
Catogary	Compulsory (FR)												
Objective	To learn the main co	oncepts of diff	ferer	itiatio	n and alge	ebra.							
	Functions-Elementa	ry functions	-Inv	erse	function-l	Polar	and	para	metri	c coo	rdinates-		
Tonico	Limits-Newoton's method-Derivatives (chain rule, derivation of implicit and inverse												
Topics	functions)-Macclaurin's and Taylor's expansins-Theory of equations-Matrices-Gauss												
	elimination method-	imination method-Matrix Eigen value problem.											

Code	Course Title	Droroguioito		Co	ntact ho	urs			N	/larks	
Code	Course ritte	Prerequisite	Cr	Lec	Tutorial	Lab	Total	CW	O/P	FE	Total
EMP002	Engineering	None	3	ų	4	2	5	30	20	50	100
EIVIPUUZ	Physics 1	None	3	'	ı	2	3	30%	20%	50%	100%
Catogary			Co	mpul	sory (FR)					
Objective	To learn about matter properties and applications of Newton's laws. Field of gravitational force-Fluid statics and dynamics-Viscosity-Elasticity-Heat and										
	Field of gravitation Temperature-First thermodynamics-Ga pendulum-Complex heat conduction-Spe Lab : Simple and coviscosity of liquid measurement of the	law of the s theory-Sou pendulum-L cific heat. compound pe - surface	rmod nd w iquid ndulu tensio	lynam aves-' l visc ım –	nics-Heat Waves in cosity-Lid Hook's l measur	eng n elas quid	gines-l stic mo surfac	Entropedia-E	oy-Se Experi nsion-	cond iments Coeff	law of E: Simple icient of

Codo	Course Title	Drovoguioito		C	ontact ho	urs			N	Marks	
Code	Course Title	Prerequisite	Cr	Lec	Tutorial	Lab	Total	CW	O/P	FE	Total
EMP003	Engineering	None	2	1	1	2	4	30	20	50	100
EIVIP 003	Mechanics (1)	None	4	I			4	30%	20%	50%	100%
Catogary		Compulsory (FR)									
Objective	To learn the basic co	b learn the basic concepts of engineering mechanics.									
	Vector applications- Equilibrium-Reaction machines-Experimen	n-Friction-Ve	ector	calcu	lus-Equil	_	-		-		

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Code	1 Eng. Drawing & None 3 2 Projection (1) Com			С	ontact ho	urs			N	/larks			
Code	Course Title	Frerequisite	Cr	Lec	Tutorial	Lab	Total	CW	O/P	FE	Total		
DPE011		None	~	2	_	3	5	50	-	50	100		
DELOTI	Projection (1)	NOTIC	,		-	, ,	3	50%	-	50%	100%		
Catogary		Compulsory (FR)											
Objective	Introductory concep	oductory concepts of engineering drawing and descriptive geometry											
	Introduction (drawing	ng instrumer	its a	nd th	eir use)-H	Engin	eering	grapl	nics,	technic	ques and		
	skills-Geometric con	nstructions ar	nd ta	ngenc	y-Rules a	and co	onvent	ions c	of line	s, lette	ering and		
Topics	dimensioning-Ortho	kills-Geometric constructions and tangency-Rules and conventions of lines, lettering and imensioning-Orthographic projection of engineering bodies-Frames of reference-											
	Orthogonal projection-Representation of a straight line-Straight lines intersections-												
	Representation of a	plan-Position	pro	blems	,	-							

Code	Course Title	Drovoguioito		С	ontact ho	urs			N	/larks			
Code	Course Title	Prerequisite	Cr	Lec	Tutorial	Lab	Total	CW	O/P	FE	Total		
ENE001	Eng. Chemistry	None	3	2		3	5	30	20	50	100		
ENEOUT	Elig. Chemistry	None	3		-	3	3	30%	20%	50%	100%		
Catogary			(Comp	ulsory (FR	2)							
Objective	To learn basic conce	epts of chemi	stry										
	The atomic structure	e and its bear	ing o	on che	emical and	d nuc	lear ch	nanges	s-cher	nical f	ormulae-		
	Percent composition	n-Thermoche	mist	ry-Ch	emical ec	quilib	rium-T	The ga	aseou	s state	-Solutes-		
Tonico	Electrolytic dissocia	ation & ionic	equ	uilibri	um-Chen	nical	kinem	atics	& rat	e of r	eactions-		
Topics	Sources of elemen	ectrolytic dissociation & ionic equilibrium-Chemical kinematics & rate of reactions- ources of elements-Chemical industries-Building materials and ceramics industries-											
	Corrosion-Fuels-Co	mbustion-Ex	perir	nents	Identific	ation	of sim	iple sa	alts-Id	entific	ations of		
	acids.	•	_					-					

Code	Course Title	Prerequisite		С	ontact ho	urs			N	/larks			
Code	Course ritte	Frerequisite	Cr	Lec	Tutorial	Lab	Total	CW	O/P	FE	Total		
TFL001	Tech. Foreign	None	2	4	2		3	50	-	50	100		
IFLUUI	Language	None	_	•	2	-	3	50%	-	50%	100%		
Catogary			(Compi	ulsory (UR	₹)							
Objective	To learn basics of fo	earn basics of foreign (English) technical language.											
	Introduction: Basic	concepts of	tech	nical	English-F	Revie	w of e	essenti	als o	f gram	mar and		
Taniaa	mechanics rules for	effective Sen	tence	es-Sty	le errors.	Build	ling Pa	aragra	phs: N	Main ic	dea-types		
Topics	of paragraphs-Read	chanics rules for effective Sentences-Style errors. Building Paragraphs: Main idea-types paragraphs-Reading and analysis of technical passages that cover engineering											
	disciplines for devel	oping commu	ınica	tion s	kills.	•							

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LEVEL (000) Semester 2

		Freshmen L	EVE	L 000	COURS	ES							
Code	Course Title	Prerequisite		С	ontact ho	urs			N	/larks			
Code	Course Title	Frerequisite	Cr	Lec	Tutorial	Lab	Total	CW	O/P	FE	Total		
EMP005	Engineering	None	3	2	2		4	50	•	50	100		
EMPUUS	Mathematics 2	None	っ		2	-	4	50%	•	50%	100%		
Catogary		Compulsory (FR)											
Objective	To learn the main co	learn the main concepts of differentiation and algebra.											
	Indefinite integratio	n-Methods of	f inte	egrati	on-Defini	te int	egrals	-Appl	icatio	ons (ar	c length,		
	areas, volumes, cent	er of gravity	, firs	t orde	er differen	itial e	quatic	n)-Nı	ımeri	cal me	ethods of		
		reas, volumes, center of gravity, first order differential equation)-Numerical methods of attegration-Transformations in plane-partial differentiation-Conic sections-Frames of											
	work and different k	k and different kinds of systems of coordinates-Straight line in space-Plane in space-											
	Surfaces of the seco	nd degree-Th	ie ge	neral	equation	of the	e surfa	ces of	f the s	second	degree.		

		Freshmen I	LEVE	L 000	COUR	SES						
Code	Course Title Prerequisite Contact hours Marks Cr Lec Tutorial Lab Total CW O/P FE Total											
Code	Course Title	Frerequisite	Cr	Lec	Tutorial	Lab	Total	CW	O/P	FE	Total	
EMP006	Engineering	None	3	٧	1	2	5	30	20	50	100	
EIVIFUU	Physics 2	None	3	'			3	30%	20%	50%	100%	
Catogary			Co	mpu	sory (FR	1)						
Objective	To learn the main con	ncepts of integ	gratio	n and	analytica	al geo	metry.					
Topics	Charge and matter-I Current, resistance an Fraday's law of in Interference and defl materials-A/C curre field-Ohm's law-Son Lab : Verification measurement of mag and focal length of measurements of light	nd electromotinduction-Indu ection-Laser nt-Electromagic speed of Ohm's land netic field and a lens — me	ive fo ctance physi- gnetic law - d mag	rce-Me e ma cs-Ele wav - me	Iagnetic f gnetic p ectromag es-Exper asuremer moment	field-Aproper netic riment nt of – det	Amper ties of induct ts: Ca capac ermina	re's lar of ma ion-Pr pacito citance	w- (Batter-Peropert or caper caper of of rad	iot-Savingsication ies of cacity- a capius of cacity of	vart) law- l optics- magnetic Magnetic oacitor — curvature	

		Freshmen	LEVE	L 000	COUR	SES								
Code	Course Title	Prerequisite		Co	ntact ho	urs			N	/larks				
Code	Course Title	rierequisite	Cr	Lec	Tutorial	Lab	Total	CW	O/P	FE	Total			
HUM001	History of Eng. &	None	2	٧			2	50	-	50	100			
HOMOUT	Tech.	None	2	'	-	-		50%	-	50%	100%			
Catogary		Compulsory (UR)												
Objective	To learn about the h	o learn about the history of engineering and technology												
	Definitions of Art, s	cience, techn	ology	and	engineer	ing-C	Civiliza	ations	and t	heir				
	relationship with nat	ural and hun	nan so	cience	s-Histyo	ory of	differ	ent te	chnol	ogy ar	nd			
Topics	engineering speciali	engineering specializations-Historical relations between science and technology-Relation												
	between developmen	tween developments in engineering, social, economical and cultural environments-												
	Practical examples of	n developme	ent of	engir	neering a	ctivit	ies.							

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		Freshmen	LEVE	L 000	COUR	SES								
Code	Course Title	Prerequisite		Co	ntact ho	urs			N	/larks				
Code	Course Title	rierequisite	Cr	Lec	Tutorial	Lab	Total	CW	O/P	FE	Total			
EMP007	Eng. Mechanics (2)	None	2	4	2	1	4	30	20	50	100			
EIVIPUUI	Eng. Wechanics (2)	30% 20% 50% 100%												
Catogary		Compulsory (FR)												
Objective	Continuing learning	the basic cor	ncepts	s of e	ngineerir	ng me	chanic	cs.						
	Displacement, veoli	city and acce	elerat	ion ir	Cartesi	an, c	urvilin	ear, t	anger	ntial, p	olar and			
Taniaa	cylindrical coordin	/lindrical coordinates-relative motion-projectiles-Motion under centrifugal forces-												
Topics	Work-Energy-Mome	k-Energy-Momentum-Impulse and collision-Experiments: Momentum conservation-												
	Projectiles-Free falli	-				1								

		Freshmen	LEV	'EL 0	00 COUR	SES							
Code	Course Title	Draraguiaita		С	ontact ho	urs			N	Marks			
Code	Course Title	Prerequisite	Cr	Lec	Tutorial	Lab	ab Total CW O/P FE Total 3 5 50 - 50 1 50% - 50% 10		Total				
DPE 012	Eng. Drawing &	DPE011	3	2		٥	_	50	•	50	100		
DPE 012	Projection (2)	DPEUII	3		•	3	5	50%	•	50%	100%		
Catogary		Compulsory (FR)											
Objective	Continuing learning	ontinuing learning of engineering drawing and descriptive geometry.											
	Pictorial drawing of	engineering	boc	lies-D	erivation	of vi	ews o	f a giv	ven b	ody-D	erivation		
	of a missing view	from two	give	n vie	ws-Rules	of s	ection	ing a	nd se	ectiona	l views-		
Topics	<u> </u>	a missing view from two given views-Rules of sectioning and sectional views-rawing of steel sections-Auxiliary projection-Circle-Helix-Helical surfaces-Polyhedra-											
	Sphere-Cone-Cylino	ere-Cone-Cylinder-Plane section of surfaces-Intersection of two surfaces of											
	revolution.												

	Freshmen LEVEL 000 COURSES											
Code	Course Title	Prerequisite	Contact hours					Marks				
	Course Title	Frerequisite	Cr	Lec	Tutorial	Lab	Total	CW	O/P	FE	Total	
DPE001	Production	None	3	2	4	2	5	50	30	50	100	
DFEOUT	Technology		3 2		•	_		20%	30%	50%	100%	
Catogary	Compulsory (FR)											
Objective	To learn the main concepts of production technology											
	Introduction in industrial safety-Engineering materials (types and properties)-Metallic											
	alloys-Casting processes-Forming processes (forging, rolling, drawing, extrusion and											
	spinning)-Joining processes (riveting, welding and adhesive bolding)-Cutting processes-											
Topics	Machining processes (turning, shaping, drilling, milling and grinding)- Measuring tools											
	(vernier calipers and micrometers)-Introduction to production costs and management											
	systems-Practical practicing.											

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Freshmen LEVEL 000 COURSES											
Code	Oarman Title	Droroguioito		С	ontact ho	urs	Marks				
	Course Title	Prerequisite	Cr	Lec	Tutorial	Lab	Total	CW	O/P	FE	Total
CSE001	Introduction to	None			1	2	4	30	20	50	100
	Computers and Programming		2	1				30%	20%	50%	100%
Catogary	Compulsory (UR)										
Objective	To learn basic concepts of computers and high-level programming languages.										
Topics	Information processing-Computer building blocks - Problem solving (Algorithms and flow charts) – Programming languages- Applications: Mathematical analysis, business and administration, application in industry and communications, <i>etc</i> .										

LEVEL (100) Semester 3

	Sophomore LEVEL 100 COURSES											
Code	Course Title	Droroguioito		С	ontact ho	urs	Marks					
	Course Title	Prerequisite	Cr	Lec	Tutorial	Lab	Total	CW	O/P	FE	Total	
EMP101	Engineering Mathematics 3	EMP005	۲	١	2	-	4	50	-	50	100	
EIVIFIUI								50%	-	50%	100%	
Catogary	Compulsory (FR)											
Objective	Knowledge of the methods and applications of advanced mathematics.											
Topics	Vectors, matrix, differential equations, eigenvalue problems, linear systems of equations, complex calculus, Fourier ranks, Fourier transformation, Fourier analysis, Laplace transformation, z-transformation.											

Sophomore LEVEL 100 COURSES											
Code	Course Title	Prerequisite	ontact ho	urs		Marks					
Code		rierequisite	Cr	Lec	Tutorial	Lab	Total	CW	O/P	FE	Total
DPE101	Mechanics of	EMP007	3	2	2	-	4	50	-	50	100
	Machines	LIVIT OUT	3					50%	-	50%	100%
Catogary	Compulsory (FR)										
Objective	Study and analyze kinematics and dynamics of rigid bodies.										
Topics	Statics: Center of gravity, center of mass, and the centroid of a body –Theorems of Pappus and Guldinus – Mass moment of inertia and parallel-axis theorem – Radius of gyration - Principle of virtual work for a system of connected rigid bodies – Conservative forces and potential energy and - Stability of equilibrium configuration. Dyamics:Planar kinematics of a rigid body – Absolute motion analysis – Relative motion – Instantaneous center of zero velocity –Planar kinetic equations of motion for translation, rotation about a fixed axis and general plane motion – Principle of work and energy for a rigid body – Conservation of energy – Principle of impulse and momentum										

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e LEVEL 100 COU	RSES	-										
Course Title	Proroquisito		С	ontact ho	urs			N				
Course Title	rierequisite	Cr	Lec	Tutorial	Lab	Total	CW	O/P	FE	Total		
Thermodynamics	None	3	2	2	_	4	50	-	50	100		
<u> </u>				loom (MD			50%	-	50%	100%		
TT1 1			•		•							
	-	-	•	0.								
thermodynamic syst	ems are cons	struc	ted ar	nd used in	the v	vorld	and to	perf	orm a	first law		
analysis (cycle anal	ysis) on the	syst	ems p	producing	pow	er or	heatin	g/co	oling e	effect, to		
comprehend the the	rmodynamic	proj	perty	relations	and t	o calc	ulate	prop	erty da	ata using		
fundamental thermodynamic relations.												
Fundamental concepts, definition of heat and work, properties of gases, 1st and 2nd laws,												
analysis of closed a	nd open syst	ems	, basi	c thermod	lynan	nics c	ycles.	Intro	ductio	on of gas		
power cycles, Otto	and Diesel o	cycle	s. Br	ayton cyc	le, m	odific	ations	s to s	imple	Brayton		
cycle. Steam cycles	, Rankine cy	cle,	meth	ods to inc	crease	e effic	iency	of R	lankin	e cycles,		
Regenerative Rankin	ne cycles, co	gene	ratior	n, combine	ed ga	s-pow	er cy	cles.	Introd	uction of		
refrigeration cycles,	refrigerator	s an	d hea	it pumps,	refri	geran	t type	s, so	me in	novative		
vapor compression	refrigeration	cyc	les. R	egenerati	ve cy	cles,	Thern	nodyr	namic	property		
relations, Maxwell	relations. G	as r	nixtuı	es, ideal	and	real	gas n	nixtuı	res. G	as-vapor		
							_			-		
. •	-						•	-				
					J			-,		-		
	Thermodynamics This course aims to thermodynamic systemalysis (cycle analysis fundamental thermodynamical ther	Thermodynamics None This course aims to compare the thermodynamic systems are constantly in the comprehend the thermodynamic fundamental thermodynamic relations of closed and open systems are constantly in the comprehend the thermodynamic relations of closed and open systems of closed and	Thermodynamics None 3 This course aims to compare the quarthermodynamic systems are constructionally sis (cycle analysis) on the system comprehend the thermodynamic profundamental thermodynamic relations. Fundamental concepts, definition of lanalysis of closed and open systems power cycles, Otto and Diesel cycle cycle. Steam cycles, Rankine cycle, Regenerative Rankine cycles, cogenerative refrigeration cycles, refrigerations and vapor compression refrigerations. Gas a mixtures, dry and atmospheric air, spendiabatic saturation and wet bulb to	Course Title Thermodynamics None This course aims to compare the quality of thermodynamic systems are constructed an analysis (cycle analysis) on the systems property fundamental thermodynamic property fundamental thermodynamic relations. Fundamental concepts, definition of heat an analysis of closed and open systems, basic power cycles, Otto and Diesel cycles. Brocycle. Steam cycles, Rankine cycle, method Regenerative Rankine cycles, cogeneration refrigeration cycles, refrigerators and heat an analysis of closed and pen systems, basic power cycles, Otto and Diesel cycles. Brocycle. Steam cycles, Rankine cycle, method Regenerative Rankine cycles, cogeneration refrigeration cycles, refrigerators and heat an analysis of closed and pen systems, basic power cycles, Otto and Diesel cycles. Brocycles and pen cycles, refrigerators and heat analysis of closed and pen systems, basic power cycles, Otto and Diesel cycles. Brocycles and pen cycles, refrigerators and heat analysis of closed and pen systems are constructed and pen cycles. Brocycles and pen cycles, refrigerators and heat analysis of closed and pen systems.	Course Title Prerequisite Thermodynamics None Compulsory (MR This course aims to compare the quality of energy thermodynamic systems are constructed and used in analysis (cycle analysis) on the systems producing comprehend the thermodynamic property relations fundamental thermodynamic relations. Fundamental concepts, definition of heat and work, analysis of closed and open systems, basic thermodynamic sycles. Steam cycles, Rankine cycles. Brayton cycles cycle. Steam cycles, Rankine cycle, methods to increfrigeration cycles, refrigerators and heat pumps, wapor compression refrigerations. Gas mixtures, ideal mixtures, dry and atmospheric air, specific and relational adiabatic saturation and wet bulb temperature. Pseudoscipulations.	Course Title Prerequisite Cr Lec Tutorial Lab Thermodynamics None 3 2 2 - Compulsory (MR) This course aims to compare the quality of energy in variance thermodynamic systems are constructed and used in the variance to the thermodynamic systems are constructed and used in the variance to the thermodynamic property relations and the fundamental thermodynamic relations. Fundamental concepts, definition of heat and work, proper analysis of closed and open systems, basic thermodynamic power cycles, Otto and Diesel cycles. Brayton cycle, may cycle. Steam cycles, Rankine cycle, methods to increase Regenerative Rankine cycles, cogeneration, combined gas refrigeration cycles, refrigerators and heat pumps, refrigerations, Maxwell relations. Gas mixtures, ideal and mixtures, dry and atmospheric air, specific and relative headiabatic saturation and wet bulb temperature. Psychronical contents are property and atmospheric air, specific and relative headiabatic saturation and wet bulb temperature. Psychronical contents are property and atmospheric air, specific and relative headiabatic saturation and wet bulb temperature. Psychronical contents are property and atmospheric air, specific and relative headiabatic saturation and wet bulb temperature. Psychronical contents are property and atmospheric air, specific and relative headiabatic saturation and wet bulb temperature.	Course Title Prerequisite Contact hours Cr Lec Tutorial Lab Total	Course Title Prerequisite Cr Lec Tutorial Lab Total CW Thermodynamics None 3 2 2 - 4 50% Compulsory (MR) This course aims to compare the quality of energy in various forms, thermodynamic systems are constructed and used in the world and to analysis (cycle analysis) on the systems producing power or heating comprehend the thermodynamic property relations and to calculate fundamental thermodynamic relations. Fundamental concepts, definition of heat and work, properties of gas analysis of closed and open systems, basic thermodynamics cycles. power cycles, Otto and Diesel cycles. Brayton cycle, modifications cycle. Steam cycles, Rankine cycle, methods to increase efficiency Regenerative Rankine cycles, cogeneration, combined gas-power cycrefrigeration cycles, refrigerators and heat pumps, refrigerant type wapor compression refrigeration cycles. Regenerative cycles, Therm relations, Maxwell relations. Gas mixtures, ideal and real gas mixtures, dry and atmospheric air, specific and relative humidity, devaluations and wet bulb temperature. Psychrometric characteristics are specific and relative humidity, devaluations and wet bulb temperature.	Course Title Prerequisite Contact hours Intermodynamics None 3 2 2 2 - 4 50% -	Course Title		

Sophomore LEVEL 100 COURSES												
Code	Course Title	Prerequisite		С	ontact ho	urs			N	/larks		
Code	Course Title	Frerequisite	Cr	Lec	Tutorial	Lab	Total	CW	O/P	FE	Total	
EPE102	Circuits Theory	None	3	2	4	2	5	30	20	50	100	
EPE 102	Circuits Theory	None	っ		I		5	30%	20%	50%	100%	
Catogary	Compulsory (MR)											
Objective	Knowledge of the basic laws, applications and mathematic methods of calculation of											
Objective	electrical engineerin	g										
	Fundamental laws, continuous current, design of networks, electrical and magnetic											
Topics	fields, induction and flow laws, field parameters and interactions, alternating current,											
	single and multi phases systems, behavior of electronic circuits.											

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Sophomor	Sophomore LEVEL 100 COURSES Contact hours											
Code	Course Title	Prerequisite		С	ontact ho	urs			N	Narks		
Code	Course Title	Frerequisite	Cr	Lec	Tutorial	Lab	Total	CW	O/P	FE	Total	
MTE101	Materials	None	3	2	1	2	5	30	20	50	100	
WITETOT	Engineering	None	,		'		J	30%	20%	50%	100%	
Catogary			С	ompu	llsory (FR)						
	Knowledge of the co	onnection be	twee	n the	microstru	icture	of a	mater	ial an	d the	resulting	
Objective	structure and funct	ion properti	es.	Differ	entiation	of t	he ch	aracte	eristic	es of	different	
	materials including	cluding smart materials										
	Atomic structure of industrial materials, lattice structure, mechanical prop											
	electrical propertie	s, thermal	pro	pertie	es, chem	ical	prope	erties,	ma	terial	testing,	
	manufacturing me	thods, mate	rial	dam	age, sta	ndarc	lizatio	n, s	mart	mate	rials in	
.	mechatronics (piezo	electric mate	erials	s, sha	pe memoi	ry all	oys ar	nd po	lymei	s, ele	ctro- and	
Topics	magnetorheological	materials, e	lecti	ochro	omic mate	erials	, sma	rt flu	ids a	nd ge	ls, giant	
	magnetostrictive m	aterials, na	notu	bes,	smart p	aints,	the	more	spons	sive i	norganic	
	materials, ceramics	and electroce	rami	ics).								
	Lap: Mechanical tes	sts; tension, c	omp	ressio	on, bendin	g, to	sion,	impac	t, fati	igue.		

	(Sophomore l	LEV	EL 1	00 COUI	RSES							
Code	Course Title	Prerequisite		С	ontact ho	urs			I	Marks			
Code	Course Title	Frerequisite	Cr	Lec	Tutorial	Lab	Total	CW	O/P	FE	Total		
HUM101	Introduction to law	None	2	2		_	2	50	-	50	100		
HOWITOI	introduction to law	None			-	_		50%	-	50%	100%		
Catogary	Compulsory (UR)												
Objective	Knowledge about th	Knowledge about the law bases, sources and characteristics											
	Law bases and source	ces - General	bas	es, so	urces and	char	acteris	stics c	of the	admii	nistrative		
Topics	Law -public admi	aw bases and sources - General bases, sources and characteristics of the administrative aw -public administration organization - General bases of the administrative											
	<u> </u>												

LEVEL (100) Semester 4

	Sophomore LEVEL 100 COURSES											
Codo	Course Title	Drogowiaita		С	ontact ho	urs			N	Marks		
Code	Course Title	Prerequisite	Cr	Lec	Tutorial	Lab	Total	CW	O/P	FE	Total	
CSE101	Computer	CSE001	2	1	4	2	4	30	20	50	100	
CSEIUI	applications	CSEUUI	4	ı	I		4	30%	20%	50%	100%	
Catogary	Compulsory (FR)											
Objective	Learning skills of programming complex software tools with high level programming											
Objective	languages.										_	
	Overview of diffe	rent progran	nmiı	ng la	nguages,	prog	gramm	ing v	withir	ı C,	efficient	
Tonico	programming, object-oriented programming (for example with JAVA), software design											
Topics	tools.											
	Lab: Computer Lab											

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		Sophomore l	LEV	EL 1	00 COUF	RSES	;					
Codo	Course Title	Droroguioito		С	ontact ho	urs			N	/larks		
Code	Course Title	Prerequisite	Cr	Lec	Tutorial	Lab	Total	CW	O/P	FE	Total	
EMP104	Numerical	CSE101	2	2	4	4	4	30	20	50	100	
EIVIP 104	Techniques	CSETUT	4		I	1	4	30%	20%	50%	100%	
Catogary	Compulsory (MR)											
Objective	Knowledge of the construction and analysis of algorithms for continuous mathematical											
Objective	problems.											
	Improvement, appr	oximation, nu	ımer	ical	solutions	of no	on line	ear sy	stem	s of e	quations,	
Topics	numeric of integral equations, numerical linear algebra, numerical number theory,											
lopics	calculation of eigenvalues, mathematical computer programs (e.g MATLAB)											

	Sophomore LEVEL 100 COURSES Contact hours Marks													
Code	Course Title	Prerequisite		С	ontact ho	urs			N	Narks				
Code	Course Title	Frerequisite	Cr	Lec	Tutorial	Lab	Total	CW						
DPE102	Machine Drawing	DPE·۱۲	3	2		3	5	50	•	50	100			
DPE 102	Machine Drawing	DPE	?		-	3	3	50%	•	50%	100%			
Catogary			(Compi	ulsory (MF	₹)								
Objective	Continuing learning of engineering drawing and descriptive geometry.													
Topics	Introduction to mec and geometrical tol- threaded joints - D keyed, pined and s Applications to ass mechanical drawing	erances – As Prawing of risplined joints sembly and	semivete	bly ar d joit Drawi	nd detaile ts – Drav ing of sp	d drawing wing h	wings of we elical,	– Dra lded j bevel	awing oints and	of sci – Dra warm	rews and awing of gears –			

	;	Sophomore l	LEV	EL 1	00 COUF	RSES)						
Code	Course Title	Prerequisite		С	ontact ho	urs			N	/larks			
Code	Course Title	Frerequisite	Cr	Lec	Tutorial	Lab	Total	CW	O/P	FE	Total		
MPE 104	Introduction to	None	3	2	2		4	50	-	50	100		
WIFE 104	Mechatronics	None	3		4	-	4	50%	-	50%	100%		
Catogary	Compulsory (MR)												
Objective	To learn the basic co	p learn the basic concepts of mechatronics											
	Methodology of ar	alysis and d	lesig	n of	mechatro	onic :	systen	ı, ele	ctron	nechan	ical and		
Tautaa	electromagnetical ad	ctuators, shap	e me	emory	alloys (S	SMA)	, artif	icial r	nuscl	es usii	ng SMA,		
Topics	_	ectromagnetical actuators, shape memory alloys (SMA), artificial muscles using SMA, ezoelectric actuators, pneumatic actuators, electropneumatic systems (FLUID – SIM											
	software), analysis o							•					

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Elective (1) Humanities

	Sop	homore LE	VEI	100	COUR	SES						
Code	Course Title	Prerequisite			ontact ho				N	Narks		
Code	Course Title	rielequisite	Cr	Lec	Tutorial	Lab	Total	CW	O/P	FE	Total	
HUM103	History of Arabian and	None	2	2	_	_	2	50	-	50	100	
HOWITOS	Islamic Civilization	None			-	_		50%	-	50%	100%	
Catogary		University Elective (1) (UR)										
Objective	nowledge of the history of arabian and islamic civilization											
	C	owledge of the history of arabian and islamic civilization ining civilization in general - theories and terminology - Short account of the bic community pre-Islam - setting up the Islamic society -'Its development and										
	• •		_	-						-		
Topics	main 'features - Islamie									-		
. op.oc	values - the basic c	oncepts - t	he	mair	n charac	cteris	tics -	- the	Ara	bian	Islamic	
	achievements in the fie	lds of science	e kn	owle	dge and	cult	ure - t	he Ar	Short account -'Its developmerial concepts the Arabian e Arabian cont	ibution		
	achievements in the fields of science knowledge and culture - the Arabian contribution to the world. civilization an human progress - the contemporary Arab -Islamic World											

	Sophomore LEVEL 100 COURSES												
Code	Course Title	Prerequisite		C	ontact ho	ours				Marks			
Code	Course Title	Frerequisite	Cr	Lec	Tutorial	Lab	Total	CW	O/P	FE	Total		
HUM104	Geography of Mankind	None	2	2		l _	2	50	-	50	100		
HOWITU4	& Environment	None			-			50%	-	50%	100%		
Catogary		University Elective (1) (UR)											
Objective	Knowledge of the geog	nowledge of the geography of mankind & environment											
	Environment of the co	ntemporary 1	nan	- the	e role of	f ma	n in c	hangi	ng th	ne envi	ironment		
-	Environment of the contemporary man - the role of man in changing the environment Analytical studies for models of the environment - some environmental problems -												
Topics	overpopulation and fo	repropulation and food shortage -'Pollution - depletion of the natural resources -											
	desertification.												

	Sophomore LEVEL 100 COURSES												
Codo	Course Title	Droroguioito		C	ontact ho	ours			N	/larks			
Code	Course Title	Prerequisite	Cr	Lec	Tutorial	Lab	Total	CW	O/P	FE	Total		
HUM102	Human Resources	None	2	2			2	50	-	50	100		
HUWITUZ	Management	None			-	-		50%	-	50%	100%		
Catogary		University Elective (1) (UR)											
Objective	Knowledge of the huma	nowledge of the human resources management.											
	Activities of HR mana	gement - HR	pla	nnin	g: Job a	nalys	sis, De	emanc	l for	HR, S	upply of		
Tonico	HR - Staffing: Recru	R – Staffing: Recruitment, Selection – Training and development – Performance											
Topics	Appraisal – Compensa	Appraisal – Compensation: Type of equity, Designing the pay structure, Employee											
	benefits – Labor/manag	gement relation	ns -	- Mo	tivation	- Lea	adersh	ip – (Comn	nunica	tion.		

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Faculty of Engineering

	Sophomore LEVEL 100 COURSES													
Code	Course Title	Prerequisite			ontact ho				N	/larks				
Code	Course Title	Frerequisite	Cr	Lec	Tutorial	Lab	Total	CW	O/P	FE	Total			
HUM105	Introduction to Logic	None	2	2	_		2	50	-	50	100			
HOWITOS		- - - 50% - 50% 100%												
Catogary		University Elective (1) (UR)												
Objective	Knowledge of the logic	and relation	witl	h the	other sc	ience	es							
	Definition of logic and	its relation w	ith 1	he o	ther scie	nces	– type	es of v	ariou	ıs dedi	actions -			
Topics	modern Logic and the v	odern Logic and the various methods of research - Mathematical Logic –prepositional,												
	relationships, form and	ationships, form and predicate Logic.												

Sophomor	e LEVEL 100 COU	RSES											
Code	Course Title	Broroguicito		С	ontact hou	urs			N	/larks			
Code	Course Title	Prerequisite	Cr	Lec	Tutorial	Lab	Total	CW	O/P	FE	Total		
DPE103	Stress Analysis	MTE101	3	2	2	_	4	50	-	50	100		
DPE103	Oliess Alialysis	WITETOT	3		2	-	4	50%	-	50%	100%		
Catogary			С	ompu	llsory (MR)							
Objective	Knowledge about st	lowledge about stress analysis under different loadsfor different mechanical elements											
Objective	and failure theories.												
	Stress-strain relati	onship and	Hoo	k's la	aw – Axi	al st	resses	s – To	orsio	nal st	resses –		
	Bending stresses is	-											
Topics	 Combined stres 									-			
•	Introduction to thermal stresses and the generalized Hook's law – Failure theories												
	and their application	ons. Deflecti	on i	n bea	ıms.								
	11												

Sophomor	e LEVEL 100 COU	RSES										
Code	Course Title	Prerequisite		С	ontact ho	urs				Vlarks		
Code	Course Title	Prerequisite	Cr	Lec	Tutorial	Lab	Total	CW	O/P	FE	Total	
EPE101	Electrical systems	None	2	1	2	_	3	50	-	50	100	
	Licetifical Systems	HOIIC		·	_			50%	-	50%	100%	
Catogary			C	ompu	ılsory (FR)						
Objective	Knowledge of the d	ifferent types	s of	electr	ical mach	ines,	DC n	nachir	ies, a	nd ste	ady state	
Objective	performance charact	nteristics, tes	ting	of all	types of I	OC m	achine	es.				
	Magnetic circuit analysis - types of DC generators - construction - theory of operation -											
	steady state performance characteristics - types of DC motors - construction - theory of											
	operation - torque and EMF equations - motor characteristics - starting - speed control -											
	braking - testing of a	all types of D	C m	nachir	es - singl	e-pha	se tra	nsforr	ners -	- const	truction -	
	theory of operation	- transforma	tion	ratio	s of volta	ge an	d cur	rent -	equi	valent	circuit -	
Topics	phasor diagram - lo					_			-			
	operation of trans		•			•		•		•	-	
	transformers - basic										_	
	performance analysis - parallel operation of generators - types of starters - testing of DC											
	machines - special D	OC machines										

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LEVEL (200) Semester 5

Faculty elective (1)

Junior LE	EVEL 200 COURSE	S										
Code	Course Title	Duomoguigito		(Contact hou	ırs			I	Marks		
Code	Course Title	Prerequisite	Cr	Lec	Tutorial	Lab	Total	CW	O/P	FE	Total	
CUE208	Engineering Project	None	2	2			2	50	-	50	100	
CUE208	Management	None		L	•	-	2	50%	-	50%	100%	
Catogary	Faculty Elective (FR)											
Objective	Competence to plan	, lead and su	cces	sfully	close pro	jects						
Topics	Project management models, human reson	*		1 3	ects, time	etable	e, cos	t plar	nning	, man	agement	

Junior LE	VEL 200 COURSE	S									
Code	Course Title	Duonoguigito		(Contact hou	ırs			I	Marks	
Code	Course Title	Prerequisite	Cr	Lec	Tutorial	Lab	Total	CW	O/P	FE	Total
INE208	Quantitative Methods	None	2	2	_	_	2	50	-	50	100
	in Engineering						_	50%	-	50%	100%
Catogary			Fa	culty l	Elective (Fl	R)					
Objective	 To understand definition, scope, objectives, phases, models & limitations of operations research. To understand different application areas of operations research like transportation problem, assignment model, sequencing models, dynamic programming, game theory, replacement models & inventory models. Formulate simple reasoning, learning and optimization problems, in terms of the representations and methods presented. 										
Topics	Historical study of operation research. Linear Programming: Methods to solve LP models. The simplex methods: Degeneracy and cycling. Artificial variables. Further topics in linear programming: Duality. The dual simplex method. Sensitivity analysis. Methods of solving transportation and assignment problems. Game theory. Network analysis. Solution of CPM and PERT problems by mathematical methods and using CP model queuing theory.										

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Junior LE	VI	EL 200 COURSE	$\overline{\mathbf{S}}$											
Codo		Course Title	D		(Contact hou	ırs			ľ	Marks			
Code		Course Title	Prerequisite	Cr	Lec	Tutorial	Lab	Total	CW	O/P	FE	Total		
		Environmental							50	-	50	100		
ENE202		Evaluation of	None	2	2	-	-	2	50%	_	50%	100%		
Cotossan	E	ngineering Projects		E a	14 1	Tlastina (EI	2)							
Catogary	C/	141. 111.	. 1. 1	ra	cuity i	Elective (FI	()							
	St	udents should be					_	_	_					
	•	Effectively use	basic engine	ering	g ecoi	nomics to	ols to	o eval	luate	majo	r infra	structure		
		projects.	ojects.											
	•	Understand when to complement this basic analysis with more sophisticated tools.												
Objective	•	Critique the process used to evaluate typical infrastructure projects.												
Je sage early e	•	Understand a broad range of project types of relevance to Civil and Environmental												
		Engineering and	related field	s.										
	•	Understand some	e ways in wh	ich p	orojec	t perform	ance	can be	e meas	sured	and ir	nproved.		
	•	Understand the r	-	_	-	_								
	Do an end-to-end project evaluation.													
	Th	is course covers	methodologi	es fo	or eva	luating e	ngine	ering	proje	cts, v	vhich	typically		
	This course covers methodologies for evaluating engineering projects, which typically are large-scale, long-lived projects involving many economic, financial, social, and													
Topics	environmental factors. Students learn the basic techniques of engineering economics,													
	ino	including net present value analysis, life-cycle costing, benefit-cost analysis, and other												
	ap	proaches to projec	t evaluation.											

Sophomore LEVEL 100 COURSES													
Codo	Course Title	Droroguioito		С	ontact hou	urs			N	/larks			
Code	Course Title	Prerequisite	Cr	Lec	Tutorial	Lab	Total	CW	O/P	FE	Total		
DPE203	Theory of Machines	DPE101	2	2	2		4	50	•	50	100		
DPE203	and mechanisms												
Catogary		Compulsory (MR)											
Objective	Knowledge about the theory of machines. Basic terms and definitions for rotation scenes.												
	Machine kinematics, position and displacement, velocity and acceleration; static and												
Topics	dynamic forces, Cam profile and cam design, gears and gear train, balance of rotating												
	reciprocating masses, flywheels.												

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	Junior LEVEL 200 COURSES												
Codo	Course Title	Droroguioito		С	ontact hou	urs			N	/larks			
Code	Course ritte	Prerequisite	Cr	Lec	Tutorial	Lab	Total	CW	O/P	FE	Total		
MPE201	Eluid Machanias	DPE101	3	2	2	4	5	30	20	50	100		
WIPEZUI	Fluid Mechanics	30% 20% 50% 100%											
Catogary	Compulsory (MR)												
Objective	Knowledge about fluidic streams and their properties												
	Definition and prope	Definition and properties of fluids, mass transfer, laminar and turbulent streams, friction,											
Topics	measurement technologies, aerodynamic, hydrostatic, conservation equations.												
Topics	Lap: Linear Momentum. The Energy Equation in a Venturi-Type Flow; Friction in												
	Laminar and Turbul	Laminar and Turbulent Pipe Flow; The Hydraulic Jump											

	Junior LEVEL 200 COURSES												
Codo	Course Title	Dravaguiaita		С	ontact ho	urs				Marks			
Code	Course Title	Prerequisite	Cr	Lec	Tutorial	Lab	Total	CW	O/P	FE	Total		
ECE201	Electronics	None	3	2	1	2	5	30	20	50	100		
LOLZUI	Engineering	None	,	_	,			30%	20%	50%	100%		
Catogary			C	Compu	ulsory (MF	₹)							
Objective	Knowledge about con	nponents and s	truct	ure of	semicondo	uctor	materi	als					
Topics	Semiconductor materi P-n Junction the curr phenomena. p-n junction Transistor BJT: generand small signal model Transistor FET: generand small signal in the control of the current of the control of the current of the	rents compone ion circuit and ral structure, o el), application eral structure, model), applic general str l signal model ement devices ode application	ents its a perants ope ation uctur), app calibras, ze	(drift pplication, contact on the praction of the praction of the practical of the practica	and diffusitions. haracterist , character eration, cl ons a, Oscilloso	sion), ic and ristic haract	diffus I mode and m eristic and its	ion call, the odel, and	apacita equiva the eco model	nlent ci quivale l, the	rcuits (DC nt circuits equivalent asurement		





		Junior LE	VEL	200	COURSE	S								
Code	Course Title	Prerequisite		С	ontact hou	urs				Marks				
Code	Course Title	Frerequisite	Cr	Lec	Tutorial	Lab	Total	CW	O/P	FE	Total			
INE202	Engineering	None	2	2	_	_	2	50	-	50	100			
	Statistics - - 50% - 50% 100%													
Catogary			C	ompu	ulsory (FR)								
	By the end of the co	ourse, the stu	dent	s will	be able to):								
	1. Demonstrate the	ability to app	oly f	undar	nental con	cepts	s in ex	plorat	tory d	lata an	alysis			
	2. Design studies for obtaining data whilst avoiding common design flaws that													
	bias, inefficiency and confounding													
Objective	3. Understand the concept of the sampling distribution of a statistic, and in particular													
1	describe the behavior of the sample mean.													
	4. Apply inferential methods relating to the means of normal distributions.													
	5. Demonstrate an			-										
										(A).				
	6. Interpret and ana	ryses data th	at in	ay be	aispiayea	ın a	ιwo—	-way t	abie					
	Introduction to des	criptive stat	istics	s, the	ory of ce	entral	tend	ency.	prob	ability	theory,			
	random variables,	-			•			•	-	-	-			
Topics	estimation method													
	correlation analysis,					_								
	corretation analysis,	unui y Sis Oi	uila	1100, a	ina statisti	cui u	PPIICA	tion n	ii ciig	11100111	15			

	Junior LEVEL 200 COURSES											
Code	Course Title	Prerequisite		С	ontact ho					Marks		
Code	Course ritte	Frerequisite	Cr	Lec	Tutorial	Lab	Total		O/P	FE	Total	
DPE204	Manufacturing	DPE001	3	2	2	_	4	50	-	50	100	
	processes		Ľ					50%	-	50%	100%	
Catogary				•	sory (MR)							
Objective	Learning the different	manufacturi	ng te	echnic	jues.							
Topics	Examination of metal cutting processes including turning, shaping, drilling and milling. Mechanics of cutting, chip formation, shear plane, velocity relations, merchant circle, tool material, tool wear, tool life, economy in metal cutting. Casting: Types of foundries, steps in making a casting; cast metals; types, materials and allowances of patterns; moulding processes and materials; gating and risering; casting defects. Forming: Metal forming process classification, basic metal working concepts and plasticity; yield criterion; slip line fields; estimation of force and energy requirements; technology of bulk and sheet metal forming processes; precision forming processes;											
	features of different ty Welding: Welding procoatings; weldability characteristics of weld Course project.	pes of metal occesses; welco	fornding ding	ning o energ of	lies; princ y sources various	ciples and meta	of por their of the an	wder i charac	formi terist	ng. tics; fl	uxes and	

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Elective (2) Humanities

Elective														
		Junior LE	VEL	200	COURSE	S								
Codo	Course Title	Droroguioito		С	ontact hor	urs			M	Marks				
Code	Course Title	Prerequisite	Cr	Lec	Tutorial	Lab	Total	CW	O/P	FE	Total			
HUM 201	Introductory Mass	None	2	•			2	50	-	50	100			
HUW 201	Communication	None	- - - 50% - 50% 100%											
Catogary		University elective (2) (UR)												
Objective	Knowledge of the ma	Knowledge of the mass communication.												
	General introduction-	General introduction- concept of Mass Communication- history of Mass Communication-												
		<u> </u>												
Торісз	structure of the functions of Mass Communication - mass media and technology- E and traditions of Mass Communications.										/- Lu			

		Junior LE	VEL	200	COURSE	S						
Codo	Course Title	Droroguioito		С	ontact hor	urs			N	/larks		
Code	Course Title	Prerequisite	Cr	Lec	Tutorial	Lab	Total	CW	O/P	FE	Total	
HUM 202	Introductory	None	2	2	_	_	2	50	-	50	100	
110111 202	Sociology				_			50%	-	50%	100%	
Catogary		Ur	niver	sity el	ective (2)	(UR)						
Objective	Knowledge of the bas	ic concept of	soc	iology	<i>/</i> .							
	Community - Social	relations -	prim	ary a	nd second	dary	group	s - N	Iodel	s .of	topics in	
Topics	Sociology - the soci											
curricula and tools in Sociology - Surveys in Sociology.												
	Junior LEVEL 200 COURSES											
					ontact ho					/larks		
Code	Course Title	Prerequisite	Cr Lec Tutorial Lab To					CW	O/P	FE	Total	
	History of Ancient							50	-	50	100	
HUM 203	Egypt	None	2	2	-	-	2	50%	-	50%	100%	
Catogary		Ur	niver	sity e	ective (2)	(UR)	•					
Objective												
-	Earth: natural resources and wealth - bases and nature of the Egyptian history - Stone ages											
	(ancient medieval and modern) prehistoric age - Ancient state - the first medieval age -											
Topics												
. 00.00	medieval age - the second medieval age - modern state - the third medieval age - the late											
100100	medieval age - the se periods of independer		ai ag	ge - m	iodern sta	te - t	he thi	rd me	dieva	l age	- the late	

	Junior LEVEL 200 COURSES												
Codo	Course Title	Droroguioito		С	ontact hor	urs			M	/larks			
Code	Course Title	Prerequisite	Cr	Lec	Tutorial	Lab	Total	CW	O/P	FE	Total		
LILIM 204	Introductory	None	2	2	- 2 50 - 50								
HUM 204	Psychology	None			-	-		50%	-	50%	100%		
Catogary		University elective (2) (UR)											
Objective	To learn the basic co	oncepts of psyc	cholo	ogy.									
Topics	1	ature of psychology - motives - emotions - attitudes depression, and personal stress - nscientiousness and psychotherapy - recall and forgetfulness.											

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LEVEL (200) Semester 6

		Junior LE	VEL	200	COURSE	S							
Code	Course Title	Proroquicito		С	ontact ho	urs				Marks			
Code	Course ritte	Prerequisite	Cr	Lec	Tutorial	Lab	Total	CW	O/P	FE	Total		
INE207	Engineering	None	2	4	2		3	50	100				
INEZUI	Economy	None	4	ı	2	-	3	50%	-	50%	100%		
Catogary	Compulsory (FR)												
Objective	To learn the basic cor	cepts of engi	neeı	ring e	conomics.								
	Engineering economic	ics – Supply	, De	emano	d and Pro	ducti	on -	Cost	and (Compe	etitions -		
Topics	Value Engineering-	Alternative A	Anal	ysis -	-General	accou	ınting-	Cost	acco	unting	- Time		
	Value of money - Bal	ance sheet –	Dep	reciat	ion-Invest	ment	Evalu	ation	•				

	Code Course Title Prerequisit C Lec Tutorial Lab Tota C C C C C C C C C												
		Broroguicit		C	ontact ho	urs				Mark	S		
Code	Course Title			Lec	Tutorial	Lab	Tota I	cw	CW O/P FE 50 - 50 50% - 50% reuits. etor circuits and expression circuits when a circuits and expression circuits are expression circuits.	Total			
ECE202	Electronic Circuite	ECE201	0	2	2		4	50	-	50	100		
ECE202	Electronic Circuits	ECEZUI	,				4	50%	-	50%	100%		
Catogary													
Objective	Knowledge about the design and components of electronic circuits.												
Tonics	Controlled sources, points, low level sign and bipolar transist diagram, operation sinks.	gnal descrip ors, logic o	tion com	s and	l equivalents, frequ	ent c iency	ircuit atte	s, bas nuati	sic ci	rcuits ircuits	with FETs and Bode		

	,	Sophomore 1	LEV	EL 1	00 COUF	RSES)					
Code	Course Title	Prerequisite		С	ontact ho	urs			N	Marks		
Code	Course Title	Frerequisite	Cr	Lec	Tutorial	Lab	Total	CW	O/P	FE	Total	
DPE202	Machine elements	DPE102&	3	2	3	_	5	50	-	50	100	
DFLZUZ	Design	DPE103	J		J	_	3	50%	-	50%	100%	
Catogary			С	ompu	Isory (MR)						
Objective	Knowledge about d	ifferent macl	hine	elem	ents, their	app	licatio	n and	met	hods o	of design	
Objective	under different statio	der different static and fatigue loads.										
	Fundamentals of machine design – Fits and tolerance, geometrical tolerances and											
	machine marks –	Design con	side	ratio	ns: desig	n cri	iteria,	selec	ction	of m	aterials,	
	dimensions and sh	_			_							
Topics	for statis loads –	Design for	dyı	namio	loads a	ind f	atigue	e stre	ngth	- De	esign of	
	riveted joints - De	esign of pov	wer	screv	vs and th	read	led jo	its –	Desi	gn of	welded	
	joints - Design o	f helical ar	nd le	eaf s	prings –	Des	ign o	f shr	ink-f	itted	joints –	
	Design of axles an	d shafts for	strei	ngth,	rigidity a	and c	ritical	spee	d des	sign c	riteria	

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	Junior LEVEL 200 COURSES											
Code	Course Title	Prerequisite		С	ontact ho				N	/larks		
Code	Course Title	Frerequisite	Cr	Lec	Tutorial	Lab	Total		O/P	FE	Total	
DPE201	Mechanical Vibrations	EMP101 & DPE101	3	2	1	2	5	30 30%	20 20%	50 50%	100 100%	
Catogary			Co	mpul	sory (MR)							
Objective	Knowledge of Mechai	nical Vibration	ons a	and N	oise							
Topics	Introduction and defin of Single DOF system Free and forced vibrate absorbers, Continuous shapes, Vibrations mustudies. Course project Lab.: 1- Practice on simulating and Lab view Pace 2- Use of compute Phenomena, base 3- Practice on Vibrate Accelerometers, such as the Practice on Vibrate 5- Practice on vibrate 6- Computer Orienter of Single Position o	ns, Harmonic tions of two s systems, M easurement of t. ation and ani- ekages. er graphics excitation, e- ration measures strain gauges, ion absorbers on Isolation.	e and - DC Iulti meth mati for tc. uring et	on of instrict.	eral forced tems, Vib DF system Application Mass - Sp mation of ruments:	d vibrorations and on of pring of Ro Excitation.	rations n cont l natur comp - Dan esonar	s of S rol m ral fre outer nper S nce I	ingle ethod equen simul Syster	DOF s and cies a ation m usin ency,	systems, vibration nd mode and case g Matlab Beating	

		Junior LEV	VEL	200	COURSE	CS						
Code	Course Title	Prerequisite		С	ontact ho	urs			N	/larks		
Code	Course Title	Frerequisite	Cr	Lec	Tutorial	Lab	Total	CW	O/P	FE	Total	
MPE202	Heat and Mass	MPE102	3	2	1	2	5	30	20	50	100	
WIF LZUZ	Transfer	IVIFLIUZ	J				3	30%	20%	50%	100%	
Catogary			Co	mpul	sory (MR)	1						
Objective	To learn the fundame	ntals of heat t	rans	fer m	ethods							
	Introduction to heat transfer - Heat Transfer Modes - Introduction to conduction heat											
	Transfer- One dimensional conduction - Two dimensional conduction - Transient											
	conduction - Introdu	ction to conv	vecti	on he	eat transfe	er - I	Extern	al flo	w -]	Interna	al flow -	
	Natural convection -	Empirical rel	atior	ns for	convectiv	ve he	at tran	sfer c	oeffic	cient F	Radiation	
Topics	heat transfer - Introdu	ction to heat	excl	nange	rs.							
	Lab.: Determination	of Thermal (Conc	luctiv	ity of a N	I etal	Rod.	Deter	mina	tion o	f Overall	
	Heat Transfer Coef	ficient of a	a Composite wall. Determination of Heat Transfer									
	Coefficient in a free	Convection.	Dete	rmina	ition of H	eat T	ransfe	er Coe	efficie	ent in	a Forced	
	Convention Flow thro	ough a Pipe. I	Detei	mina	tion of En	nissiv	ity of	a Sur	face.			

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Faculty of Engineering

		Senior 1 LE	VEI	300	COURS	ES							
Code	Course Title	Prerequisite	Cr	С	ontact ho	urs			N	/larks			
Code	Course Title	Frerequisite		Lec	Tutorial	Lab	Total	aits circuits, less for digit D), Applic	O/P	FE	Total		
CSE 202	Digital Logic Design	ECE201	3	2	4	1	4	30	20	50	100		
C3L 202	(DLD)	LCL201	7		•	•	-	30%	20%	50%	100%		
Catogary			Co	mpul	sory (MR)	ı							
Objective	Knowledge about the components and the design of digital circuits												
	Basic logic circuits					-							
	components: flip-flop	os, logic gat	es, o	classi	cal desigi	n me	thods	for c	ligital	l logic	e, digital		
Topics	hardware: Complex	Programma	ble	Logi	ic Devic	es (CPLD), A	pplica	ation	Specific		
Topics	Integrated Circuits (A	SIC), Field F	rogi	amm	able Gate	Arra	ys (FP	GA),	Basic	es of s	tructured		
	hardware design, intr	oduction in	hard	lware	descripti	on la	nguag	es (F	IDL),	synth	esis and		
	simulation, realisation	and test, HI	DL e	xamp	les (VHD	L, Ve	erilog)						

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LEVEL (300) Semester 7

		Senior 1 LE	VE	L 300	COURS	ES						
Codo	Course Title	Droroguioito		С	ontact hor	urs			M	Marks		
Code	Course Title	Prerequisite	Cr	Lec	Tutorial	Lab	Total	CW	O/P	FE	Total	
MPE308	Measurements &	MPE201	2	2	_	2	4	30	20	50	100	
MIPESUO	Instrumentation	WIFEZUI	4		-		4	30%	20%	50%	100%	
Catogary	Compulsory (MR)											
Objective	Skill to implement	Skill to implement measurement- technology methods during experiments and in										
Objective	industrial applications	S.							•			
	Test readings, errors, measurement of electrical and non-electrical quantities, movements,											
Topics	bridges, compensator	ridges, compensators, time and value discretization, sampling, industrial analog-digital										
	converters, digital sys	tems, softwa	re.									

		Senior 1 LE	VEI	300	COURS	ES					
Code	Course Title	Prerequisite		С	ontact ho	urs			N	Marks	
Code	Course Title	Prerequisite	Cr	Lec	Tutorial	Lab	Total	CW	O/P	FE	Total
CSE301	Microprocessors	essors ECE202 2 - 1 3 30 20					e C, instruction process gramming and contract the state of the state	50	100		
COLOUI	Microprocessors	LCL202				•	, , , , , , , , , , , , , , , , , , ,	30 20 50 30% 20% 50% C, instruction laprocess peripher ramming, IOs and construction	100%		
Catogary			Co	mpul	sory (MR)	1					
Objective	Microcontroller, type	s, programm	ing a	and de	esign						
Topics	a- Microprocessors: Architecture of the memory management mechanism interrupt be Microcontrollers: Definition of microcomicrocontroller- The Programming environ	, process manandling, system controller and construction	inago tem :	ement interfa	et, virtual in aces, asserted Syster	memo mblei ms –	ories, prog	proce ramm and	ess pe ing, I cons	ripher Os tructio	y, safety on of the

Engineering Elective (1)

	Senior 1 LEVEL 300 COURSES Contact hours Marks												
Codo	Course Title	Droroguioito		С	ontact ho	ours			M	arks			
Code	Course Title	Prerequisite	Cr	Lec	Tutorial	Lab	Total CW 50 50% R) Fuels for ICE on Knock and leat Loss Throitens	O/P	FE	Total			
MPE309	Internal Combustion	Level 300	٣	2	¥		50	-	50	100			
WPE309	Engines	Level 300	,		,	•	-	50%	-	50%	100%		
Catogary		Engineering Elective (1) (MR)											
Objective	Knowledge about internal combustion engines.												
	Reciprocating ICEs: Theoretical Air and Gas Cycles, Fuels for ICE, Admission and												
	Compression, Combustion	on Process i	n I	CE,	Combus	tion	Knoc	k an	d Kr	nock	Rating,		
Topics	Expansion and Exhaust, 1										_		
	Piston, Performance, Emi	ssion, Engine	sys	stems	Design.	Gas	Turbi	ne Po	wer U	Jnits.	Special		
	Design Engines.	<u> </u>	•		C						-		

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		Senior 1 LE	VEI	L 300	COURS	ES							
Code	Course Title	Prerequisite		С	ontact ho	urs			M	/larks			
Code	Course Title	Frerequisite	Cr	Lec	Tutorial	Lab	Total	CW	O/P	FE	Total		
MPE310	Banawahla Enargy	MPE101&	3	2	2		4	50	-	50	100		
MIPESTO	Renewable Energy	LEVEL300	3		2	-	4	50%	-	50%	100%		
Catogary	Engineering Elective (1) (MR)												
Objective	Knowledge of types a	nowledge of types and concepts of renewable energy systems											
	Solar energy engineer	ring (convers	ion	systei	ns to elec	trical	energ	gy, co	nvers	ion sy	stems to		
Tonico	heat energy by centra	eat energy by central reciver, heat conversion systems, heat storage systems) - Wind											
Topics	Energy engineering												
	machines, Types of ho	orizontal and	vert	ical a	xis) – geo	thern	nal en	ergy e	ngine	ering.			

	Se	nior 1 LEVI	EL 3	300 C	OURSE	S									
Code	Course Title	Prerequisite		С	ontact ho	ours			M	/larks					
Code	Course Title	Frerequisite	Cr	Lec	Tutorial	Lab	Total	CW	O/P	FE	Total				
INE 301	Manufacturing	Lovel 200	٥	2	2		4	50	-	50	100				
INE 301	Management	Management Level 300 3 2 2 - 4 50% - 50% 100%													
Catogary	Engineering Elective (1) (MR)														
Objective	Knowledge about the plan	nning of manu	ıfac	turing	gprocess	es, ar	ıd qua	lity as	spects	3					
Topics	Production planning and control, systematics, standardization, quality planning, quality														
Торгоо	guidelines and standards	ontrol, quality assurance, quality improvement, computer-aided quality management, uidelines and standards													

	Senior 1 LEVEL 300 COURSES Contact bours Marks												
Code	Course Title	Prerequisite		С	ontact hor				N	/larks			
Code	Course Title	Frerequisite	Cr	Lec	Tutorial	Lab	Total	CW	O/P	power elector semicond power coverters, single theories see Semicond Three condulation of the power and the power see Semicond theories see Semicondulation of the power see Semicondulation of the po	Total		
EPE 302	Power electronics	ECE 201	3	2	1	1	4	30	20		100		
	1 OWER CICOLIONIOS	LOL 201			•	•	•	30%	20%	50%	100%		
Catogary		Compulsory (MR)											
Objective	Knowledge about pow	er electronic i	netw	ork de	esign, mult	ti pha	se sys	tems a	ınd po	wer el	lectronic		
Objective	control systems												
	Basics of power elect		-	_			_				· ·		
	center circuits, bridge circuits, commutation procedures, load versions, power converter transformations, direct converters, reverse converters, net controlled converters, single and												
	transformations, direct converters, reverse converters, net controlled converters, single ar multi quadrant controllers, current and voltage indirect converters, control theories, EM												
	_	llers, current	and	volta	age indire	ct co	nverte	rs, co	ntrol	theori	es, EMC		
	problems.												
	Lab.:												
Topics	Characteristics of Thy	ristors and T	riacs	. Exp	erimentat	ion o	n Sing	de - P	hase	Semic	onverters		
	and Full Converters	Feeding R	Resist	tive	Loads. E	xperi	menta	tion	on T	`hree	- Phase		
	Semiconverters and F	ull Converte	rs Fe	eeding	g Resistive	e Loa	ads. P	ower	Facto	r Imp	rovement		
	Using Extinction Ang	gle, Symmet	rical	Ang	le and Pu	ılse -	Wid	th - 1	Modu	lation	Control.		
	Experimentation on Si	ngle - Phase a	and T	hree	- Phase A	C Swi	itches.	Expe	rimen	tation	on Step -		
	Down and Step - Up C	hoppers with	RL :	Loads	. Experim	entati	on on	Single	e - Ph	ase an	d Three -		
	Phase Inverters. Chara	cteristics and	Spec	ed Cor	ntrol of a I	OC M	otor F	ed by	Bridg	ge Rec	tifier.		

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	Senior 1 LEVEL 300 COURSES												
Code	Course Title	Prerequisite		С	ontact hou	urs			N	/larks			
Code	Course Title	rierequisite	Cr	Lec	Tutorial	Lab	Total	CW	O/P	application applic	Total		
DPE 301	Mechanical	DPE202	3	2	2	_	4	50	•	50	100		
DPE 301	Systems Design	DPEZUZ	3		2	•	4	50%	•	50%	100%		
Catogary	Compulsory (MR)												
Objective	Knowledge about different mechanical systems, its components, application and												
Objective	Knowledge about different mechanical systems, its components, application methods of design under different static and fatigue loads.												
	Fundamentals of p	ower transm	nitio	n ele	ments de	sign	– Des	ign o	f rol	ling b	earing –		
	Design of sliding	bearing – I	Desi	gn of	rigid an	d fle	exible	cour	oling	s - D	esign of		
Topics	brakes and clutches - Design of flat and V belts – Design of sprockets and chains												
	Design of spur, h	_				υ.	Total CW O/P FE 1 4 50 - 50	a chamb					

	Senior 1 LEVEL 300 COURSES													
Code	Course Title	Prerequisite		С	ontact ho	urs			N	Marks				
Code	Course Title	Frerequisite	Cr	Lec	Tutorial	Lab	Total	CW	O/P	FE	Total			
DPE 302	Mechatronics	ECE 201 &	3	2	2		4	machines systems - demonstra V - Model as a model and proceed approaches. Too ction stages eg. (AS, a techniques: i.e.: car	100					
DPE 302	Systems Design	DPE202	3		4	-	4	30%	20%	50%	100%			
Catogary			Co	ompul	sory (MR)									
Objective	To learn about classif	learn about classification, operation and principle of fluid machines												
	Introduction to design and development of mechatronics systems - demonstration of													
	problem solving tech	niques as a	ma	cro ci	rcle - pre	esent	a V	- Mo	del a	s a m	odel for			
	mechatronics machin	es developm	ent	- Inte	egration b	etwe	en V	- Mo	del a	and pr	oduction			
Topics	techniques for mech	atronics ma	chin	es -	Innovativ	e thi	nking	appı	roach	es. To	ools and			
	packages software us	ed in the cor	ncep	tual d	Tutorial Lab Total CW O/P FE Total 2 2 - 4 30 20 50 100 30% 20% 50% 100 20% 50% 50% 100 20% 50% 50% 50% 50% 50% 50% 50% 50% 50% 5	Matlab,								
	Openmodelca, Labvie	ew, etc.) - va	ariou	ıs exa	imples in	desig	gn tec	hniqu	es: i.	e.: car	braking			
	system, painting system	m, undergro	ground suspension system, etc. – Course mini projects											

Elective (3) Humanities

	Senior 1 LEVEL 300 COURSES													
Codo	Course Title	Droroguioito		С	ontact hou	urs			M	Marks				
Code	Course Title	Prerequisite	Cr	Lec	Tutorial	Lab	Total	CW	O/P	FE	Total			
HUM 303	Scientific Research	None	2	2			2	50	-	50	100			
HOW 303	Methods	ethods 50% - 50% 100%												
Catogary		University elective (3) (UR)												
Objective	To learn about Scienti	ific Research	Met	thods										
	Setting up, developme	ent and meth	ods	of sci	entific thi	nking	- Sci	entific	c Res	earch o	curricula			
Topics	and tools - Selecting	d tools - Selecting and developing topics - deducing results - Methods of gathering and												
·		senting data - methods of using the library - Report writing.												

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	Senior 1 LEVEL 300 COURSES												
Codo	Course Title	Droroguioito		С	ontact hou	urs			N	/larks			
Code	Course ritle	Prerequisite	Cr	Lec	Tutorial	Lab	Total	CW	O/P	FE	Total		
HUM 301	Seminar 1	None	2	2			2	50	-	50	100		
HOW 301	Seminar i	None		_	-	•	_	50%	-	50%	100%		
Catogary		University elective (3) (UR)											
Objective	To learn about charac	earn about characteristics of good seminar presentation.											
	Talks and presentation	ns are invited	l fro	m ind	ustrial est	ablisl	nment	s rele	vant t	o the p	orogram.		
Tanias	The guest speaker she	ould discuss	the	organ	ization, m	nanag	ement	, and	recei	nt tech	nologies		
Topics	implemented in his/h	er industrial	esta	blishn	nent. Stud	lents	exerci	se wr	iting	brief t	technical		
	reports on the guest pr	orts on the guest presentation and deliver their own presentation about the topic.											

	Senior 1 LEVEL 300 COURSES													
Codo	Course Title	Droroguioito		С	ontact ho	urs			N	Marks				
Code	Course Title	Prerequisite	Cr	Lec	Tutorial	Lab	Total	CW	O/P	FE	Total			
HUM 304	Introductory	None	2	2			2	2 50 - 50 100 50% - 50% 100% ace in practical life - Bases and recall - intelligence and Psychology in the fields adividual and, his profession	100					
HUW 304	Industrial Psychology	None	4		-	-			100%					
Catogary		University elective (3) (UR) arn an Introductory Industrial Psychology												
Objective	To learn an Introducto	learn an Introductory Industrial Psychology												
	Definition of fields ar	nd aims of Ps	sych	ology	and its ir	nport	ance i	n pra	ctical	life -	Bases of			
	human behaviour and	iman behaviour and motives - conscientiousness, learning. and recall - intelligence and							2 - 2 50 - 50 100 resity elective (3) (UR) ychology hology and its importance in practical life - Bases accientiousness, learning. and recall - intelligence a Applying principles of Psychology in the fields wenience between the individual and, his profession					
-							_			_				
Topics														
	Analyzing work - Selecting the individual - Industrial training and its Psychological bases													
	- Group interaction wi	thin the Indu	ıstria	ıl orga	anizations									

	Senior 1 LEVEL 300 COURSES Contact hours Marks											
Code	Course Title	Proroquisito		С	ontact ho	urs			N	Marks		
Code	Course Title	Frerequisite	Cr	Lec	Tutorial	Lab	Total	CW	O/P	FE	Total	
HUM 305	Introductory	None	2	2			2	50	•	50	100	
HOW 303	Industrial Sociology	None	4		•	•		50%	•	50%	100%	
Catogary		Course Title Prerequisite Cr Lec Tutorial Lab Total CW O/P FE Total Cr Strial Sociology None 2 2 2 - 2 50 - 50 100 50% - 50% 100% University elective (3) (UR) arn an introduction of Industrial Sociology epts of the social structure - levels of the social, cultural and bringing up relations esses of organizing the social systems and the social change social cases related to try and industrialization in the developing countries - the necessary social rements to face the industrialization challenges - the contemporary theories of the trial organizations and its suitability with the facts of the developing countries -										
Objective	To learn an introducti	earn an introduction of Industrial Sociology cepts of the social structure - levels of the social, cultural and bringing up relations -										
	Concepts of the social structure - levels of the social, cultural and bringing up relations -											
	Processes of organizi	ng the social	l sys	tems	and the s	social	chan	ge so	cial c	g up recases recessary theories	elated to	
	industry and industry	rialization ii	n th	e de	veloping	cour	ntries	- th	e ne	cessar	y social	
Topics	requirements to face	the industria	ılizat	ion c	hallenges	- the	e cont	empo	rary	theorie	es of the	
	industrial organizatio	•								untries -		
	analyzing the relation 'between industrialization and the social systems - Analyzing the											
	relation between industrialization and the urban development in Egypt.											

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LEVEL (300) Semester 8

		Senior 1 LE	VEI	300	COURS	ES					
Code	Course Title	Prerequisite		С	ontact ho	urs			N	Marks	
Code	Course Title	Frerequisite	Cr	Lec	Tutorial	Lab	Total	CW	O/P	FE	Total
DPE308	Control Theory	DPE 201	3	2	2		4	tal CW O/P F 50 - 5 50% - 50 acy domain and opecification met response, Nyqt design, design	50	100	
DFE300	Control Theory	DPE 201	า		4	-	4	50%	-	50%	100%
Catogary			Co	mpul	sory (MR)						
01. 1	Knowledge to describe dynamic systems in the time or frequency domain and of the usual										
Objective	design methods for te					•					
	Basic terms of contro	l theory, sys	tem	prope	rties, mod	deling	g, spec	cificat	ion n	nethod	s for the
	time and frequency	• • •									
Topics	stability, leadership a					-	•	-		• •	
	controllers, Ziegler-N	Nichols adjus	stme	nt pr	ocedures,	com	puter	aided	des	ign of	control
	circuits, basics of rapi	d control pro	toty	ping							

	Senior 1 LEVEL 300 COURSES												
				С	ontact hor	urs			N	/larks			
Code	Course Title	Prerequisite	Cr	Lec	Tutorial	Lab	4 30 30% 2	O/P	FE	Total			
CSE 304	Drives and Actuators	DDE 303	2	2	1	1	1	30 20 50 1 30% 20% 50% 10 tic and hydraulic actua	100				
C3L 304	Drives and Actuators	30% 20% 50% 100%											
Catogary		Compulsory (MR)											
Objective	Knowledge about con	nmon industr	ial a	ctuato	ors and dri	ives							
Topics	sensors and circuits,	owledge about common industrial actuators and drives wer electronics, electric drives, electrical models, pneumatic and hydraulic actuators, sors and circuits, control design, circuit diagram design, thermal initiated actuators, to actuators, micro actuators											

	Senior 1 LEVEL 300 COURSES													
Code	Course Title	Droroguicito		С	ontact ho	urs				Marks				
Code	Course Title	Prerequisite	Cr	Lec	Tutorial	Lab	Total	CW	O/P	FE	Total			
ECE 305	Theory of Integrated	ECE202 2	2	2	1	_	3	50	•	50	100			
ECE 303	Systems	systems - - - - 50% - 50% 100%												
Catogary		Compulsory (MR)												
Objective	Knowledge about syst	wledge about system solutions with integrated circuits												
	Basics of atom, mole	cular- and so	olid	state	physics,	basis	s tech	nolog	ies, f	unctio	n layers,			
-	volume micro mecha	nics, surface	e mi	cro n	nechanics	, thic	k-film	tech	nolo	gy, lay	out and			
Topics	joining techniques,	LIGA tech	niqu	es, a	pplication	is, d	lesign	sim	nulati	on, m	aximum			
		s of atom, molecular- and solid state physics, basis technologies, function layers, the micro mechanics, surface micro mechanics, thick-film technology, layout and techniques, LIGA techniques, applications, design, simulation, maximum tion of the chip surface, processing speed												

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Code

DPE 306

اللائحة الداخلية لمرحلة البكالوريوس بنظام الساعات المعتمدة



	Sonior 1 I EVEL 300 COURSES												
Senior 1 LEVEL 300 COURSES													
Course Title	Droroguioito		С	ontact ho	urs			N	/larks				
Course Title	Prerequisite	Cr	Lec	Tutorial	Lab	Total	CW	O/P	FE	Total 100 100%			
Dobotico (1)	DPE203	2	2	4		2	50	-	50	100			
Robotics (1)	DPE203	2		ı	-	3	50%	-	50%	100%			
Compulsory (MR)													

Catogary			Comp	llsory (MR)							
Objective	Knowledge about the	application o	f moder	n robotics s	ysten	ns in a	ın indı	ustria	l eniro	nmen	t.
Topics	Introduction to Robot planar robots, Kinem simulation and practic use with robots, softw	atics of 3-E al training. I	robots Robotics	and homo	ogene	ous t	ransfo	rmati	ion. C	Compu	ter

		Senior 1 LE	VE	L 300	COURS	ES					
Code	Course Title	Prerequisite		С	ontact ho	urs			N	/larks	
Code	Course Title	Frerequisite	Cr	Lec	Tutorial	Lab	Total	CW	O/P	FE	Total
MPE302	Turbo Machinarey	MPE101	3	2	1	2	5	30	20	50	100
WII LOOZ	Tarbo Macrimarcy	IVII E I O I	,	_				30%	20%	50%	100%
Catogary			Co	ompul	sory (MR)						
Objective	To learn about classif	ication, opera	ation	and p	orinciple o	of flui	id mac	chines			
	Introduction; similit mechanics, efficienc Hydraulic pumps (dyr (pelton wheel – rad turbine -Compressor compressor and fans (two-dimensional an turbomachinery - Cormachines	y)- Classific namic and ne ial turbine) fan -Axil con (three Din alysis) - R	cation t post- Be- mpre- nensi- adia	on of sitive est de essor ional l inf	turboma displacem sign poin and fans (analysis) ow turbi	aching nent) t — o (two-) - Co ines.	ery Cavi off des Dime entifus - Tr	Cassa tatior sign properties of the constant o	dine - hy - hy - erfor al ana - ompre nic a	2D drauli nance alysis essors nd su	analysis- c turbine – steam) - Axial and fans personic

	Senior 1 LEVEL 300 COURSES												
Codo	Course Title	Droroguioito		С	ontact hou	urs			N	/larks			
Code	Course Title	Prerequisite	Cr	Lec	Tutorial	Lab	Total	CW	O/P	FE	Total		
CSE202	Lagia Cantrallara	ECE202	2	2	4		3	50	-	50	100		
CSE302	Logic Controllers	ECEZUZ	_		I	-	3	50%	-	50%	100%		
Catogary	Compulsory (MR)												
	Knowledge about the electronic components for controlling and regulation of industrial												
Objective	machines		•			_		Ü					
	Structure and functions of PLCs, center components, IOs, data communication, binary												
Topics	control systems: logic control and sequential control, digital control systems: IEC 1131-3												
-	programming language					_		•					

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Senior 1 LEVEL 300 COURSES Contact hours Marks													
Codo	Course Title	Dravanuiaita		С	ontact ho	urs			N	/larks			
Code	Course Title	Prerequisite	Cr	Lec	Tutorial	Lab	Total	CW	O/P	FE	Total		
DPE307	Modeling and	EMP104+	2	2		1	3	30	20	50	100		
DPE301	Simulation	DPE302			•	ı	3	30%	20%	50%	100%		
Catogary			Co	ompul	sory (MR)								
Objective	Skill to build mathe	kill to build mathematical models of Mechatronics systems											
	a- Modelling:												
	Relevance of simulations, mathematical background, numerical methods, description of												
	differential equation	ntial equations, block diagrams, system identification, display of mechanical and											
	electrical componen	ts, modelling,	subs	ystem	s, enclosi	are of	syste	ms					
Topics	b- Simulation Techr	nology:		•			•						
·			deve	elopm	ent of sin	nulati	ons, si	imula	tion t	echnic	ues,		
	Choose of simulation instruments, development of simulations, simulation techniques, simulation of complex systems, step size problems, application of the different solving												
	methods, different software tools (Pspice, Mathcad, Matlab-Simulink, Simplorer,												
	simulation of complex systems, step size problems, application of the different solving												

LEVEL (400) Semester 9

Senior 2 LEVEL 400 COURSES												
Code	Course Title	Prerequisite		С	ontact ho	ours			N	/larks		
Code	Course Title	Prerequisite	Cr	Lec	Tutorial	Lab	Total	CW	O/P	FE	Total	
DPE 401	Computer Applications	CSE101	2	1		3	4	30	20	50	100	
DPE 401	in Mechatronics	30% 20% 50% 100										
Catogary		Compulsory (MR)										
Objective	To learn about Comput	er Application	ns i	n Me	chatronic	es						
Topics	Computer graphics, Experimental versus computational methods, Principle of optimization, MATLAB toolboxes (SIMULINK Neural,).											

Senior 2 LEVEL 400 COURSES											
Code	Course Title	Prerequisite		С	ontact ho	ours			N	/larks	
Code	Course Title	Frerequisite	Ċ	Lec	Tutorial	Lab	Total	CW	O/P	FE	Total
CSE401	Microcontrollers	Level 400	•	2		4	2	30	20	50	100
CSE401	wicrocontrollers	Level 400 2 2 - 1 3							20%	50%	100%
Catogary			Con	npuls	ory (MR)						
Objective	Microcontroller, types, programming and design										
Topics	Programming environments – Microcontroller design (Intel 8742 or others).										

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Senior 2 LEVEL 400 COURSES Contact hours Marks													
Codo	Course Title	Droroguioito		С	ontact ho	urs			N	/larks			
Code	Course Title	Prerequisite	Cr	Lec	Tutorial	Lab	Total	CW	O/P	FE	Total		
DPE406	CAD/CAM	DPE202	3	2	_	3	5	30	20	50	100		
DF L400	CADICAIVI	DFLZUZ	J		_	J	<u> </u>	30%	20%	50%	100%		
Catogary	Compulsory (MR)												
Objective	Knowledge of CAD/O	Knowledge of CAD/CAM fundamentals and CAD/CAM software design. Fundamentals of computer-aided design – Techniques and tools of computer-aided design											
Topics	- Software design wi computer-aided design and axisymmetric propriented dimensioning manufacturing process Lab.: Part modeling and genused in the design of elements.	th application on of bars, be blems - Intro g of mechani s.	n to eams duct cal c	mech , trus ion of compo	anical eleses, frame foptimum onents in a	ementes, and design CA	ts - Th nd 2D gn – f D-prog	ne fing plane unction gram, Desig	ite ele e stres onal a requi	ement ss, pla nd pro iremen	method: ne strain oduction- nts to the		

Engineering Elective (2)

	Senior 2 LEVEL 400 COURSES													
Codo	Course Title	Droroguioito		С	ontact ho	ours			N	/larks				
Code	Course Title	Prerequisite	Cr	Lec	Tutorial	Lab	Total	CW	O/P	FE	Total			
DPE 409	Fluid Power Control	MPE201&	2	2	1		3	50	-	50	100			
DPE 409	Fluid Power Control	LEVEL400				-	3	50%	-	50%	100%			
Catogary	Engineering Elective (2) (MR)													
Objective	To learn the fluid power	o learn the fluid power systems and their control systems												
	Introduction to Fluid Po	wer Systems	- V	alve	Controlle	ed Dr	ives -	Hydr	aulic	and Pr	neumatic			
Tonico	Valves - Valve Configu	alves - Valve Configurations - Steady-State Valve Operating Forces - Transient Forces												
Topics	and Valve Stability - Servo Valves with Feedback - Analog and Digital Closed-loop													
	Control.													

	Se	enior 2 LEVI	EL 4	400 (COURSI	ES							
Code	Course Title	Prerequisite		С	ontact ho	ours			N	larks			
Code	Course Title	Prerequisite	Cr	Lec	Tutorial	Lab	Total	CW	O/P	FE	Total		
	Electro Mechanics &							50	•	50	100		
DPE 408	Motion Control	Level 400	2	2	1	-	3	50%	-	50%	100%		
Catogary		Engineering Elective (2) (MR)											
Objective	Learn about the electromechanical systems components and chacracteristics.												
	motors, DC motors, B	Principles of electromechanical energy conversion, motion actuators: solenoids, stepping notors, DC motors, BLDC motors, induction motors, synchronous motors, switched											
lopics	reluctance motors, Toroidal torque motors, servos and synchros, linear induction moto transformers for power, signal and pulse processing. Characteristics of machines: braking four quadrant operation with power conditioners. Power amplifiers: linear and PWI Power Operational amplifiers, Choppers, rectifiers, inverters and cycloconverters.												
	Power Operational amp	lifiers, Chopp	ers,	, rect	ifiers, inv	verter	s and	cyclo	conve	erters.			

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	Senior 2 LEVEL 400 COURSES Senior 2 LEVEL 400 COURSES											
Codo	Course Title	Proroguisito		С	ontact he	ours			М	arks		
Code	Course ritte	Prerequisite	Cr	Lec	Tutorial	Lab	Total	CW	O/P	FE	Total	
DDE410		Lovel 400	2	2	1	_	2	50	-	50	100	
DFL410	Cutting Processes	Level 400			•	_	3	50%	-	50%	100%	
Catogary		Enginee	ring	Elec	ctive (2) (MR)						
Ohioativa	To learn about mechanics of metal cutting and nonconventional machining processes and											
Objective	CNC machines.											
	Mechanics of metal cutting	•					-	_			-	
	formation theories, tool v				_	-		_				
Topics	surfaces, economic of cutti	ng processes,	div	iding	g and divi	ding	heads,	gear	manu	factur	ing and	
Topics	measurements, screw threa	nd manufactui	ing	and	measurei	ments	s, cam	manu	factu	ring, a	brasive	
	machining processes, no	n-convention	al :	mach	nining p	roces	ses, (CNC	Mac	hines:	types,	
	specification, programming	g and operatio	n. P	ractio	al trainir	ıg.						

		Senior 2 LE	VE	L 400	COURS	ES							
Code	Course Title	Prerequisite		С	ontact ho	urs			N	/larks			
Code	Course Title	Frerequisite	Cr	Lec	Tutorial	Lab	Total	CW	O/P	FE	Total		
DPE 407	Simulation	DPE 307	3	2		3	5	30	20	50	100		
DPE 407	Technology	DFE 307	3		•	3	3	30%	20%	50%	100%		
Catogary	Compulsory (MR)												
Objective	Knowledge of how to create a simulation of a technical system with modern software tools												
	Choose of simulation			-							-		
Topics	imulation of complex systems, step size problems, application of the different solving												
Topics	methods, different												
	methods, different software tools (Pspice, Mathcad, Matlab-Simulink, Simplorer, Dymola,), Programming of simulation tools.												

	Se	enior 2 LEV	EL .	400	COURS	ES					
Code	Course Title	Prerequisite		С	ontact he	ours			N	/larks	
Code	Course Title	Frerequisite	Cr	Lec	Tutorial	Lab	Total	CW	O/P	FE	Total
MPE		CSE001+						50	50	-	100
402	Graduation Project 1	Completed 1 ⁷ 0 CH	2	1	-	3	ŧ	50%	50	ı	100%
Category	Compulsory (MR)										
Objective	To learn and work as ateam work to design and manufacturing applications on nechatronics engineering projects										
IANICE	collaborate with faculty laboratory or conduct in experience provides study	The content of this course is variable and therefore it is repeatable for credit. Students collaborate with faculty research mentors on an ongoing project in a faculty member's aboratory or conduct independent research under the guidance of a faculty member. This experience provides students with an inquiry based learning opportunity and engages them is active learners in a research setting. Arrangements must be made with a specific faculty									

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LEVEL (400) Semester 10

	Senior 2 LEVEL 400 COURSES												
Codo	Course Title	Droroguioito		С	ontact hou	urs			N	larks			
Code	Course Title	Prerequisite	Cr	Lec	Tutorial	Lab	Total	CW	O/P	FE	Total		
DPE 403	Pohotics (2)	DPE 306	3	2	4	2	5	30	20	50	100		
DPE 403	Robotics (2)	DE 300	3		I		3	30%	20%	50%	100%		
Catogary	Compulsory (UR)												
Objective	o learn about Robotics system and control												
	- Introduction, Robot	arm Kinema	atics	, Rob	ot arm D	ynam	ics, L	ambe	rts ec	ns. of	motion		
- •		Introduction, Robot arm Kinematics, Robot arm Dynamics, Lamberts eqns. of motion lanning of manipulator trajectories - Control of Robot Manipulators Near- minimum time											
Topics		entrol, Variable structure control Nonlinear Decoupled Control Robot Programming anguage, Robot intelligence & task planning, Robot reaming.											
	· ·												

		Senior 2 LE	VE	400	COURSI	ES							
Code	Course Title	Prerequisite		С	ontact ho	urs			N	/larks			
Code	Course Title	Frerequisite	Cr	Lec	Tutorial	Lab	Total	5 30 20 50 30% 20% 50% 1	Total				
MPE 405	Fluid Power Systems	MPE202	3	2	4	2	5	30	20	50	100		
WIF L 403	I luid Fower Systems	IVIFLZUZ	J		I		<u> </u>	30%	20%	50%	100%		
Catogary			Co	ompul	sory (UR)								
Objective	To learn about fluid po	o learn about fluid power systems and its applications. uid power transmission; actuation and control – Properties of hydraulic fluids – Positive											
	displacement pumps geometric volume un directional control va and spools, static char	and motors; its, flow rate lves; direct a racteristics of s -Basics o	type, too and p f val f de	es, strque a pilot o ves – sign	tatic charand power perated, Accumul of fluid	acteri r – C static ators	stics Cylinde flow Acc	of co ers – force eessor	nstan Press s acti ries –	t and ture, flong ing on Thrott	variable low, and poppets tling and		

	Senior 2 LEVEL 400 COURSES												
Code	Course Title	Prerequisite		C	ontact ho	ours			M	arks			
Code	Course ritte	Frerequisite	Cr	Lec	Tutorial	Lab	Total	CW	O/P	FE	Total		
DPE 404	Graduation Project 2	duation Project 2 MPE 402 2 1 - 3 4 50 50 - 100											
DPE 404	Graduation Project 2	Iduation Project 2 MPE 402 2 1 - 3 4 50% 50% - 100%											
Category		C	om	pulso	ory (MR)								
Ob is ations	To learn and work a	s ateam wo	rk	to d	esign an	ıd m	anufac	cturing	gapp	licatio	ons on		
Objective	nechatronics engineering projects												
Topics	Continuation of project activities started by MPE 402.												

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Engineering Elective (3)

	Sen	ior 2 LEVE	L 4 (00 C	OURSES	5						
Code	Course Title	Prerequisite		С	ontact he	ours			M	arks		
Code	Course Title	Prerequisite	Cr	Lec	Tutorial	Lab	Total	CW	O/P	FE	Total	
CSE 405	Image Processing and	Lovel 400	•	2	1		2	50	-	50	100	
CSE 405	Computer Vision											
Catogary		Enginee	ring	j Elec	ctive (3) (MR)						
Objective	To learn about Image Pro-	cessing										
Topics	- Image Processing, Ima	Image Processing, Image Representation, Description of Line & Shape, Descriptive										
Topics	Methods in Scene Analys	ethods in Scene Analysis, Hardware & Software Considerations.										

	Senie	or 2 LEVEL	400	CO	URSES									
				C	ontact h	ours				Marks				
Code	Course Title	Prerequisite	Cr	Lec	Tutoria I	Lab	Tota I	cw	O/P	FE	Total			
	Embedded Systems							50	-	50	100			
ECE 406	Design	Level 400	2	2	1	-	3	50% - 50% 100%						
Catogary		Engine	eri	ng El	ective (3	(MI	₹)							
Objective	Knowledge about the de	esign techniqu	es c	f em	bedded s	yster	ns.							
Topics	analysis- Hardware ac	mbedded system design process - embedded computing platform- program design and nalysis- Hardware accelerators - distributed embedded architectures- system analysis nd architecture design- Design example – Programming project.												

	Seni	or 2 LEVEL	40	0 CC	URSES							
				С	ontact ho	ours			Ma	rks		
Code	Course Title	Prerequisite	Cr	Lec	Tutorial	Lab	Total	cw	O/P	FE	Tot al	
	Vehicle System	DPE301&						50	-	50	100	
DPE 411	Dynamics and Control	LEVEL400	2	2	1	-	3	50%	1	50%	100 %	
Catogary		Engineer	ing	Elect	tive (3) (N	IR)						
Objective	To learn about automotive	e engineering	g, de	esign	, mainter	nance	and c	ontro	1.			
	Automotive Chassis Lay	out, Frame a	nd	body	Constru	ction	, I.C.	Engir	ne Co	nstru	ction	
	and Components. Engin	e Cooling ar	nd I	Lubri	cation Sy	ysten	ı, Fue	l Sup	ply S	System	n for	
Topics	petrol and diesel Engine, Ignition System, Clutches, Transmission System, Drive Line											
	System, Steering System, Suspension and Shock Absorber System, Braking System,											
	Automotive Electrical Sy	stem, Mainte	enan	ice, E	Engine Te	esting	, Serv	icing	and I	Repair	•	

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Engineering Elective (4)

	Se	nior 2 LEVE	L 4	00 C	COURSE	S								
Code	Course Title	Prerequisite			ontact ho				N	Marks				
Code	Course Title	Prerequisite	Cr	Lec	Tutorial	Lab	Total	CW	O/P	FE	Total			
ECE 404	Sensors & Signal	Level 400	2	2	1		3	50	•	50	100			
ECE 404	Processing	Processing 50% - 50% 100%												
Catogary		Engineering Elective (4) (MR)												
Objective	Knowledge about sensor t	echnology, se	ensc	or sys	stems and	l eval	luatior	elect	ronic	S				
	Introduction and motivat	ion, classific	atio	n of	sensors	, sen	sor ch	naract	eristic	cs, ana	alog and			
Tonico	digital sensors, optical se	igital sensors, optical sensors, pressure sensors, chemical and biochemical sensors, micro												
LODICS		chanical sensors, test circuits and signal processing for sensor systems, future												
	development of the marke													

	Se	nior 2 LEVE	L 4	00 C	COURSE	S							
Code	Course Title	Prerequisite		С	ontact ho	ours				Marks			
Code	Course Title	Frerequisite	Cr	Lec	Tutorial	Lab	Total	CW	O/P	FE	Total		
MPE409	Power Plants	Level 400	2	2	1		3	50	-	50	100		
WFE409	Power Plants	Level 400			I	-	3	50%	-	50%	100%		
Catogary		Engineering Elective (4) (MR)											
Objective	To learn about energy cor	nversion syste	ems										
	Introduction to energy co	nversion syst	ems	-St	eam pow	ver pl	ant – I	Boile	rs – S	team t	urbine –		
Topics		heory of combustion and fuel types – Gas turbine and combined power stations – Solar and											
	wind energy conversion s	nd energy conversion systems – Energy storage.											

	Seni	or 2 LEVEL	40	0 CO	URSES								
Code	Course Title	Prerequisite		С	ontact ho	ours			Ma	arks			
Code	Course Title	Frerequisite	Cr	Lec	Tutorial	Lab	Total	CW	O/P	FE	Total		
DPE 412	Advanced Control	Level 400	2	2	4	_	3	50	-	50	100		
DPE 412	Systems	Systems											
Catogary		Engineer	ing	Elect	tive (4) (N	IR)							
Objective	Knowledge about digital	control system	ms.										
	Review of Classical	Control- St	ate	-spac	e Cont	rol -	– Sta	tic (Optir	nizat	ion –		
Topics	Dynamic Optimization – Dynamic Programming – Optimal Estimation/Kalman												
	ltering – Analysis, design and simulation of control systems using computers.												

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Engineering Elective (5)

	Sen	ior 2 LEVE	L 4 (00 C	OURSES	5								
Code	Course Title	Prerequisite		С	ontact ho	ours			M	arks				
Code	Course ritte	Prerequisite	Cr	Lec	Tutorial	Lab	Total	CW	O/P	FE	Total			
INE403	Industrial Safety	Level 400	2	2	1	_	3	50	-	50	100			
INE403	Engineering	Engineering -50% - 50% - 50% 100%												
Catogary	Engineering Elective (5) (MR)													
Objective	Knowledge about industri	al safety engi	nee	ring.										
	Upon completion of the c								-	_	_			
Topics	systems safety, dimension	ystems safety, dimensions of engineering systems safety, safety design and analysis												
Topics	nathematics, design for engineering systems safety and control for safety, and integrating													
	safety with other operation	fety with other operational goals such as quality and reliability.												

	Senior 2 LEVEL 400 COURSES Contact hours Marks													
Code	Course Title	Prerequisite		С	ontact he	ours			Ma	arks				
Code	Course Title	Frerequisite	C	Lec	Tutorial	Lab	Total	CW	O/P	FE	Total			
CSE402	Artificial Intelligence	Level 400	2	2	4	_	3	50	-	50	100			
C3L402	Artificial intelligence	Level 400			•	_	3	50%	-	50%	100%			
Catogary		Engineering Elective (5) (MR)												
Objective	Knowledge about Artifici	nowledge about Artificial Intelligence												
	- Intelligence. in humans	& machines, l	Bas	ic Iss	ues in A	I, Inti	oduct	ion to	AI L	angua	iges,			
	Basic Search Techniques	Problem Solv	ing	, Cor	nputatio	nal liı	nguisti	ics an	d natı	ıral				
Topics	Language Processing K	anguage Processing Knowledge Representation, Developments of a Knowledge base,												
	Leaving Techniques, Kno	guage Processing Knowledge Representation, Developments of a Knowledge base, ving Techniques, Knowledge Organization & Manipulation Production Systems,												
	Expert Systems & Applic	ations Compu	ıter	Visio	on etc	Э.								

	Se	nior 2 LEVE	L 4	00 C	OURSE	S						
Codo	Course Title	Droroguioito		С	ontact ho	ours			N	/larks		
Code	Course Title	Prerequisite	Cr	Lec	Tutorial	Lab	Total	CW	O/P	FE	Total	
ECE 403	Digital Electronics	Lovel 400	2	2	4		3	50	-	50	100	
ECE 403	Systems	Level 400	_		1	-	3	50%	-	50%	100%	
Catogary	Engineering Elective (5) (MR)											
Objective	Knowledge about Signal modulation electronic circuits.											
	Signal modulation electro	nowledge about Signal modulation electronic circuits. gnal modulation electronic circuits: (Multiplier, AM, PLL,FM) differentiator and										
	integrator circuit, pulse	train, multi v	/ibr	ator,	circuit,	on-of	ff circ	uit, t	ransis	stor as	switch,	
Topics	negative resistor circuit,	tunneling di	ode	, sili	con cont	rol r	ectifie	r and	app]	licatio	n, signal	
	transformation: analog to	digital and di	gita	l to a	analog tra	ansfo	rmatic	n. Pu	lse co	ode mo	dulation	
	circuit amplitude modulat	ion, width mo	odul	atior	n, positio	n mo	dulatio	on and	l appl	licatio	ns.	

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ثالثا:

المقررات التخصصية لبرنامج هندسة الطيران والمركبات الفضائية

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جدول (ز۱) متطلبات التخصص لبرنامج هندسة الطيران ومركبات الفضاء (۱۰۵ ساعة معتمدة بنسبة ۲۳,٦٤٪)

ن	الاتصا	اعات		الساعات	- N	- 41	
مجموع	معمل	تمرین	محاضرة	المعتمدة	اسم المقرر	الكود	م
3	-	1	2	2	Introduction to Aero-Spacecraft Engineering مدخل لهندسة الطيران والمركبات الفضائية	MPE 101 هقم ۱۰۱	1
5	1	2	2	3	Space Environment بيئة الفضاء	DPE 209 متج209	۲
4	-	2	۲	3	Theory of Machines نظریة الماکینات	DPE101 هتج ۱۰۱	٣
5	1	2	۲	3	Mechanics of Material میکانیکا المواد	DPE102 هتج ۱۰۲	٤
5	3	-	2	3	Machine Drawing رسم الماكينات	DPE103 هنج ۱۰۳	٥
4	1	1	2	2	Numerical Techniques الطرق العددية	EMP102 رفه ۱۰۲	٦
4	1	1	2	2	Space Mission Analysis تحليل المهام الفضائية	DPE 210 منج ۲۱۰	٧
5	1	2	2	3	Machine Element Design تصميم أجزاء الماكينات	DPE201 هتج ۲۰۱	٨
5	1	2	2	3	Modern Production Systems أنظمة الانتاج الحديثة	DPE202 هتج ۲۰۲	٩
5	1	2	2	3	Electronic Circuits الدوائر الإلكترونية	ECE201 مکت ۲۰۱	١.
5	1	2	2	3	Aerodynamics الديناميكا الهوائية	MPE201 هقم ۲۰۱	11
5	1	2	2	3	Aero-spacecraft Structure Design-1 تصميم هياكل الطائرات والمركبات الفضائية-١	DPE 211 هتج ۲۱۱	17
4	1	1	2	2	Orbits & Flight Trajectory المدارات ومسارات الطيران	DPE 212 هتج ۲۱۲	۱۳
5	1	2	2	3	Mechanical Vibrations الاهتز از ات الميكانيكية	DPE203 متج ۲۰۳	١٤
5	1	2	2	3	Finite Elements Analysis التحليل باستخدام العناصر المحدودة	DPE204 متج ۲۰۶	10
4	1	1	2	2	Gas Dynamics دینامیکا الغاز ات	MPE202 هقم ۲۰۲	١٦
5	1	2	2	3	Engineering Elective (1) مقرر هندسي اختياري ۱	جدول (ز۲)	١٧
3	-	1	2	2	Design of Aircraft Propulsion Systems تصميم أنظمة دفع الطائرات	MPE 301 هقم ۳۰۱	١٨
5	1	2	2	3	Aero-spacecraft Structure Design-2 تصميم هياكل الطائرات والمركبات الفضائية-٢	DPE 302 هنج ۳۰۲	19
5	1	2	2	3	Stability and Control الثبات والتحكم	DPE301 هنج ۳۰۱	۲.
5	1	2	2	3	Engineering Elective (2) مقرر هندسي اختيا <i>ري</i> ۲	جدول (ز ۳)	21
5	1	2	2	3	Engineering Elective (3) مقرر هندسي اختياري3	جدول (ز ٤)	77

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تابع جدول (ز۱) متطلبات التخصص لبرنامج هندسة الطيران ومركبات الفضاء (۱۰۰ ساعة معتمدة بنسبة ٢٣,٦٤٪)

3	-	1	2	2	Design of Rocket Propulsion Systems تصميم أنظمة دفع الصواريخ	MPE 311 هقم ۳۱۱	74
5	1	2	2	3	Computer Aided Aero-spacecraft Structure Analysis تحليل هياكل الطائرات والمركبات الفضائية بالحاسب	DPE 312 منج ۳۱۲	۲ ٤
5	2	1	2	3	Sensors and Actuators الحساسات و المحركات	CSE 313 ۳۱۳مم	70
4	1	1	۲	2	Heat Transfer إنتقال الحرارة	MPE301 هقم ۳۰۱	77
5	1	2	2	3	Engineering Elective (4) مقرر هندسي اختياري4	جدول (زه)	77
5	1	2	2	3	Engineering Elective (5) مقرر هندسي اختياري5	جدول (ز٦)	۲۸
4	3	-	1	2	Graduation Project (1) مشروع التخرج (۱)	MPE 401 هقم ۲۰۱	۲٩
5	1	2	2	3	Flight Mechanics and Control ميكانيكا الطير ان والتحكم	MPE 402 هقم ۲۰۶	٣.
4	2	1	1	2	Modeling and Simulation النمذجة والمحاكاة	DPE 403 403هنج	۳۱
3	-	1	2	2	Design of Turbo machines تصميم الماكينات المشحنة	MPE404 د د د د د د د د د د د د د د د د د د د	٣٢
5	١	2	2	3	Engineering Elective (6) مقرر هندسي اختياري6	جدول (ز ^۷)	44
5	١	2	2	3	Engineering Elective (7) مقرر هندس <i>ي</i> اختيار <i>ي7</i>	جدول (ز۸)	٣٤
4	3	-	1	2	Graduation Project (2) مشروع النخرج (۲)	DPE 410 دنج ۲۱۰	40
4	2	1	1	2	Planning and Testing of Space vehicles التخطيط واختبارات المركبات الطائرة	DPE 411 دنج ۲۱۱	٣٦
4	2	1	1	2	Guidance and Control التوجيه والتحكم	DPE 412 412هنج	٣٧
4	2	1	1	2	Navigation Systems أنظمة الملاحة	MPE 413 د ۱۳ هقم	٣٨
5	2	1	2	3	Data Analysis & System Identification تحليل البيانات والتعرف علي الأنظمة	DPE405 دنج ۱۰۰	49
5	1	2	2	3	Engineering Elective (8) مقرر هندسي اختياري8	جدول (ز۹)	40
5	47	59	74	100	إجمالـــــي الســـاعـــات =		

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جدول (ز۲) قائمة المقرر الهندسي الاختياري(1) لمتطلب التخصص

رد	اسم المق	الكود	م
ميكانيكا المواد الليفية والمركبة	Mechanics of Fibrous & Composite Materials	DPE205 ۲۰۵	١
ميكانيكا الأوساط المركبة والليفية	Mechanics of Composite & Micro- Structured Media	DPE206 ۲۰۲	۲
تحليل الألواح والقشريات	Analysis of Plates and Shells	DPE207 ۲۰۷هتج	3
تحليل الإنهيار	Failure Analysis	DPE208 ۲۰۶	4

جدول (ر٣) قائمة المقرر الهندسي الاختياري (٢) لمتطلب التخصص

<u> </u>	ا === ،==رد ، محدقی ، و حدد ز	· 3) 03 · ·	
لمقرر	اسم ا	الكود	م
تصميم المهام الفضائية	Space Mission Design	DPE 303 ۳۰۳هنج	١
ديناميكا الطائرات الهليوكوبتر	Helicopter Dynamics	MPE 304 ۳۰ هقم ۲۰۴	۲
الديناميكا الهوائية للطائرات الهليوكوبتر	Helicopter Aerodynamics	MPE 305 هقم ۵۰۰	3
المركبات الفضائيه بدون طيار	Unmanned Air Vehicles	MPE 306 هقم ۳۰	4

جدول (ز؛) قائمة المقرر الهندسي الاختياري (٣) لمتطلب التخصص

	1 · CC 4 · C · C · C · C · C · C · C · C	7) • • •	
لمقرر	اسم ا	الكود	م
تكنولوجيا الأقمار الصناعية	Satellite Technology	DPE 307 ۳۰۷منج	١
الديناميكا الهوائية للطائرات الرأسيه الاقلاع والمقلعه من ممرات قصيره	Aerodynamics of V/STOL	MPE 308 «قم ۸ ۳۰	۲
اجهزه الطائرات الهليكوبتر	Instruments of Helicopters	MPE 309 ۳۰۹هقم	3
محركات الإحتراق الداخلي	Internal Combustion Engines	MPE 310 هقم ۳۱۰	4

جدول (ز٥) قائمة المقرر الهندسي الاختياري(٤) لمتطلب التخصص

ىقرر	اسم اله	الكود	م
نظرية التحكم	Theory of Control	DPE 314 ۳۱۶ هنج	١
الديناميكا الهوائية في السرعات الفائقة	High Speed Aerodynamics	MPE ۳۱۰ هقم ۳۱	۲
أنظمة الملاحة الأساسية	Basic Navigation Systems	DPE ۳۱۶ هنج ۳۱۶	3
الطاقة الشمسية	Solar Energy	MPE 317 «قم ۳۱۷	4

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جدول (ز٦) قائمة المقرر الهندسي الاختياري(٥) لمتطلب التخصص

	اسم المقرر	الكود	م
اختبارات هياكل	Structure Testing	DPE 318 ۳۱۸ هتج	١
أجهزة الطائرات	Aircraft Instruments	MPE 319 هقم ۳۱۹	۲
نظرية الطبقة الجدارية	Boundary Layer Theory	MPE 320 هقم ۳۲۰	3
أنظمة ومكونات الطائرات	Aircraft Systems and Components	MPE 321 هقم ۳۲۱	4

جدول (ز٧) قائمة المقرر الهندسي الاختياري(٦) لمتطلب التخصص

•	()	J, U J .	
	اسم المقرر	الكود	٩
النظم اللاخطية والتحكم اللاخطي	Nonlinear Systems & Control	DPE 406 د ۳ متج	١
التحليل الأمثل لأداء الطائرات	Analysis and Optimization of Airplane Performance	DPE 407 د ، به	۲
المرونة الهوائية	Aeroelasticity	DPE 408 د . ۰ هنج	3
تصميم محركات الصواريخ	Design of Rocket Engine	MPE 409 هقم ۲۰۱	4

جدول (ز٨) قائمة المقرر الهندسي الاختياري(٧) لمتطلب التخصص

	197, 2 6 77	<i>3</i> , 9 , .	
ر	اسم المقر	الكود	م
التحكم في المركبات الفضائية	Spacecraft Control	DPE 414 د ۲ ۱ ۱	1
الديناميكا الهوائية الحسابية	Computational Aerodynamics	MPE 4۱٥ هقم ۱۵	۲
أنظمة التحكم بالصواريخ	Missile Control Systems	DPE 4۱٦ د ۲۱۶	3
معمل إختبارات الطيران التكنولوجي	Flight Test Techniques Laboratory	MPE 41۷ هقم ۱۷	4

جدول (ز۹) قائمة المقرر الهندسي الاختياري(٨) لمتطلب التخصص

ر	اسم المقر	الكود	م
التحليل الحراري	Thermal Analysis of Spacecrafts	DPE 41^ دنج ۱۸	,
الديناميكا الهوائية للصواريخ والمقذوفات	Missile and Projectile Aerodynamics	MPE 41۹ دهم ۱۹	۲
تصميم وتحليل المركبات الطائرة	Spacecraft design and analysis	DPE 4۲۰ ۴۲۰ هتج	3
أنظمة المركبات الطائرة	Space Systems Engineering	DPE 4۲۱ ۵ هنج ۲۱	4

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جدول (ز ٩) نموذج إسترشادي يوضح خطة تدريس مقررات برنامج هندسة الطيران والمركبات الفضائيه

	Level 000 (Freshman)							
	Semester (1)	Fall		Semester (2)	Spring			
	Course name	Code	СН	Course name	Code	СН		
1	رياضيات هندسية ١	EMP001	3	رياضيات هندسية ٢	EMP005	3		
2	فيزياء هندسية ١	EMP002	3	فیزیاء هندسیهٔ ۲	EMP006	3		
3	رسم هندسي وإسقاط ١	DPE011	3	رسم هندسي وإسقاط ٢	DPE012	3		
4	میکانیکا هندسیة ۱	EMP004	2	میکانیکا هندسیة ۲	EMP007	2		
5	كيمياء هندسية	ENE001	3	تكنولوجيا إنتاج	DPE001	3		
6	لغة أجنبية فنية	TFL001	2	مقدمه حاسب وبرمجة	CSE001	۲		
7				تاريخ الهندسة والتكنولوجيا	HUM001	۲		
	Total		١٦	Total		۱۸		

			Level \	00 (Sophomore)		
	Semester (1)	Fall		Semester (2)	Spring	
	Course name	Code	СН	Course name	Code	СН
١	مدخل لهندسة الطيران الفضاء	MPE 101	۲	ميكانيكا المواد	DPE102	٣
2	تطبيقات الحاسب	CSE101	۲	رسم الماكينات	DPE103	3
3	نظرية الماكينات	DPE101	3	أنظمة كهربية	EPE101	2
4	الرياضيات الهندسية (٣)	EMP101	۲	الطرق العددية	EMP102	۲
5	هندسة المواد	MTE101	3	الإحصاء الهندسي	INE202	2
6	مدخل إلي القانون	HUM101	2	ديناميكا حرارية	MPE102	٣
7				إختياري جامعة (١)	HUM10x	2
	Total	•	١٤	Total	•	17

	Level 200 (Junior)							
	Semester (1)	Fall		Semester (2) Sprin	ıg			
	Course name	Code	СН	Course name	Code	СН		
1	تحليل المهام الفضائية	DPE 210	2	تصميم هياكل الطائرات والمركبات الفضائية (١)	DPE 211	3		
2	تصميم أجزاء الماكينات	DPE201	3	بيئة الفضاء	DPE 209	3		
3	أنظمة الإنتاج الحديثة	DPE202	3	المدار ات ومسار ات الطير ان	DPE 212	2		
4	الدوائر الإلكترونية	ECE201	3	الإهتزازات الميكانيكية	DPE203	3		
5	الديناميكا الهوائية	MPE201	3	التحليل بإستخدام العناصر المحدودة	DPE204	3		
6	إختياري كلية ١	xxxxx	2	ديناميكا الغازات	MPE202	۲		
7	إختياري جامعة (٢)	HUM20x	2	إختياري هندسي (١)	XXXXX	3		
	Total		۱۸	Total		19		

		L	evel 300 (Senior 1)		
	Semester (1) Fall			Semester (2) Sprin	ng	
	Course name	Code	СН	Course name	Code	СН
1	تصميم أنظمة الدفع في الطائرات	MPE 301	۲	تصميم أنظمة دفع الصواريخ	MPE 311	۲
2	تصميم هياكل الطائرات والمركبات الفضائية (٢)	DPE 302	3	تحليل هياكل الطائرات والمركبات الفضائية بالحاسب	DPE 312	3
3	الثبات و التحكم	DPE301	3	الحساسات و المحركات	CSE 313	3
4	الإقتصاد الهندسي	INE207	۲	إنتقال الحرارة	MPE301	۲
5	إختياري هندسي (٢)	xxxxx	3	إختياري هندسي (٤)	xxxxxxx	٣
6	إختياري هندسي (٣)	xxxxxx	3	إختياري هندسي (٥)	xxxxxx	3
7	إختياري جامعة (٣)	HUM30x	2			
	Total		18	Total		17
		L	evel 400 (Senior 2)		
	Semester (1) Fa	11		Semester (2) Sp	ring	
	Course name	Code	СН	Course name	Code	CH
1	مشروع تخرج (۱)	MPE 401	۲	مشروع تخرج (۲)	DPE 410	۲
2	ميكانيكا الطيران والتحكم	MPE 402	3	التخطيط و إختبارات المركبات الطائرة	DPE 411	2
3	النمذجة والمحاكاة	DPE 403	۲	التوجيه والتحكم	DPE 412	2
4	تصميم الماكينات المشحنة	MPE40٤	2	أنظمة الملاحة	MPE 413	2
5	إختياري هندسي (٦)	XXXXXXX	3	تحليل الباينات والتعرف علي الأنظمة	DPE40°	٣
6	إختياري هندسي (٧)	XXXXXXX	3	إختياري هندسي (8)	xxxxxxx	3
	Total		10	Total		١٤

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Description of Course Contents and Details

Course Contents and Details for Aero-Spacecraft Engineering Program

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LEVEL (000) Semester 1

Freshmen LEVEL 000 COURSES															
Code	Course Title	Droroguioito		С	ontact hou	urs		Marks							
Code	Course Title	Prerequisite	Cr	Lec	Tutorial Lab Tota		Total	CW	O/P	FE	Total				
EMP001	Engineering	None 3	2	2	2		4	50	-	50	100				
EIVIPUUI	Mathematics 1 None 3 2 2 - 4 50% - 50% 100%														
Catogary			С	ompu	llsory (FR))									
Objective	To learn the main co	ncepts of diff	ferer	ıtiatio	n and alge	ebra.									
	Functions-Elementar	ry functions	-Inv	erse	function-I	Polar	and	para	metri	c coo	rdinates-				
Tanias	Limits-Newoton's r	nethod-Deriv	ative	es (ch	nain rule,	deri	vation	of i	mplic	it and	inverse				
functions)-Macclaurin's and Taylor's expansins-Theory of equations-N											•				
	elimination method-Matrix Eigen value problem.														

	Course Title	Drovensieite		Co	ntact ho	urs			N	/larks			
EMP002	Course Title	Prerequisite	Cr	Lec	Tutorial	Lab	Total	CW	O/P	FE	Total		
EIVIPUUZ	Engineering	None	3	7	1	2	5	30	20	50	100		
	Physics 1	None	3	'	•	2	3	30%	20%	50%	100%		
Catogary	Compulsory (FR)												
Objective	To learn about matter properties and applications of Newton's laws.												
Topics	Field of gravitation Temperature-First Thermodynamics-Graimple Pendulum- Coefficient of heat C Lab: Simple and coviscosity of liquid measurement of the	law of The as Theory-S Complex Po Conduction-Sp compound pe - surface	ermocound ound endul pecifi ndulu tension	lynam Wa um-L c hea im – on –	nics-Heat ves-Wav iquid V t. Hook's l measur	t En ves i Visco law –	gines- n ela sity-Li	Entro stic iquid ureme	py-Se Medi Suri	econd a-Expe face	law of eriments: Tension-		

Code	Course Title	Prerequisite		C	ontact ho	urs		Marks					
Code	Course rille	Prerequisite	Cr	Lec	Tutorial	Lab	Total	CW	O/P	FE	Total		
EMD002	Engineering	None	2	4	1	2	4	30	20	50	100		
EMP003	Mechanics (1)	None		1	1		4	30%	20%	50%	100%		
Catogary	Compulsory (FR)												
Objective	To learn the basic co	ncepts of eng	inee	ring n	nechanics	S.							
Topics	Vector applications-Resultant and Moments of a group of forces-Equivalent forces-Equilibrium-Reaction-Friction-Vector calculus-Equilibrium of trusses, frames, and simple machines-Experiments: Equivalent forces-Friction.												

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Code	Course Title	Droroguicito.		С	ontact ho	urs			N	/larks			
Code	Course Title	Prerequisite	Cr	Lec	Tutorial	Lab	Total	CW	O/P	FE	Total		
DPE011	Eng. Drawing &	None	3	2	_	3	5	50	-	50	100		
DELOTI	Projection (1)	NOTIC	3		-	, ,	3	50%	-	50%	100%		
Catogary	Compulsory (FR)												
Objective	Introductory concepts of engineering drawing and descriptive geometry												
	Introduction (drawing	ng instrumer	its a	nd th	eir use)-H	Engin	eering	grapl	nics,	technic	ques and		
	skills-Geometric con	nstructions ar	nd ta	ngeno	y-Rules a	and co	onvent	ions o	of line	es, lette	ering and		
Topics	dimensioning-Ortho	graphic pro	jecti	on o	f engine	ering	bodi	es-Fra	ames	of r	eference-		
	Orthogonal projection-Representation of a straight line-Straight lines intersection												
	Representation of a	plan-Position	pro	blems		-							

Code	Course Title	Droroguioito		С	ontact ho	urs		Marks					
Code	Course Title	Prerequisite	Cr	Lec	Tutorial	Lab	Total	CW O/P 30 20 30% 20% 5 nanges-chemi The gaseous atics & rate and ceramic	FE	Total			
ENE001	Eng. Chemistry	Cr Lec Tutoriai Lab Totai CW 0/P FE								100			
ENEOUT	Elig. Chellistry	None	3 2		-	3	3	30%	20%	50%	100%		
Catogary	Compulsory (FR)												
Objective	o learn basic concepts of chemistry												
	The atomic structure and its bearing on chemical and nuclear changes-chemical formulae												
	Percent composition-Thermochemistry-Chemical equilibrium-The gaseous state-Solutes-												
Tonico	Electrolytic dissociation & ionic equilibrium-Chemical kinematics & rate of reactions-												
Topics	Sources of elemen	ts-Chemical	indu	ıstries	-Building	mat	erials	and	ceran	nics in	ıdustries-		
	Corrosion-Fuels-Co	mbustion-Ex	perii	nents:	Identific	ation	of sim	iple sa	alts-Id	entific	cations of		
	Corrosion-Fuels-Combustion-Experiments: Identification of simple salts-Identifications of acids.												

Code	Course Title	Prerequisite		С	ontact ho	urs		Marks								
Code	Course ritte	Frerequisite	Cr	Lec	Tutorial	Lab	Total	CW	CW O/P FE Total							
TFL001	Tech. Foreign	None	2	1	2	_	3	50	-	50	100					
IFLUUI	Language	None		'	2	_	3	50%	-	50%	100%					
Catogary		Compulsory (UR)														
Objective	To learn basics of fo	reign (Englis	h) te	chnic	al languag	ge.										
	Introduction: Basic	concepts of	tech	nical	English-F	Revie	w of e	essenti	als o	f gram	mar and					
Tonico	mechanics rules for effective Sentences-Style errors. Building Paragraphs: Main idea-types															
Topics	of paragraphs-Read	ling and an	alys	is of	technica	al pa	ssages	that	cov	er eng	gineering					
	disciplines for developing communication skills.															

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LEVEL (000) Semester 2

Freshmen LEVEL 000 COURSES													
Code	Course Title	Prerequisite		С	ontact ho	urs			N	/larks			
Code	Course Title	Frerequisite	Cr	Lec	Tutorial	Lab	Total	CW	O/P	FE	Total		
EMP005	Engineering	None	3	2	2		4	50	•	50	100		
EMPUUS	Mathematics 2 None 3 2 2 - 4 50% - 50% 100%												
Catogary	Compulsory (FR)												
Objective	To learn the main co	oncepts of dif	fere	ntiatio	on and alg	ebra.							
	Indefinite integratio	n-Methods of	f inte	egrati	on-Defini	te int	egrals	-Appl	icatio	ons (ar	c length,		
	areas, volumes, cent	er of gravity	, firs	t orde	er differen	itial e	quatic	n)-Nı	ımeri	cal me	ethods of		
	integration-Transfor												
	work and different kinds of systems of coordinates-Straight line in space-Plane in space-												
	Surfaces of the seco	nd degree-Th	ie ge	neral	equation	of the	surfa	ces of	f the s	second	degree.		

	Freshmen LEVEL 000 COURSES												
	Course Title	Proroguisito		Co	ntact ho	urs			N	Marks			
EMP006	Course Title	Prerequisite	Cr	Lec	Tutorial	Lab	Total	CW	O/P	FE	Total		
EIVIFUU	Engineering	None	3	¥	1	2	5	30	20	50	100		
	Physics 2 30% 20% 50%												
Catogary	Compulsory (FR)												
Objective	To learn the main concepts of integration and analytical geometry.												
	Charge and matter-l												
	Current, resistance an	nd electromoti	ive fo	rce-N	lagnetic f	field- <i>i</i>	Amper	e's la	w- (B	iot-Sav	vart) law-		
	Fraday's law of induction-Inductance magnetic properties of matter-Physical optics												
	Interference and defl	ection-Laser	physi	cs-Ele	ectromag	netic	induct	ion-P	ropert	ies of	magnetic		
Topics	materials-A/C curre	nt-Electromag	gnetic	wav	es-Exper	iment	s: Ca	pacito	r cap	oacity-	Magnetic		
	field-Ohm's law-Son												
	Lab: Verification measurement of mag and focal length of measurements of ligh	a lens – me	law - d mag asure	- me gnetic ments	asuremer moment of refra	nt of – det active	capadermina index	citance ation of of g	e of of rad lass -	a cap ius of c micr	oacitor – curvature oscope –		

	Freshmen LEVEL 000 COURSES												
	Course Title	Prerequisite		Co	ntact ho	urs		Marks					
HUM001	Course Title	Frerequisite	Cr	Lec	Tutorial	Lab	Total	CW	O/P	FE	Total		
HOMOUT	History of Eng. &	None	2	¥			2	50	-	50	100		
	Tech.	None	2	١		-		50%	-	50%	100%		
Catogary		Compulsory (UR)											
Objective	To learn about the h	istory of engi	ineeri	ng an	d techno	logy							
	Definitions of Art, s	cience, techn	ology	and	engineer	ing-C	Civiliza	itions	and t	their			
	relationship with na				_	_					nd		
Topics	engineering speciali				-	•				0.5			
_	between developme	nts in enginee	ering,	socia	al, econo	mical	and c	ultura	l env	ironm	ents-		
	Practical examples of	U			*								

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		Freshmen	LEVE	L 000	COUR	SES					
	Course Title	Prerequisite		Co	ntact ho	urs			N	/larks	
EMP007	Course Title	2) None 2 1 2 1 4 30 20 50 100									Total
EIVIPUUI	Eng. Mechanics (2)	None	•	1	2	4	4	30	20	50	100
	Eng. Wechanics (2)	30% 20% 50% 100%									
Catogary		Compulsory (FR)									
Objective	Continuing learning	ontinuing learning the basic concepts of engineering mechanics.									
	Displacement, veoli	city and acce	elerat	ion ir	Cartesi	an, c	urvilin	ear, t	anger	ntial, p	olar and
Tonico	cylindrical coordin	isplacement, veolicity and acceleration in Cartesian, curvilinear, tangential, polar and lindrical coordinates-relative motion-projectiles-Motion under centrifugal forces-									
Topics	Work-Energy-Mome	lindrical coordinates-relative motion-projectiles-Motion under centrifugal forces- ork-Energy-Momentum-Impulse and collision-Experiments: Momentum conservation-									
	rojectiles-Free falling.										

		Freshmen	LEV	'EL 0	00 COUR	SES					
Code	Course Title	Draraguiaita		С	ontact ho	urs			N	Marks	
Code	Course ritte	Prerequisite	Cr	Lec	Tutorial	Lab	Total	CW	O/P	FE	Total
DPE012	Eng. Drawing &										
DPEUIZ	Projection (2)	Projection (2) DPE011 3 2 - 3 5 50% - 50% 100%									
Catogary		Compulsory (FR)									
Objective	Continuing learning	ontinuing learning of engineering drawing and descriptive geometry.									
	Pictorial drawing of	engineering	boc	lies-D	erivation	of vi	ews o	f a giv	ven b	ody-D	erivation
	of a missing view	from two	give	n vie	ws-Rules	of s	ection	ing a	nd se	ectiona	l views-
	<u> </u>	a missing view from two given views-Rules of sectioning and sectional views-rawing of steel sections-Auxiliary projection-Circle-Helix-Helical surfaces-Polyhedra-									
	Sphere-Cone-Cylind	der-Plane se	ectio	n of	surfaces	s-Inte	rsectio	on of	two	o surf	faces of
	revolution.	ohere-Cone-Cylinder-Plane section of surfaces-Intersection of two surfaces of volution.									

		Freshmen LEVEL 000 COURSES Contact hours Marks									
Code	Course Title	Prerequisite		С	ontact ho	urs			N	/larks	
Code	Course Title	Frerequisite	Cr	Lec	Tutorial	Lab	Total	CW	O/P	FE	Total
DPE001	Production	None	3	2	4	2	5	50	30	50	100
DFEOUT	Technology	None	າ		I		3	20%	30%	50%	100%
Catogary		Compulsory (FR)									
Objective	To learn the main co	learn the main concepts of production technology troduction in industrial safety-Engineering materials (types and properties)-Metallic									
	Introduction in ind	ustrial safety	/-En	ginee	ring mate	rials	(types	and	prop	erties)	-Metallic
	alloys-Casting proc	esses-Formii	ng p	roces	ses (forg	ing, 1	rolling	, drav	wing,	extru	sion and
	spinning)-Joining p				, 0	_	_		_		
Topics	Machining processe	,	_		_			_		- 1	
	(vernier calipers ar	nd micromet	ers)-	Introd	duction to	pro	ductio	n cos	ts an	d mar	nagement
	systems-Practical pr	racticing.				_					_

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		Freshmen	LEV	EL 0	00 COUR	SES					
Codo	Course Title	Droromicito		С	ontact ho	urs			N	/larks	
Code	Course Title	Prerequisite	Cr	Lec	Tutorial	Lab	Total	CW	O/P	FE	Total
	Introduction to							30	20	50	100
CSE001	Computers and Programming	· · · · · · · · · · · · · · · · · · ·									
Catogary	Compulsory (UR)										
Objective	To learn basic conc	To learn basic concepts of computers and high-level programming languages.									
	Information processing-Computer building blocks - Problem solving (Algorithms and										
Topics	flow charts) - Programming languages- Applications: Mathematical analysis, business										
	and administration, application in industry and communications, etc.										

LEVEL (100) Semester 3

Codo	Course Title	Cr Lec Tutorial Lab Total CW O/P FE Total									
Code	Course Title	Prerequisite	Cr	Lec	Tutorial	Lab	Total	CW	O/P	FE	Total
	Introduction to Aero-							50	-	50	100
MPE 101	Spacecraft Engineering	ngineering EMP 00 2 2 1 - 3 50% - 50% 100%									
Catogary		Compulsory (MR)									
	_	Introduction to Space Engineering. Flight vehicles in the atmosphere and in space.									
	Flight technologies,	Flight technologies, including structures, materials, propulsion, aerodynamics, vehicle									
Topics	dynamics, flight control, flight information systems, and systems integration. An										
	overview of aeronautics. Steady aircraft flight and performance. An overview of										
	astronautics.										

Code	Course Title	Prerequisite		С	ontact hou	ırs			N	/larks	
Code	Course Title	rierequisite	Cr	Lec	Tutorial	Lab	Total	CW	O/P	FE	Total
CSE101	Computer	CSE001	2	1	1	2	4	30	20	50	100
CSEIUI	Applications	CSEUUI	4	1	1	4	4	30%	20%	50%	100%
Catogary			С	ompu	Isory (FR))					
	Overview of differ	rent progran	nmin	ig la	nguages,	prog	ramm	ing v	withii	ı C,	efficient
Topics	programming, objectools	ogramming, object-oriented programming (for example with JAVA), software design									

Code	Course Title	Prerequisite		С	ontact hou	urs				Marks	
Code	Course Title	Frerequisite	Cr	Lec	Tutorial	Lab	Total	CW	O/P	FE	Total
DPE101	Theory of Machines	EMP007	3	2	2		4	50	-	50	100
DEETOI	Theory of Machines	EIVIF 007	ว	4	4	-	4	50%	-	50%	100%
Catogary			С	ompu	Isory (MR)					
Topics	Centroid of Rigid be rigid body: Kineman Impulse and Momen work of rigid bodie motion, Energy and Kinematics of mach Velocity and acceler	tics, Kinetics ntum, Impact es, Equilibriu momentum o nines; Funda	and, Into	l applernal and stid bootal	forces, Sl forces, Sl fability, P dies, Mon ncepts –	of pla hear a lanar hentur Type	nar mand B motion mandes of a	notion ending on, L Impu motion	, Wo g of inear llse, A ns —	rk and and rapplication	l energy, s, Virtual cotational ations. ections –
	Velocity and acceleration; mathematical and graphical analysis - cams – Contact between btating bodies - rolling contact – gears and gear trains - screws - synthesis of mechanisms.										

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Code	Course Title	Prerequisite	005 Y \ 2 - \ \ 50 - 50								
Code	Course Title	Frerequisite	Cr	Lec	Tutorial	Lab	Total	CW	O/P	FE	Total
EMP101	Engineering	EMP005	Ų		2		<u>ب</u>	50	-	50	100
EMIT 101	Mathematics 3	EMPUUS	١,	,	2	-	1	50%	-	50%	100%
Catogary			С	ompu	llsory (FR))					
	Linear vector space	- vector space	ces 1	inear	independ	lence-	- subs	paces	and	spann	ing sets,
	linear maps- change	of basis - I	Linea	ar pro	gramming	g- sir	nplex	meth	od -	Curve	fitting -
Topics	Approximate Interpo					_					
	applications - Linea	r and higher	orde	r D.E	and their	appli	cation	s - Pa	artial	D.E –	Solution
	by separation of vari	able.									

Code	Course Title	Droroguioito		С	Contact hours Marks Cr Lec Tutorial Lab Total CW O/P FE Total Total CW O/P FE Total CW O/P CW O/P						
Code	Course ritte	Prerequisite	Cr	Lec	Tutorial	Lab	Total	CW	O/P	FE	Total
MTE101	Engineering Metaviels	None	2	2	1	2	5	30	20	50	100
MITEIUI	Engineering Materials	None	3	Z	1	<u> </u>	5	30%	20%	50%	100%
Catogary					llsory (FR						
Topics	Engineering materia Stresses and strains metallic materials (fatigue, creep) – Co reporting. Lab: Tension test fo and brass, Pending t bend test for mild stream iron and brass, F	 Elasticity (tension, cornstruction m r mild steel est, Torsion eel, Impact to 	and test	d plast ession, tals are cast in for m	sticity – , bending nd their to ron, Com nild steel a	Stand g, she ests – pressi and c	lards ear, to Testi ion tes ast ire	Me or sionIng reIng for on, Di	chani , har sults mild rect s	cal ted dness, and ev steel, hear to	sting for impact, valuation cast iron est, Cold

Code	Course Title	Prerequisite		С	ontact hou	ırs			N	Marks	
Code	Course Title	Frerequisite	None 2 2						O/P	FE	Total
III IN 101	Introduction to Law	None	2	2			2	50		50	100
HUMIUI	Introduction to Law	None	4		-	-	4	50%		50%	100%
Catogary		Compulsory (FR)									
Topics	Law bases and source Law -public administration - centralized and decrease	ces - General tration organi entralized ad	bas izatio mini	es, so on - C stratio	urces and Seneral bas on - civil s	char ses of servar	racteris f the a nt post	stics o dmini	of the strati	admii ve orga	nistrative anization

LEVEL (100) Semester 4

Code	Course Title	Prerequisite		С	ontact hou	urs			N	/larks	
Code	Course Title	Prerequisite	Cr	Lec	Tutorial	Lab	Total	CW	O/P	FE	Total
DPE102	Mechanics of	MTE101	3	2	2	1	5	30	20	50	100
DFE102	Materials	WITETOT	3	4	4	1	3	30%	20%	50%	100%
Catogary			С	ompu	Isory (MR)					
	Stress- axial loads -	- Statically	inde	ermir	nate Struc	tures	Strai	n – F	łook'	s Low	- thick
	cylinders - Torsion	- thin cyl	inde	rs and	d pressure	e ves	sels -	- Axi	al for	ce, sh	ear, and
Topics	bending moment – l	Failure theor	ies –	Pure	bending	of be	eams -	- Ene	rgy T	heorie	s - shear
-	stresses in beams –				_						
	and strain.										

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Fac	ulty of Er	ngineering	
	<u> </u>		=

Codo	Course Title	Droroguioito		С	ontact hou	urs			N	Marks				
Code	Course Title	Prerequisite	Cr	Lec	Tutorial	Lab	Total	CW	O/P	FE	Total			
DDF102	Machine Drawing	DPE012	3	2		2	_	50	•	50	100			
DPE103	Machine Drawing	DPEUIZ	3	2	-	3	5	50%	-	50%	100%			
Catogary		Compulsory (MR)												
	Utilizes up-to-date computer-aided design software (such as Solid Work and AutoCAD)													
	for mechanical dra	wings and	mec]	hanica	al design	s to:	prov	ide a	ı firs	t exp	osure to			
Topics	mechanical design	_			_		-			-				
	mechanical compor	nents and p	rinci	ples	of engine	eering	g dra	wing	and	sketc	hing for			
	mechanical design.	1		•	C	`		Ü						

Code	Course Title	Prerequisite		С	ontact hou	urs			N	/larks				
Code	Course Title	Frerequisite	Cr	Lec	Tutorial	Lab	Total	CW	O/P	FE	Total			
EDE101	Electrical Systems	None	2	1	1	2	4	30	20	50	100			
EPE101	Electrical Systems	None	<u> </u>	1	1	<u> </u>	4	30%	20%	50%	100%			
Catogary		Compulsory (FR)												
	Introduction to electrical circuits - electrical installation in residential and industrial buildings (illumination networks in rural areas, data lines, telephone lines, and antenna													
Topics														
Topics	control of air conditioning, lift) - requirements of audio systems - alarm devices (fire -													
	security - gas).													

Code	Course Title	Prerequisite		C	ontact hou	ırs			N	/larks		
Code	Course Title	rierequisite	Cr	Lec	Tutorial	Lab	Total	CW	O/P	FE	Total	
EMD102	Numerical Techniques	EMP101	2	2	1	1	4	30	20	50	100	
EMP102	Numerical Techniques	EIVIPIUI	2	4	1	1	4	30%	20%	50%	100%	
Catogary		Compulsory (MR)										
Topics	Numerical solutions Numerical Solutions Differential equation	for ordinary	•							_		

Codo	Course Title	Droroguioito		С	ontact hou	urs				Marks	
Code	Course Title	Prerequisite	Cr	Lec	Tutorial	Lab	Total	CW	O/P	FE	Total
INE202	Engineering Statistics	None	2	2			2	50	•	50	100
INEZUZ	Engineering Statistics	None	4	4	•	-	4	50%	•	50%	100%
Catogary			С	ompu	lsory (FR)					
	Graphical presentat			-	•			_			
				•		e mean for ungrouped data, so Mode – Measures of Dispe					
	U 1										-
Topics	Variance and stand	ard deviatio	n fo	r ung	grouped s	ample	e data	ı, Var	iance	e and	standard
	deviation for groupe	d sample dat	a, R	ange -	– Bivariat	e dat	a: Sca	tter di	iagrai	ns, Co	orrelation
	Coefficient, Linear	Regression -	- P1	robabi	lity Distr	ibuti	ons –	Sam	pling	and	sampling
	Distributions.										

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Codo	Course Title	Dravaguiaita		С	ontact hou	urs			N	/larks	
Code	Course ritte	Prerequisite	Cr	Lec	Tutorial	Lab	Total	CW	O/P	FE	Total
MDE101	Thermodynamics	None	3	2	2		4	50	•	50	100
MIPETUI	Thermoughannes	none	3	<i>L</i>	4	-	4	50%	•	50%	100%
Catogary			С	ompu	Isory (MR)					
Tonics	Concepts and definit – Thermodynamic p availability - Mixtu measurements - Idea actual cycle Analysis – Solar Energy – Ge	processes – 25 ures - Basic al gases – Sta s – Power Cy	nd L es of indar rcles	aw of conduction of a conducti	f thermod nbustion cycles – I el – Bioma	ynam - Ba Heat (ass –	nics, e Isic c engine	ntropy ycles e cycle	y, irre – T es – T	eversib hermo Theore	oility and odynamic stical and

Elective (1) Humanities

	Sop	homore LE	VEI	100	COUR	SES							
Code	Course Title	Prerequisite			ontact ho				N	/larks			
Code	Course Title	rierequisite	Cr	Lec	Tutorial	Lab	Total	CW	O/P	FE	Total		
HUM103	History of Arabian and	None	2	2	_		2	50	-	50	100		
HOWITOS	Islamic Civilization	None	4	4	-	-		50%	-	50%	100%		
Catogary		Unive	ersit	y Ele	ctive (1)	(UR))						
Objective	Knowledge of the histo	ry of arabian	and	d isla	mic civi	lizati	ion						
	Defining civilization is	n general -	thec	ries	and ter	mino	ology	- Sho	ort ac	count	of the		
	Arabic community pre	-Islam - sett	ing	up t	he Islan	nic s	society	-'Its	deve	elopme	ent and		
Taniaa	main 'features - Islamie		_	_			-			-			
Topics	values - the basic c	oncepts - t	he	mair	charac	teris	stics -	- the	Ara	bian	Islamic		
		_											
	to the world. civilizatio	ields of science knowledge and culture - the Arabian contribution ion an human progress - the contemporary Arab -Islamic World											

	Sop	homore LE	VEI	100	COUR	SES							
Code	Course Title	Prerequisite			ontact ho				N	/larks			
Code	Course Title	Frerequisite	Cr	Lec	Tutorial	Lab	Total	CW	O/P	FE	Total		
HUM104	Geography of Mankind	None	2	2	_	_	2	50	-	50	100		
HOWITO4	& Environment	None		4	•	_		50%	-	50%	100%		
Catogary	University Elective (1) (UR)												
Objective	Knowledge of the geog	Knowledge of the geography of mankind & environment											
	Environment of the co	ntemporary r	nan	- the	e role of	ma	n in c	hangi	ng th	e envi	ironment		
Taniaa	Environment of the contemporary man - the role of man in changing the environment Analytical studies for models of the environment - some environmental problems -												
Topics	overpopulation and food shortage -'Pollution - depletion of the natural resources –												
	desertification.				-	•							

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	Sophoi	nore LEVEI	L 10	0 C	OURSES	S							
Code	Course Title	Droroguioito		C	ontact ho	ours			N	/larks			
Code	Course Title	Prerequisite	None 2 2 2 50 - 50%	Total									
HUM102	Human Resources	None	٥	•			2	50	-	50	100		
HUWITUZ	Management	None			-	•		50%	-	50%	100%		
Catogary													
Objective	Knowledge of the huma	nowledge of the human resources management.											
	Activities of HR mana	gement - HR	pla	nnin	g: Job a	nalys	sis, De	emanc	l for	HR, S	upply of		
Tonico	HR - Staffing: Recru												
Topics	Appraisal – Compensation: Type of equity, Designing the pay structure, Employee												
	benefits – Labor/manag	HR - Staffing: Recruitment, Selection - Training and development - Performance											

	Sophor	nore LEVEI	L 10	0 C(OURSES	S							
Code	Course Title	Prerequisite		C	ontact ho	ours			N	/larks			
Code	Course Title	Frerequisite	Cr	Lec	Tutorial	Lab	Total	CW	O/P	FE	Total		
HUM105	Introduction to Logic	None	•	•			2	50	-	50	100		
HOWITOS		University Elective (1) (UR)											
Catogary		University Elective (1) (UR)											
Objective	Knowledge of the logic	and relation	wit	h the	other sc	ience	es						
	Definition of logic and	its relation w	ith t	he o	ther scie	nces	– type	es of v	variou	ıs dedi	uctions -		
Topics	modern Logic and the	arious metho	ods (of res	search - l	Math	emati	cal Lo	ogic -	-prepo	sitional,		
	Introduction to Logic None 2 2 2 50 - 50% 100%												

LEVEL (200) Semester 5

Junior LEVEL 200 COURSES

Code	Course Title	Droroguicito		С	ontact hou	ırs			N	/larks		
Code	Course Title	Prerequisite	Cr	Lec	Tutorial	Lab	Total	CW	O/P	FE	Total	
DDF 210	Space Mission Analysis	MPE 101 2		2	1	1	4	30	20	50	100	
DFE 210	Analysis	MIPE 101	WIFE 101 Z		1	1	4	30%	20%	50%	100%	
Catogary		Compulsory (MR)										
Topics	Mission objectives, allocation, Mission of		-	sis,	Function	requ	iireme	ents,	Func	tion	tree an	

Code	Course Title	Prerequisite		С	ontact hou	ırs			N	/larks			
Code	Course Title	Frerequisite	Cr	Lec	Tutorial	Lab	Total	CW	O/P	FE	Total		
	Machine Element							30	20	50	100		
DPE201	Design Design	DPE103	3	2	1	3	6	30%	20%	50%	100%		
Catogary		Compulsory (MR)											
	Analysis and design	nalysis and design of machine elements, including theories of failure, fatigue strength,											
Tonico	and endurance limit	s; fluctuating	stre	esses;	Goodman	n dia	gram;	and f	atigu	e desi	gn under		
Topics	torsional and combin	ned stresses.	Desi	ign of	bolted co	onnec	tions,	faste	ners,	welds,	springs,		
	ball and roller bearin	gs, journal b	earir	igs, go	ears, clutc	hes, a	and br	akes.					

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Code	Course Title	Prerequisite		С	ontact hou	urs	Marks					
Code	Course Title	Frerequisite	Cr	Lec	Tutorial	Lab	Total	CW	O/P	FE	Total	
DDE202	Modern Production Systems	DPE001	3	2	2	1	_	30	20	50	100	
DF E202	Systems	DI EUU1	3	4	4	1	3	30%	20%	50%	100%	
Catogary			С	ompu	Isory (MR)						
	Principle of CNC	machines, C	AD-	CAM	system,	toler	ances	, fitti	ngs,	functio	onal and	
Topics	production-oriented	dimensionir	ng c	of me	echanical	com	poner	nts in	a	CAD-	program,	
	requirements to the r	nanufacturin	g pro	cess,	CNC mad	chine	s oper	ation	and n	naintei	nance.	

Code	Course Title	Prerequisite		С	ontact hou	urs			N	/larks				
Code	Course Title	Frerequisite	Cr	Lec	Tutorial	Lab	5 30 20 50 30% 20% 50% Inductor circuits and its, basic circuits with on circuits and Bod	FE	Total					
ECE201	Electronic Circuits	EPE101	2	2	2	1	_	30	20	50	100			
ECE201	Electronic Circuits	EFEIUI	3	4	4		5	30%	20%	50%	100%			
Catogary		Compulsory (MR)												
	Controlled sources, graphical network analysis, semiconductor circuits and ope													
Topics	points, low level sig				-						_			
Topics	bipolar transistors, logic components, frequency attenuation circuits and Bode diagram,													
	operation amplifier of	circuits, AD a	nd I)A co	nverters, _l	powe	r amp	lifier,	heat	sinks.	_			

Code	Course Title Prerequisite			С	ontact hou	urs		Marks				
Code	Course Title	Frerequisite	Cr	Lec	Tutorial	Lab	Total	CW	O/P	FE	Total	
MPE201	Aerodynamics	MPE101	3	2	2	1	_	30	20	50	100	
NIPE201	Aerouynamics	WIPEIUI	3	<u> </u>	4	1	5	30%	20%	50%	100%	
Catogary			С	ompu	Isory (MR)						
Topics	Definition and prop streams, friction, Fundamental conce isentropic flow; one one-dimensional flow	measurement epts in aer -dimensional	teo odyi flov	chnolo namic wwit	ogies, hy es and o h friction	drost comp and	atics, ressib	cons le fl	servat ow,o	ion e ne-din	equations nensional	

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Faculty elective (1)

Junior LE	Junior LEVEL 200 COURSES												
Code	Course Title	Duomoguigito		(Contact hou	ırs			1	Marks			
Code	Course Title	Prerequisite	Cr	Lec	Tutorial	Lab	Total	CW	O/P	FE	Total		
CUE208	Engineering Project	None	2	2			2	50	-	50	100		
CUE208	Management	None		L	•	-	2	50%	-	50%	100%		
Catogary		Faculty Elective (FR)											
Objective	Competence to plan	, lead and su	cces	sfully	close pro	jects							
Topics	Project management models, human reso				ects, time	etable	e, cos	t plai	nning	, man	agement		

Junior LE	EVEL 200 COURSE	<u>S</u>									
Code	Course Title	Prerequisite		(Contact hou	ırs			l	Marks	
Code	Course Title	Frerequisite	Cr	Lec	Tutorial	Lab	Total	CW	O/P	FE	Total
INE208	Quantitative Methods	None	2	2	_	_	2	50	-	50	100
	in Engineering		L	L				50%	-	50%	100%
Catogary			Fa	culty	Elective (FI	<u>(</u>)					
Objective	 To understand definition, scope, objectives, phases, models & limitations of operations research. To understand different application areas of operations research like transportation problem, assignment model, sequencing models, dynamic programming, game theory, replacement models & inventory models. Formulate simple reasoning, learning and optimization problems, in terms of the representations and methods presented. 										
Topics	Historical study of models. The simple topics in linear prog Methods of solving analysis. Solution of model queuing theor	ex methods: gramming: D transportati FCPM and P	Deg Qualition a	genera ty. Th and a	acy and come dual singlessignment	yclin mplex	g. Ar k metl blems	tificia nod. . Gan	l var Sensi ne th	iables tivity eory.	. Further analysis. Network

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Junior LE	EVEL 200 COURSE	S										
Codo	Course Title	Duomoguigito		(Contact hou	ırs			N	Marks		
Code	Course Title	Prerequisite	Cr	Lec	Tutorial	Lab	Total	CW	O/P	FE	Total	
	Environmental							50	-	50	100	
ENE202	Evaluation of	None	2	2	-	-	2	50%		50%	100%	
	Engineering Projects							30 76	•	50 76	100 70	
Catogary		Faculty Elective (FR)										
	Students should be able to: • Effectively use basic engineering economics tools to evaluate major infrastructure											
Objective	 Effectively use basic engineering economics tools to evaluate major infrastructure projects. Understand when to complement this basic analysis with more sophisticated tools. Critique the process used to evaluate typical infrastructure projects. Understand a broad range of project types of relevance to Civil and Environmental Engineering and related fields. Understand some ways in which project performance can be measured and improved. 											

This course covers methodologies for evaluating engineering projects, which typically are large-scale, long-lived projects involving many economic, financial, social, and

environmental factors. Students learn the basic techniques of engineering economics, including net present value analysis, life-cycle costing, benefit-cost analysis, and other

Understand the role of uncertainty in project evaluation.

Do an end-to-end project evaluation.

approaches to project evaluation.

Elective (2) Humanities

Topics

	Junior LEVEL 200 COURSES												
Code	Course Title	Prerequisite		С	ontact ho	urs			N	Marks			
Code	Course ritle	Frerequisite	Cr	Lec	Tutorial	Lab	Total	CW	O/P	FE	Total		
HUM 201	Introductory Mass	None	2	2			2	50	-	50	100		
HOW 201	Communication	munication - 50% - 50% 100%											
Catogary		University elective (2) (UR)											
Objective	Knowledge of the ma	ss communic	atio	n.									
	General introduction-	concept of N	Mass	Com	municatio	n- hi	story	of Ma	ass C	ommu	nication-		
Topics		ucture of the functions of Mass Communication - mass media and technology- Ethics											
		ure of the functions of Mass Communication - mass media and technology- Ethics aditions of Mass Communications.											

		Junior LEV	EL	200	COURSE	S								
Code	Course Title	Prerequisite		С	ontact ho	urs			N	Marks				
Code	Course ritle	Frerequisite	Cr	Lec	Tutorial	Lab	Total	CW	O/P	FE	Total			
HUM 202	Introductory	None	2	2			2	50	-	50	100			
HOW 202	Sociology	ciology - - - 50% - 50% 100%												
Catogary		University elective (2) (UR)												
Objective	Knowledge of the bas	ic concept of	soc	iology	/ .									
	Community - Social	relations - 1	orim	ary a	nd second	dary	group	s - N	Iodel	s .of t	topics in			
		ciology - the sociologist - Social control - Planning and development - Research												
	curricula and tools in	icula and tools in Sociology - Surveys in Sociology.												

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		Junior LEV	VEL	200	COURSE	S								
Code	Course Title	Prerequisite		С	ontact hou	urs			ı	Marks				
Code	Course Title	Prerequisite	Cr	Lec	Tutorial	Lab	Total	CW	O/P	FE	Total			
HUM 203	History of Ancient	None	2	2		_	2	50	-	50	100			
HUIVI 203	Egypt	Egypt - - 50% - 50% 100%												
Catogary	University elective (2) (UR)													
Objective	To learn bases and nat	e learn bases and nature of the Ancient Egyptian history.												
	Earth: natural resource	es and wealth	1 - b	ases a	nd nature	of th	e Egy	ptian	histo	ry - St	one ages			
Topics	(ancient, medieval an	arth: natural resources and wealth - bases and nature of the Egyptian history - Stone ages ncient, medieval and modern) prehistoric age - Ancient state - the first medieval age -												
Topics	medieval age - the see	eval age - the second medieval age - modern state - the third medieval age - the late												
		riods of independence.												

		Junior LEV	VEL	200	COURSE	S							
Code	Course Title	Droroguioito		С	ontact hor	urs				Marks			
Code	Course Title	Prerequisite	Cr	Lec	Tutorial	Lab	Total	CW	O/P	FE	Total		
LILIM 204	Introductory	None	2	•			2	50	•	50	100		
HUM 204	Psychology	Psychology None 2 2 2 50% - 50% 100%											
Catogary		University elective (2) (UR)											
Objective	To learn the basic cor	ncepts of psyc	cholo	ogy.									
Lonics	1 .	ature of psychology - motives - emotions - attitudes depression, and personal stress - enscientiousness and psychotherapy - recall and forgetfulness.											

LEVEL (200) Semester 6

Code	Course Title	Proroguicito		С	ontact hou	ırs			Ŋ	Marks				
Code	Course Title	Prerequisite	Cr	Lec	Tutorial	Lab	Total	CW	O/P	FE	Total			
DDF 211	Aero-Spacecraft Structure Design 1	MPE 101	3	2	2	1	_	30	20	50	100			
DFE 211	Structure Design 1	MIPE 101	ว	4	4	1	3	30%	20%	50%	100%			
Catogary		Compulsory (MR)												
Topics	Concepts of displace equations as used formulation via simple solving problems in	in solid m ple examples	necha s, fol	anics.	Emphas	is is	on	bound	dary-	value	problem			

Code	Course Title	Prerequisite		С	ontact hou	urs			N	/larks				
Code	Course Title	Frerequisite	Cr	Lec	Tutorial	Lab	Total	CW	O/P	FE	Total			
DDE 200	Space Environment	None	2	2	2	1	5	30	20	50	100			
DPE 209	Space Environment	None	3	4	4	1	5	30%	20%	50%	100%			
Catogary		Compulsory (MR)												
	Introduction to physical and aeronautical processes in the space environment. Discussion													
Topics	of theoretical tools, the Sun, solar spectrum, solar wind, interplanetary magnetic field,													
Topics	planetary magnetosp	lanetary magnetosphere, ionospheres and upper atmospheres. Atmospheric processes,												
	densities, temperatures, and wind.													

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Faculty of Engineering

Codo	Course Title	Droroguioito		С	ontact ho	urs			N	/larks	
Code	Course Title	Prerequisite Cr Lec Tutorial Lab Total CW O/P FE MPE 101 2 2 1 1 4 30 20 50 Compulsory (MR) ace flight mechanics. The two-body problem. Orbital ital analysis. Ground tracks and relative motion in orbit spacecraft attitude and rotational dynamics. Euler's and analysis. Open loop attitude control momentum managem tion wheels. Introduction to spacecraft dynamics and nd attitude representations, kinematics, dynamics. Per circular orbits. Spacecraft maneuvers formulated and second control momentum managem to the circular orbits. Spacecraft maneuvers formulated and second control momentum managem to the circular orbits. Spacecraft maneuvers formulated and second control momentum managem to circular orbits. Spacecraft maneuvers formulated and second control momentum managem to circular orbits. Spacecraft maneuvers formulated and second control momentum managem to circular orbits. Spacecraft maneuvers formulated and second control momentum managem to circular orbits. Spacecraft maneuvers formulated and second control momentum managem to circular orbits. Spacecraft maneuvers formulated and second control momentum managem to circular orbits. Spacecraft maneuvers formulated and second control momentum managem to circular orbits.	Total								
DPE 212	Orbits and Flight	MDE 101	2	2	1	1	4	30	20	50	100
DFE 212	Trajectory	MIFE IOI	4	4	1	1	4	30%	20%	50%	100%
Catogary											
Topics	maneuvers and orb assist trajectories. S equations. Stability thrusters and reac Spacecraft orbit a	ital analysis. Spacecraft at analysis. Op tion wheels. nd attitude	Greatitud en le Internation	ound le and oop a troductesent	tracks and rotation titude contion to ations, k	d rel al dy ntrol space inem	ative ynamic mome ecraft atics,	motices. Eventum dyna dyna	on in uler's man amics amics	orbit. and lagement and . Per	Gravity Poisson's ent using control. turbation

Codo	Course Title	Prerequisite		С	ontact hou	urs			N	/larks			
Catogary Volume Topics Volume Topics	Course ritte	Frerequisite	Cr	Lec	Tutorial	Lab	Total	CW	O/P	FE	Total		
	Mechanical	EMP101	2	2	2	1	_	30	20	50	100		
DPE203	Vibrations	EMPTOT	3	<i>Z</i>	2	1	5	30%	20%	50%	100%		
Catogary	Compulsory (MR)												
Topics	Vibration motion - F vibrations — Vibrati degree of freedom Properties of vibratii Lab: Measurement damping coefficient	ons under ex systems - Ing systems. of natural	xterr Harm frequ	nal fo nonica nency	rces and ally excited of mech	their ed m nanic	appli otion	cation – Ti	ransie	two annt vib	nd Multi oration –		

Code	Course Title	Prerequisite		С	ontact hou	urs			N	Marks				
Code	Course Title	Frerequisite	Cr	Lec	Tutorial	Lab	Total	CW	O/P	FE	Total			
DDE204	Finite Element Analysis	EMP102	3	2	2	1	_	30	20	50	100			
DPE204	Analysis	EIVIP 102	3	4	4	{) │ 1	5	30%	20%	50%	100%			
Catogary		Compulsory (MR)												
	Introductory level. Finite element solutions for structural dynamics and nonlinear													
Topics	problems Normal modes forced vibrations Fuler buckling (bifurcations) lar								s), large					
Topics	deflections, nonlinea	deflections, nonlinear elasticity, transient heat conduction. Computer laboratory based on												
	a general purpose finite element code.													

Code	Course Title	Prerequisite		С	ontact ho	urs				Marks		
Code	Course Title	Frerequisite	Cr	Lec	Tutorial	Lab	Total	CW	O/P	FE	Total	
MDE202	Gas Dynamics	MPE201	2	2	1	1	4	30	20	50	100	
WIFE2U2	Gas Dynamics	WIFEZUI	4	4	1	1	4	30%	20%	50%	100%	
Catogary			С	ompu	ılsory (MR	₹)						
	Flow around solid bodies and wings. Wing sections, lift and drag. Subsonic potential											
	flows, viscous flows, laminar and turbulent boundary layers; aerodynamics of airfoils and											
Topics	wings, thin airfoil t	heory, lifting	g lin	e the	ory, pane	el me	thod/i	nterac	cting	bound	lary layer	
	methods supersonic	vings, thin airfoil theory, lifting line theory, panel method/interacting boundary layer nethods supersonic and hypersonic airfoil theory. Supersonic effects. Linearized										
	compressible flow. V	• •				•	-					

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Engineering Elective (1)

				С	ontact hou	urs			Ŋ	Marks		
Code	Course Title	Prerequisite	Cr	Lec	Tutorial	Lab	Total	CW	O/P	FE	Total	
DD 20.5	Mechanics of							50	-	50	100	
DPE205	Fibrous Composite Materials	DPE102	٣	2	1	٣	٦	50%	-	50%	100%	
Catogary		Engineering Elective (1) (MR)										
	Effective stiffness properties of composites. Constitutive description of laminated plates.											
	Laminated plate th	eory. Edge	effe	cts i	n laminat	es. 1	Nonlin	ear t	heory	of g	generally	
Topics	laminated plates. Go	verning equa	ation	s in t	he Von K	Carma	n sen	se. La	ımina	ted pla	ates with	
	moderately large de	flections. Pos	st-bu	ckling	g and non	ılinea	ab Total CW O/P FE 50 - 50 50% - 50% MR)	d plates.				
	Failure theories and	experimental	resu	ılts fo	r laminate	es.					-	

Code	Course Title	Prerequisite		С	ontact hou	urs			N	/larks				
Code	Course rille	Frerequisite	Cr	Lec	Tutorial	Lab	Total	CW	O/P	FE	Total			
	Mechanics of							30	20	50	100			
DPE206	Composite and Micro structured Media	DPE102	3	2	1	2) (MF	5	30%	20%	50%	100%			
Catogary		Engineering Elective (1) (MR)												
	An introduction to				• '			-						
	emphasis on the	derivation of	of n	nacros	scopically	con	istituti	ve la	aws	based	on the			
Topics	microstructure. Eshe	lby transform	natio	on the	eory, self	consi	stent	metho	ods, h	omog	enization			
	theory for periodic	media, bour	nding	g pro	perties fo	r eff	ective	mod	ules	of cor	nposites.			
	Applications of aero	space interes	t.											

Code	Course Title	Prerequisite		С	ontact hou	urs			ı	/larks	
Code	Course Title	Frerequisite	Cr	Lec	Tutorial	Lab	Total	CW	O/P	FE	Total
DPE207	Analysis of Plates	DPE102	3	2	1	2	5	30	20	50	100
DPE207	and Shells	DPE 102	3	<u> </u>	1	2	5	30%	20%	50%	100%
Catogary		En	gine	ering	Elective (1) (MF	2)				
Topics	This course explored relations for plate a nonlinear geometric and typical stiffened and axisymmetric slawith application to of and explosive and in term.	nd shell eler effects; post panels used hells; bucklin offshore struc	nent -buc in na ng, c tures	s; the kling aval a crushis; and	bending and ultimerchitecture and beauther the applice	and nate se; the endin	buckl trengt gene g stre	ing or h of c ral the ngth ashwe	f rect cold f eory of of cy	angula ormed of elas lindric ess of	r plates; sections tic shells cal shells vehicles

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Codo	Course Title	Droroguioito		С	ontact hou	urs			N	/larks	
Code	Course Title	Prerequisite	Cr	Lec	Tutorial	Lab	Total	CW	O/P	FE	Total
DDE200	Failure Analysis	DPE102	٣	2	1	2	5 unders , cree etallog	30	20	50	100
DPE208	Fallule Allalysis	DPE 102	١	2	1	2	5	30%	20%	50%	100%
Catogary		En	gine	ering	Elective (1	I) (MF	₹)				
Topics	This course is design damage mechanism failures; procedural studies. Mechanisms detail. The primary and mechanisms inv	s such as f approaches in overload aim of this co	atigu in i , fati	ie, w failure igue, e is to	ear, corre e analysis impact an provide g	osion s; me d cre	, cree etallog ep fai	p and raphic lures	d oth c and will b	er me l fract pe disc	echanical ographic cussed in

LEVEL (300) Semester 7

Senior 1 LEVEL 300 COURSES

Code	Course Title	Prerequisite		С	ontact hou	urs			Ŋ	Marks				
Code	Course Title	Prerequisite	Cr	Lec	Tutorial	Lab	Total	CW	O/P	FE	Total			
MDE 201	Design of Aircraft Propulsion systems	DPE 203	2	2	1		2	50	-	50	100			
MIPE 301	Propulsion systems	DPE 203	4	<u> </u>	1	-	3	50%	-	50%	100%			
Catogary		Compulsory (MR)												
lopics	Airbreathing propul propulsion concepts chemistry and therm other air-breathing p	. Includes the odynamics of	nerm	odyna mbust	amic cycl	es as	relate	ed to	prop	ulsion	and the			

Code	Course Title	Prerequisite		С	ontact hou	urs			N	/larks			
Code	Course Title	Frerequisite	Cr	Lec	Tutorial	orial Lab 1 2 1 v (MR) determining determining	Total	CW	O/P	FE	Total		
DPE 302	Aero-Spacecraft	DPE 203	3	2	•	1	_	30	20	50	100		
DFE 302	Structure Design 2	DPE 203	3	<i>_</i>	2	1	3	30%	20%	50%	100%		
Catogary		Compulsory (MR)											
	Modeling of one d	imensional e	elem	ent, f	or detern	ninin	g inte	rnal	forces	and	stresses.		
Topics	Modeling of two d	imensional e	leme	ents,	for deterr	ninin	g inte	ernal	forces	s and	stresses.		
Topics	Modeling of three of	dimensional	elem	ents,	for deter	miniı	ng inte	ernal	force	s and	stresses.		
	With applications on	Structural M	Iecha	anics,	Fluid Me	chan	ics and	d The	rmal A	Applic	ations.		

Code	Course Title	Prerequisite		С	ontact hou	urs			N	/larks	
Code	Course Title	rierequisite	Cr	Lec	Tutorial	1 Lab Total CW O/P FE 30 20 50 30% 20% 50%	FE	Total			
DPE301	Stability and Control	DPE203	3	2	2	1	_	30	20	50	100
DPESUI	Stability and Control	DPE203	3	4	4	1	5	30%	20%	50%	100%
Catogary			С	ompu	Isory (MR))					
Topics	Spacecraft orbit an equations for near cirproblems - equation control systems by	d attitude recular orbits on for longitutime domain	repre - Spa adina	esenta acecra al and d trar	tions: kir ft maneuv lateral fl asform tec	nema vers f ight o chniq	tics, ormul dynam ues -	dynan ated a nics — stabi	nics and so analy lity a	- Per olved a ysis of nalysi	turbation as control discrete s (Routh

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Code	Course Title	Prerequisite		С	ontact hou	urs				Marks		
Code	Course Title	rierequisite	Cr	Lec	Tutorial	Lab	Total	CW	O/P	FE	Total	
INE207	Engineering Economy	None	2	1	2		2	50	-	50	100	
INEZU/	Engineering Economy	None	4	1	<u> </u>	-	3	50%	-	50%	100%	
Catogary		Compulsory (FR)										
	Elementary economy	y analysis, I	Linea	ar pro	gramming	g, Ra	te of	retur	n, Re	placer	nent and	
Topics	maintenance analysi	•		-	-	_				-		
	decision, Project man	-				1						

Engineering Elective (2)

Code	Course Title	Prerequisite		С	ontact hou	urs			N	/larks	
Code	Course Title	Frerequisite	Cr	Lec	Tutorial	Lab	Total	CW	O/P	FE	Total
DDE 202	Cross Mission Design	DPE 203	2	2	2	1	5	50	-	50	100
DPE 303	Space Mission Design	DPE 203	3	4	4	1	5	50%	-	50%	100%
Catogary		Engineering Elective (2) (MR)									
	Mission characteriz requirements, Mission									y, Sul	bsystems

Code	Course Title	Prerequisite		С	ontact hou	urs			N	/larks			
Code	Course Title	Frerequisite	Cr	Lec	Tutorial	Lab	Total	CW	O/P	FE	Total		
MDE 204	Helicopter Dynamics	MPE202	3	2	2	1	7	30	20	50	100		
MPE 304					30%	20%	50%	100%					
Catogary	Engineering Elective (2) (MR)												
	Space Dynamics, Dynamics of Rigid Bodies, Two Body Problem, Orbit Determination,												
Topics	Orbit Transfer Satellite Attitude Dynamics Attitude Determination in												
Topics	and Gyroscopes, At	titude Contro	ol, I	Thrust	er Contro	ol, At	titude	Stab	ilizati	ion w	ith Spin,		
	and Gyroscopes, Attitude Control, Thruster Control, Attitude Stabilization with Spin, Control with Momentum Wheel, Control of Translational Motion.												

Code	Course Title	Proroguicito		С	ontact hou	urs			N	/larks			
Code	Course Title	Prerequisite	Cr	Lec	Tutorial	Lab	Total	CW	O/P	FE	Total		
MDE 205	Helicopter Aerodynamics	MPE202	2	2	•	1	_	30	20	50	100		
MIPE 305	Aerodynamics	NIPE2U2	3	4	4	1	3	30%	20%	50%	100%		
Catogary	Engineering Elective (2) (MR)												
	The development of rotating-wing aircraft and the helicopter. Hovering theory												
Topics	vertical flight performance analysis. Auto-rotation, physical concepts of blade motion and												
100.00	control, aerodynami	cs and perf	orma	ance	of forwaı	rd fli	ght. I	Blade	stall	, stab	ility and		
	vibration problems. Design problems												

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Code	Course Title	Prerequisite		С	ontact hou	urs			N	/larks			
Code	Course Title	Frerequisite	Cr	Lec	Tutorial	Lab	Total	CW	O/P	FE	Total		
MDE 206	Unmanned Air Vehicles	MPE202	3	2	2	1	_	30	20	50	100		
MIPE 300	Vehicles		3	<u> </u>	<u> </u>	1	5	30%	20%	50%	100%		
Catogary	Engineering Elective (2) (MR)												
	This course is a survey of unmanned aircraft systems (UAS), emphasizing the military												
Topics													
Торіоз	acquisition, use, and	d operation of	of U	ASs v	with an ei	npha	sis on	oper	ations	s. Prod	of of US		
	citizenship is required.												

Engineering Elective (3)

Code	Course Title	Prerequisite		С	ontact hou	urs			N	Marks		
Code	Course ritte	Frerequisite	Cr	Lec	Tutorial	Lab	Total	CW	O/P	FE	Total	
DDE 207	Satellite Technology	DPE 203	3	2	•	1	5	30	20	50	100	
DPE 307	Satemite Technology	DPE 203	3	4	4	1	5	30%	20%	50%	100%	
Catogary		Engineering Elective (3) (MR)										
	Spacecraft payload,	spacecraft	pay	load	design a	nd s	sizing,	Spa	cecra	ft sub	systems,	
Topics	Spacecraft manufact	turing and re	eliab	ility,	Spacecraf	ft tes	ting n	nethod	dolog	ies, S	pacecraft	
	cost modeling,											

Code	Course Title Pr	Prerequisite		С	ontact hou	urs			N	/larks		
Code	Course rille	Frerequisite	Cr	Lec	Tutorial	Lab	Total	CW	O/P	FE	Total	
MDE 200	Aerodynamics of V/STOL	MPE202	3	2	2	1	5	30	20	50	100	
MIPE 308	V/STOL	NIPE2U2	3	<u> </u>	4	1	5	30%	20%	50%	100%	
Catogary		Engineering Elective (3) (MR) - and three-dimensional potential flow about wings and bodies; complex-variable										
	Two- and three-dim	nensional pot	entia	al flo	w about v	wings	and	bodie	s; co	mplex	-variable	
	methods; singularity distributions; numerical solution using panel methods. Unsteady											
Topics												
_	boundary-layer cont	•	•						_		•	
	methods.	υ					1		1	,		

Cod	40	Course Title	Prerequisite		С	ontact ho	urs			N	<i>l</i> larks	
COC	ue	Course Title	rierequisite	Cr	Lec	Tutorial	Lab	Total	CW	O/P	FE	Total
MPE		Instruments of	MPE202	3	2	2	1	5	30	20	50	100
MILE	303	Helicopters	WII EZUZ	7	4	2	1	3	30%	20%	50%	100%
Catog	gary		En	gine	ering	Elective (3	3) (MF	₹)				
Торі	ics	This course will exabelow 18,000 feet helicopter performa related to instrume management. By the knowledge requirer knowledge test.	. Topics to not for instruction flying, one end of the	be umen en r	covent flig route ourse,	ered inclught, instru navigation the stud	ide l iment on, a ent v	Federa apprond the vill ha	l Av oach j e ele ave m	riation proce ement net th	n Reg dures, s of ne aer	gulations, weather resource onautical

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Code	Course Title F	Prerequisite		С	ontact hou	urs			N	Marks				
Code	Course Title	Frerequisite	Cr	Lec	Tutorial	Lab	Total	CW	O/P	FE	Total			
MDE 210	Internal Combustion Engines	MPE202	2	2	•	1	_	30	20	50	100			
MIPE 310	Engines	MPE202	3	<i>L</i>	4	1	3	30%	20%	50%	100%			
Catogary		iprocating ICEs: Theoretical Air and Gas Cycles, Fuels for ICE, Admission and												
	Reciprocating ICEs:	Theoretical	Air	and	Gas Cyc	les, l	Fuels	for I	CE, A	Admis	sion and			
	Compression, Combustion Process in ICE, Combustion Knock and Knock Rating,													
Topics	Expansion and Exha	Expansion and Exhaust, Power Output, Supercharging. Heat Loss Through Cylinders and												
	Piston, Performance	e, Emission,	Eng	gine	systems I	Desig	n. Ga	s Tu	rbine	Powe	er Units.			
	Special Design Engi	nes.		_	-									

Elective (3) Humanities

		Senior 1 LE	VE	L 300	COURS	ES							
Code	Course Title	Prerequisite		С	ontact hor	urs			ľ	Marks			
Code	Course ritle	Frerequisite	Cr	Lec	Tutorial	Lab	Total	CW	O/P	FE	Total		
HUM 303	Scientific Research	None	2	2		_	2	50	-	50	100		
HOW 303	Methods	Methods - - - 50% - 50% 100%											
Catogary		University elective (3) (UR)											
Objective	To learn about Scient	ific Research	Me	thods									
	Setting up, developme	ent and meth	ods	of sci	entific thi	nking	g - Sci	entific	c Res	earch	curricula		
Topics	<u> </u>	nd tools - Selecting and developing topics - deducing results - Methods of gathering and											
		senting data - methods of using the library - Report writing.											

		Senior 1 LE	VE	L 300	COURS	ES							
Code	Course Title	Prerequisite		С	ontact hor	urs			N	/larks			
Code	Course Title	Prerequisite	Cr	Lec	Tutorial	Lab	Total	CW	O/P	FE	Total		
HUM 301	Seminar 1	None	2	2		_	2	50	-	50	100		
HOW 301	Seminar i	None	4		•	•		50%	-	50%	100%		
Catogary		University elective (3) (UR)											
Objective	To learn about character	p learn about characteristics of good seminar presentation.											
	Talks and presentation	ns are invited	l fro	m ind	ustrial est	ablisł	nment	s rele	vant t	o the	orogram.		
Tanias	The guest speaker sho	The guest speaker should discuss the organization, management, and recent technologies											
Topics	implemented in his/he	plemented in his/her industrial establishment. Students exercise writing brief technical											
	reports on the guest pr	esentation ar	nd de	eliver	their own	pres	entatio	on abo	out th	e topic	.		

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		Senior 1 LE	VE	L 300	COURS	ES							
Code	Course Title	Prerequisite		С	ontact ho	urs			M	Marks			
Code	Course Title	Frerequisite	Cr	Lec	Tutorial	Lab	Total	CW	O/P	FE	Total		
HUM 304	Introductory	None	2	2			2	50	-	50	100		
HOW 304	Industrial Psychology	None	4		•	-		50%	-	50%	100%		
Catogary		Ur	iver	sity el	ective (3)	(UR)							
Objective	To learn an Introductory Industrial Psychology												
	Definition of fields and aims of Psychology and its importance in practical life - Bases of												
	human behaviour and motives - conscientiousness, learning. and recall - intelligence an												
-													
Topics	thinking - harmony in personality - Applying principles of Psychology in the fields of Industrial Psychology - realizing convenience between the individual and, his profession -												
	Analyzing work - Sel	ecting the ind	divid	lual -	Industrial	train	ing ar	nd its	Psycl	hologi	cal bases		
	- Group interaction within the Industrial organizations.												

		Senior 1 LE	VE	L 300	COURS	ES							
Code	Course Title	Prerequisite		С	ontact ho	urs			ľ	Marks			
Code	Course Title	Frerequisite	Cr	Lec	Tutorial	Lab	Total	CW	O/P	FE	Total		
HUM 305	Introductory	None	2	2			2	50	•	50	100		
HOW 303	Industrial Sociology	None			-	_		50%	-	50%	100%		
Catogary		Ur	niver	sity el	ective (3)	(UR)							
Objective	To learn an introduction of Industrial Sociology												
	Concepts of the social structure - levels of the social, cultural and bringing up relations -												
	Processes of organizing the social systems and the social change social cases related to												
	industry and industrialization in the developing countries - the necessary social												
Topics	requirements to face	the industria	aliza	tion c	hallenges	- the	e cont	tempo	rary	theorie	es of the		
	industrial organizations and its suitability with the facts of the developing countries -												
	analyzing the relation	'between in	ndust	rializ	ation and	the s	social	syste	ms -	Analy	zing the		
	analyzing the relation 'between industrialization and the social systems - Analyzing the relation between industrialization and the urban development in Egypt.												

LEVEL (300) Semester 8

Code	Course Title	Prerequisite		С	ontact hou	urs				Marks				
Code	Course Title	Frerequisite	Cr	Lec	Tutorial	Lab	Total	CW	O/P	FE	Total			
MDF 211	Design of Rocket Propulsion systems	MPE 301	2	2	1		2	50	-	50	100			
MIFE 311	Propulsion systems	MIPE 301	4	4	1	-	3	50%	-	50%	100%			
Catogary		Compulsory (FR)												
	Rocket propulsion and an introduction to modern advanced propulsion concepts.													
Tonico	Introduces liquid- and solid-propellant rockets and advanced propulsion concepts such as													
Topics	Hall thrusters and pulsed plasma thrusters. Students also learn about the environmental													
	impact of propulsion	systems and	wor	k in t	eams to de	esign	a jet e	engine) .					

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Code	Course Title	Prerequisite		Co	ontact ho	urs			N	/larks	
Code	Course Title	Prerequisite	Cr	Lec	Tutorial	Lab	Total	CW	O/P	FE	Total
	Computer Aided	DPE 203&			_		_	30	20	50	100
	Aero-Spacecraft Structural Analysis	DPE204	3	2	2	1	5	30%	20%	50%	100%
Catogary			Cor	npuls	ory (MR)						
	Determination of N	atural Frequen	cy, F	Perfor	ming Mo	odal .	Analy	sis an	d De	termir	nation of
Topics	Vibration Modes of	f: one dimen	siona	al ele	ment, tw	vo di	mensi	onal	eleme	ents a	nd three
	dimensional elemen	ts.									

Code	Course Title	Proroguicito		С	ontact hou	urs			N	/larks		
Code	Course Title	Prerequisite	Cr	Lec	Tutorial	Lab	Total	CW	O/P	FE	Total	
CSE 313	Sensors and	E CEAA	2	•	1		_	30	20	50	100	
	Actuators	ECE201	3	2	1	7	5	30%	20%	50%	100%	
Catogary		Compulsory (MR) ninology and principle of measuring system- Statistical concepts – Assessment of										
Topics	Terminology and pruncertainty - Repeat measurement — in measurement. Lab: Measurements surface roughness.	ability and acterferometry	ccura –	acy – surfa	sources of ce finish	f erro	or – lin Gear	near meas	neasui surem	rement ent –	t angular - thread	

Code	Course Title	Course Title Prerequisite		С	ontact hou	urs			N	/larks	
Code	Course Title	rierequisite	Cr	Lec	Tutorial	Lab	Total	CW	O/P	FE	Total
MDF201	Heat Transfer	MPE101	2	2	1	1	4	30	20	50	100
MIPESUI	meat Transfer	MPEIUI	4	<u> </u>	1	1	4	30%	20%	50%	100%
Catogary					Isory (MR						
Topics	Introduction and fur conduction — Unstection conduction eat transtransfer with change and diffusion mass trab: Determination radiation heat transfer	ady heat confer and applies of phase. Meansfer and apof of heat trans	nduc catio Iulti oplic	tion - ons. F mode ations	- Radiation Record Reco	on he orced ansfei	at tra conv Hea	nsfer ectior t excl	– Tw heat nange	vo-dim trans rs. Co	nensional fer. Heat onvection

Engineering Elective (4)

Codo	Course Title	Droroguioito		С	ontact hou	urs			N	/larks	
Code	Course ritte	Prerequisite	Cr	Lec	Tutorial	Lab	Total	CW	O/P	FE	Total
DDE 214	Theory of Control	DPE301	3	2	2	1	5	30	20	50	100
DPE 314	Theory of Control	DPESUI	3	<u> </u>	4	1	3	30%	20%	50%	100%
Catogary		En	gine	ering	Elective (4	4) (MF	₹)				
	Concepts of linear s	systems: state	e equ	uatior	s, transfe	r fun	ctions	, stab	ility,	time r	esponse,
	frequency response.	Fundamenta	ls of	feed	oack conti	rol, ir	ıcludi	ng roc	ot loc	us and	Nyquist
	analysis applied to	flight control	l. Re	eview	of single	varia	able s	ystem	is and	l exter	nsions to
Topics	multivariable syster	ns. Purpose	of fe	eedba	ck. Sensit	tivity	, robu	stness	s, and	desig	gn trade-
-	offs. Design formul	-				•				-	-
	Pole placement/obs	U							1		
	Design problems un	U								C	

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Code	Course Title	Prerequisite		С	ontact hou	urs			N	/larks				
Code	Course Title	Frerequisite	$ \begin{array}{c c c c c c c c c c c c c c c c c c c $	FE	Total									
MDF 215	High Speed Aerodynamics	MPE 201	2	•	•	1	_	30	20	50	100			
MIFE 315	Aerodynamics	MIPE 201	ว	4	4	1	3	30%	20%	50%	100%			
Catogary		Engineering Elective (4) (MR)												
	Contemporary aerodynamic analysis and design of aerospace vehicles and other syst													
Topics	Topics include: review of theoretical concents and methods, computer-based CFD tool													
1 opioc	experimental methods and wind tunnel testing. Case studies are discussed to illustra						strate the							
	combined use of adv	anced aerody	nam	ic des	sign metho	ods. A	A tean	ı proj	ect is	requir	ed.			

Code	Course Title	Prerequisite		С	ontact hou	urs			N	/larks			
Code	Course Title	Frerequisite	Cr	Lec	Tutorial	Lab Total CW O/P F 1 5 30 20 50 30% 20% 50 50 4) (MR) 6 6 6 6	FE	Total					
MDE 216	Basic Navigation Systems	DPE301	3	2	•	1	_	30	20	50	100		
MIPE 310	Systems	DPESUI	3	<i>_</i>	4	1	5	30%	20%	50%	100%		
Catogary		En	gine	ering	Elective (4	4) (MI	₹)						
	Introduction to navigation for Aeronautical Science. The course content includes aircraft												
	instruments and sy	stems theory	, air	craft	performa	nce,	naviga	ation	theor	y and	solution		
	_	•			•		_			•			
	navigation informa	tion sources	and	d pla	nning pro	ocedu	ires,	and s	pecia	l prob	olems in		
	navigation with emp	ohasis on flig	ht pl	annin	g.				_	_			

Code	Course Title F	Prerequisite		С	ontact hou	urs			N	/larks	
Code	Course rille	Frerequisite	Cr	Lec	Tutorial	Lab	Total	CW	O/P	FE	Total
MPE 317	Solar Energy	DPE v.3	3	2	2	1	5	30	20	50	100
WIFE 317	Solar Ellergy	DIE (13	ว	4	4	1	3	30%	20%	50%	100%
Catogary		En	gine	ering	Elective (4	1) (MF	₹)				
Topics	Primary alternative energy storage. A thermodynamics of gasses, wind energy solar cells and directationary or a vehicle stationary or vehicle	Availability compressible conversion of energy concept concepts.	and flow sol vers	the w, the ar ph ion. I	evaluation rmodynar otovoltaic Design and	on conic per and do opt	of the owers solar imizat	ermod syster therr tion a	lynam ns, m nal ei powe	ic prixtures nergy er syst	coperties, s of ideal systems, tem for a

Engineering Elective (5)

Code	Course Title	Droroguicito		С	ontact hou	urs			N	/larks	
Code	Course Title	Prerequisite	Cr	Lec	Tutorial	Lab	Total	CW	O/P	FE	Total
DDE 210	Structure Testing	DPE *· v	2	2	2	1	_	30	20	50	100
DPE 318	Structure resulig	DPE	3	<u> </u>	4	1	5	30%	20%	50%	100%
Catogary		En	gine	ering	Elective (5	5) (MF	₹)				
	Engineering Data -	Manufacture	of I	High-l	Reliability	/ Har	dware	- Ins	pection	on and	l Quality
Topics	Assurance - The Qu	ualification P	rogr	am -	Spacecrat	ft Qu	alifica	ition '	Test 1	Flow -	- Launch
	Site Operations.										

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Code	Course Title	Prerequisite		С	ontact hou	urs			N	/larks			
Code	Course Title	Frerequisite	Cr	Lec	Tutorial	Lab	Total	CW	O/P	FE	Total		
MDF 210	Aircraft Instruments	DPE301	2	2	2	1	_	30	20	50	100		
WIFE 319	An craft first unitents	DPESUI	3	4	4	1	3	30%	20%	50%	100%		
Catogary		Engineering Elective (5) (MR)											
Topics	Measuring Instrume Instruments of Cor Electric Power Syste	ntrol Surface	s, F	uel (Control S	yster	n, Hy	draul	ic Co	ontrol	System,		

Code	Course Title	Prerequisite		С	ontact hou	urs			N	/larks		
Code	Course ritte	Frerequisite	Cr	Lec	Tutorial	Lab	Total	CW	O/P	FE	Total	
MDE 220	Boundary Layer Theory	DPE 316	2	2	2	1	5	30	20	50	100	
MIPE 320	Theory	DPE 310	3	<u> </u>	4	1	5	30%	20%	50%	100%	
Catogary		En	gine	ering	Elective (5	5) (MF	?)					
	Laminar and Turbulent Boundary Layers, Governing Differential and Integral Equations.											
	Exact and Approxi	mate Solution	ons	of B	oundary-I	Layer	Equa	ations	with	out a	and with	
Topics	Pressure Gradients.	Boundary La	yers	with	Heat/Mas	ss Tra	nsfer.	Wak	es an	d Jets.	Friction	
	Drag Calculation. C	Compressible	Bou	undar	y-Layer F	Flow.	Shoc	k Wa	ve-B	ounda	ry Layer	
	Interaction. Boundar	y Layer Con	trol.									

Code	Course Title	Prerequisite		С	ontact ho	urs			N	/larks	
Code	Course ritle	Frerequisite	Cr	Lec	Tutorial	Lab	Total	CW	O/P	FE	Total
MDE 221	Aircraft Systems and Components	DPE301	3	2	2	1	5	30	20	50	100
WIF E 321	Components	DFESUI	ว	4	4	1	3	30%	20%	50%	100%
Catogary	Engineering Elective (5) (MR)										
	Navigational Syste	ms, Integra	ited	Nav	igation	Syste	em, A	Appro	ach	and	Landing
Topics	Systems, Control Sy	stems, Fuel	Cor	itrol	System, 1	Hydra	aulic	Contr	ol Sy	stem,	Electric
	Power System, Safet	y Systems: A	appro	oach V	Warning,	Wind	-Shea	r War	ning.		

LEVEL (400) Semester 9

Senior 2 LEVEL 400 COURSES

Codo	Course Title	Droroguioito		С	ontact hou	urs			Ν	larks	
Code	Course Title	Prerequisite	Cr	Lec	Tutorial	Lab	Total	CW	O/P	FE	Total
	Graduation Project	CSE001+						50	50	-	100
MPE 401	(1)	Completed 1 ^v 0 CH	۲	١	ı	٣	٤	50%	50%	-	100%
Catogary			С	ompu	Isory (MR)					
Topics	The content of this collaborate with fac laboratory or condu. This experience prengages them as actispecific faculty mem	ulty research act independe ovides stude ave learners i	n me ent r ents n a r	ntors esear with esear	on an on ch under an inqui ch setting.	going the g ry ba	g proje guidan ased 1	ect in ce of earnii	a fac a fa ng op	culty r culty portu	nember's member. nity and

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Codo	Course Title	Droroguioito		С	ontact hou	urs			N	/larks				
Code	Course Title	Prerequisite	Cr	Lec	Tutorial	Lab	Total	CW	O/P	FE	Total			
MDE 402	Flight Mechanics and Control	DPE 212	3	2	2	1	_	30	20	50	100			
WIFE 402	Control	DFE 212	ว	4	4	1	3	30%	20%	50%	100%			
Catogary		Compulsory (MR)												
	The analysis, characterization and determination of space trajectories from a dynamical													
	systems viewpoint.	The general	for	mulat	ion and s	soluti	on of	the s	space	eraft t	rajectory			
	design and navigati										.,			
	Estimation of mod	el parameter	rs fi	om s	spacecraft	trac	king	data	(e.g.,	grav	ity field			
	estimation). Element	s of precision	n mo	delin	g and prec	cision	orbit	deteri	minat	ion.	-			

Code	Course Title	Prerequisite		С	ontact hou	urs		Marks				
Code	Course rille	Frerequisite	Cr	Lec	Tutorial	Lab	Total	CW	O/P	FE	Total	
DPE 403	Modeling and	DPE301	2	1	2	2	5	30	20	50	100	
DPE 403	Simulation	DPESUI	<i>_</i>	1	4	<u> </u>	5	30%	20%	50%	100%	
Catogary			С	ompu	Isory (MR)						
	Introduction to matri	ix operations	usin	g MA	TLAB/M	AT_	SAP -	Mod	eling	and ar	alysis of	
	lumped physical sys	mped physical systems - static and dynamic response of electrical, mechanical, thermal									, thermal	
Topics	and hydraulic eleme			•								
•	frequency response					•						
	modeling and analys	is.										

Code	Course Title	Prerequisite		C	ontact hou	urs			N	Marks			
Code	Course Title	rierequisite	Cr	Lec	Tutorial	Lab	Total	CW	O/P	FE	Total		
MPE404	Design of Turbo	MPE202	ţ	2	1		~	50	-	50	100		
MIPE404	machines	NIPE2U2	,	4	1	-	1	50%	-	50%	100%		
Catogary		Compulsory (FR)											
	Characteristics of Wind Energy Resources. Aerodynamics of Horizontal-Axis W												
Topics	Turbines: Blade Ele	ment-Momei	ntum	The	ory, Vorte	x-Wa	ake A	nalysi	s. Ae	erodyn	amics of		
Topics	High Speed Vertic	al-Axis Wi	nd 7	Γurbii	nes. Engi	ineeri	vnamics of Horizontal-Axis -Wake Analysis. Aerodynar deering Design of Wind	Energy					
	Conversion Systems	: Wind Gener	rator	s, Wi	nd Pumps	•			O/P FE - 50 - 50% orizontal-Ax is. Aerodyn				

Engineering Elective (6)

Code	Course Title	Prerequisite		С	ontact hou	urs			Ŋ	/larks			
Code	Course Title	rierequisite	Cr	Lec	Tutorial	Lab	Total	CW	O/P	FE	Total		
DDE 404	Nonlinear Systems and Control	DPE 314	3	2	2	1	_	30	20	50	100		
DPE 400	Control	DPE 314	3	4	4	1	5	30%	20%	50%	100%		
Catogary		Engineering Elective (6) (MR)											
	Introduction to the analysis and design of nonlinear systems and nonlinear												
Tonico	systems. Stability analysis using Liapunov, input-output and asymptotic methods. Dof stabilizing controllers using a variety of methods: linearization, absolute sta	s. Design											
	theory, vibrational co	_		•				Total CW O/P FE 30 20 50 30% 20% 50% ystems and nonlinear and asymptotic methods nearization, absolute					

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Code	Course Title	Prerequisite		С	ontact hou	urs			N	/larks	
Code	Course Title	rierequisite	Cr	Lec	Tutorial	Lab	Total	CW	O/P	FE	Total
DDE 405	Analysis and	DDE 444	•				_	30	20	50	100
DPE 407	Optimization of Airplane Performance	DPE 312	3	2	2	1		30%	20%	50%	100%
Catogary		En	gine	ering	Elective (6	6) (MF	?)				
	Review of Aerodyn	amic Founda	ition	s. Ba	sic Flight	The	ory. D	rag I	Equati	ions. (Climbing
Topics	Performance. Review	v of Power-P	lant	Chara	acteristics	. Tak	e-off a	ınd La	andin	g Perf	ormance.
Topics	Fuel Consumption,	Range and	En	duran	ce. Turni	ng F	Perform	nance	. Ve	ctored	Thrust.
	Transonic and Super	sonic Flight.				-					

Code	Course Title	Prerequisite		С	ontact hou	urs			N	/larks			
Code	Course Title	Frerequisite	Cr	Lec	Tutorial	Lab	Total	CW	O/P	FE	Total		
DPE 408	Aeroelasticity	DPE 316	3	2	2	1	_	30	CW O/P FE 30 20 50 80% 20% 509 es exposed to plates and t	50	100		
DFE 408	Aeroeiasticity	DPE 310	3	4	4	1	3	30%	20%	50%	100%		
Catogary		Engineering Elective (6) (MR)											
Topics	Introduction to aeroe Static divergence as cylinders at superson	nd flutter of	airp	lane	wings. Fl	utter	of fla	at pla	tes a	nd thi			

Code	Course Title	Proroquisito		С	ontact hou	ırs			N	/larks	
Code	Course Title	Prerequisite	Cr	Lec	Tutorial	Lab	Total	CW	O/P	FE	Total
MDE 400	Design of Rocket	1 CDT 044	•		•	4		30	20	50	100
MPE 409	Engine	MPE 311	3	2	2	I	5	30%	20%	50%	100%
Catogary		En	gine	ering	Elective (6	6) (MF	?)				
Topics	Analysis of liquid and heat transfer, system in powered flight, el	n consideration	ons.	Low-	-	•		•			•

Engineering Elective (7)

Code	Course Title	Prerequisite		С	ontact hou	urs			N	/larks				
Code	Course Title	rierequisite	Cr	Lec	Tutorial	Lab	Total	CW	O/P	FE	Total			
DPE 414	Spacecraft Control	DPE 314	3	2	2	1	5	30	20	50	100			
DFE 414	Spacecraft Control	DI E 314	3	<i>_</i>	2	1	3	30%	20%	50%	100%			
Catogary		En	gine	ering	Elective (7	7) (MF	?)							
	Formulation and sol	-			-		-	-	_					
	space flight vehicle	es. Optimalit	ty c	riteria	i, constra	ints,	vehicle dynamics. Flight an							
Topics	trajectory optimization	on as problen	ns of	nonl	inear prog	gramr	ning, o	calcul	us of	variat	ions, and			
	optimal control. Algo	orithms and s	oftw	are fo	or solution	of f	light a	nd tra	jectoi	ry opti	mization			
	problems.													

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Faculty of Engineering

Code	Course Title	Prerequisite		С	ontact hou	urs			N	/larks	
Code	Course Title	Prerequisite	Cr	Lec	Tutorial	Lab	Total	CW	O/P	FE	Total
MPE 415	Computational	DPE 316	3	2	2	1	5	30	20	50	100
MIPE 415	Aerodynamics	DFE 310	3	<u> </u>	4	1	3	30%	20%	50%	100%
Catogary		En	gine	ering	Elective (7	7) (MF	₹)				
	Computational metl	nods used i	n A	erosp	ace engir	neerir	ng, in	cludii	ng tii	me in	tegration
	techniques for ordir	ary differen	tial	equati	ons, finit	e dif	ferenc	es, fi	O/P FE 20 50 20% 50% Ing time in inte volume and implement	es, finite	
	elements, and probal	•						,			,
	of the underlying numerical methods. Computer programming in Matlab or a similar										
	language is required.				1 1	υ	,	U			

Code	Course Title	Prerequisite		С	ontact hou	urs			N	/larks	
Code	Course Title	Frerequisite	Cr	Lec	Tutorial	Lab	Total	CW	O/P	FE	Total
DDE 416	Missile Control Systems	DPE 31 £	2	2	2	1	5	30	20	50	100
DF E410	Wissile Control Systems	Dre 313	ว	4	4	1	3	30%	20%	50%	100%
Catogary		Eng	inee	ring E	lective (7)	(MR)				
	Transfer Functions fo	r a Ballistic	-type	e Mis	sile, Con	trol (of Aei	odyn	amic	Missi	les, Roll
Topics	Stabilization, Rigid I	Missile Cont	rol	Syste	m, Flexib	ility	Effec	ts, C	omm	and G	uidance,
	Bank-to-Turn Missile	Guidance, O	ther	Contr	ol System	ıs.					

Code	Course Title	Prerequisite		С	ontact hou	urs			N	/larks				
		•	Cr	Lec	Tutorial	Lab	Total	CW	O/P	FE	Total			
MDE 417	Flight Test Techniques	MPE 319	3	2	2	1	7	30	20	50	100			
MIPE 417	Laboratory	WIF E 319	3	4	4	1	3	al CW O/P FE 30 20 50 30% 20% 50% ce and stability of ntation, collection	50%	100%				
Catogary		Engineering Elective (7) (MR)												
	Theory and practice of obtaining flight-test data on performance and stability of airg													
		_	_		-					-	-			
Topics	test data, calibration	procedures	for	air da	ta sensor	s, est	imatic	30 20 50 30% 20% 50%	rivatives					
	from flight test data.	Lectures and	llab	orator	y.					-				

LEVEL (400) Semester 10

Code	Course Title	Prerequisite		С	ontact ho	urs			N	/larks		
Code	Course Title	Frerequisite	Cr	Lec	Tutorial	Lab	Total	CW	O/P	FE	Total	
DPE 410	410 Graduation Project (2)	MPE 401	۲	١,		ų.	4	50	•	50	100	
-	(2)			1	_	'	4	50%	•	50%	100%	
Catogary		Compulsory (MR)										
Topics	Continuation of proj	ect activities	star	ted by	/ MPE 40	1.						

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Codo	code Course Title	Prerequisite-		С	ontact hou	urs	Marks				
Code			Cr	Lec	Tutorial	Lab	Total	CW	O/P	FE	Total
DPE 411	Planning and Testing	DPE 31ε	2	1	1	2	4	30	20	50	100
DI E 411	of Space vehicles	DILUIC	4		•		-7	30%	20%	50%	100%
Catogary			С	ompu	Isory (MR)					
	Mechanical testing: static – vibration – shock and acoustic tests, Environmental Effect testing: Thermal cycle test - heat balance test										

Codo	Course Title	Droroguioito		С	ontact hou	urs	Marks					
Code		Prerequisite	Cr	Lec	Tutorial	Lab	Total	CW	O/P	FE	Total	
DPE 412	Guidance and	DPE301	2	1	1	2	4	50	-	50	100	
	Control	DPESUI	4	1	1	4	4	50%	-	50%	100%	
Catogary	Compulsory (MR)											
Topics	This concentration is control theory, time- the application of the of aerospace vehicle computational and e and control applicati	delay observese theories to s. Research in experimental	ers, o the s pri	estima navi maril	ation theory gation, gu y analytic	ry, an idanc al anc	nd stoc ce, con d num	chastic trol, a erical	c cont and fl in na	trol the ight m ture. I	eory, and echanics Excellent	

Code	Course Title	Prerequisite-		С	ontact hou	urs	Marks						
Code	Course Title	Prerequisite	Cr	Lec	Tutorial	Lab	Total	CW	O/P	FE	Total		
MPE 413	Navigation Systems	DPE301	2	1	1	2	4	30	20	50	100		
		DPESUI	4	1	1	4	4	30%	20%	50%	100%		
Catogary		Compulsory (MR)											
Topics	Principles of avioning perturbation theory measurements. Recunavigation, ballisti mechanization.	Position rsive navigat	on a fixi	ind g ing and K	uidance. and cele alman filt	Deter estial ering	navi . Purs	gation uit gu	n w idanc	ith ree, pro	edundant portional		

Code	Course Title	Prerequisite		С	ontact hou	urs		Marks				
Code	Course Title	Prerequisite	Cr	Lec	Tutorial	Lab	Total	CW	O/P	FE	Total	
DPE405	System Identification DPE308	1	2	5	30	20	50	100				
212.00		_		30%	20%	50%	100%					
Catogary	Compulsory (MR)											
	Methods of data analysis and empirical modeling. Sensors and measurement concepts.											
	Time and frequency data analysis; statistical and spectral concepts. Linear regression and										ssion and	
Topics	identifications of tir	ne-series mo	dels	. Par	ameter es	timat	ion u	sing (optim	izatio	n. Basis-	
	function expansions and non-linear time-series identification. Eigen system realization											
	and subspace identifi	ication. Non-	linea	ar stat	e space id	lentifi	cation	۱.	_			

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Engineering Elective (8)

Code	Course Title	Prerequisite		(Contact ho	ours		Marks				
Code		Frerequisite	Cr	Lec	Tutorial	Lab	Total	CW	O/P	FE	Total	
DPE 418	Thermal Analysis of	DPE307+	3	2	2	1	_	30	20	50	100	
DPE 418	Spacecrafts	MPE 308	3	4	4	1	3	30%	20%	50%	100%	
Catogary	Engineering Elective (8) (MR)											
	Power Sources - End	ower Sources - Energy Storage - Power Distribution - Power Regulation and Control -										
Topics	Spacecraft Thermal Environment - Thermal Control Components - The Thermal Design											
Topics	and Development Process – Thermal Control Challenges - Heat Balance Estimation,											
	Mass, Power, Telemetry Estimates											

Code	Course Title	Prerequisite-	Contact hours						Marks				
Code	Course Title		Cr	Lec	Tutorial	Lab	Total	CW	O/P	FE	Total		
MPE 419	Missile and Projectile	DPE 316	3	2	2	1	5	30	20	50	100		
MIPE 419	Aerouynannes	1	5	30%	20%	50%	100%						
Catogary	Engineering Elective (8) (MR)												
	Missile Classifications and Configurations. Calculation of Aerodynamic Characteristics												
Topics	of Missile Components using Slender Body Theory at Subsonic and Supersonic Speeds.												
Topics	Effects of Aerody	namic Inter	ferer	nce l	oetween	Miss	ile C	ompo	nents	. Tot	al Drag		
	Determination and D	Determination and Drag Reduction Techniques. Aerodynamic-Heating Problems.											

Code	Course Title	Prerequisite-		С	ontact hou	ırs	Marks				
Code	Course Title		Cr	Lec	Tutorial	Lab	Total	CW	O/P	FE	Total
DPE 420	Spacecraft design	DPE 31 [£]	3	2	2	1	5	30	20	50	100
DPE 420	and analysis	Dre 314	3	4	<u> </u>	1	3	30%	20%	50%	100%
Catogary	Engineering Elective (8) (MR))										
	Introduction. Missic	on Definition	ano	d Pur	poses, Pr	elimi	inarily	Esti	matio	n for	Mission
Tonico	Requirement and Restriction. Mission Description and Evaluation. Requirement										
	Definition. Space I	Mission Eng	inee	ring.	Mission	Oper	ation.	Rest	rictio	n on	Mission
	Design. Space Missi	on Analysis a	and I	Desig	n. Executi	on of	Missi	on.			

Code	Course Title	Prerequisite		С	ontact hou	urs			N	/larks		
Code	Course Title	ricicquisite	Cr	Lec	Tutorial	Lab	Total	CW	O/P	FE	Total	
DPE 421	Space Systems	MPE 402	3	2	2	1	5	30	20	50	100	
DI 12 421	Engineering	1711 12 402	۲		_			30%	20%	50%	100%	
Catogary	Engineering Elective (8) (MR)											
	Introduction to the engineering design process for space systems: Includes a lecture phase											
	that covers mission planning – launch vehicle integration – propulsion, power systems – communications – budgeting – reliability. Subsequently, students experience the latest											
				-	-	•			-			
Topics	practices in space-s	ystems engii	neeri	ng by	y forming	ginto	missi	on-co	mpon	ent te	ams and	
	collectively designing a space mission. Effective team and communication skills are											
	emphasized. Report writing and presentations are required throughout, culminating in the											
	final report and publ	ic presentation	n.									

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