



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، بالاضافة إلي إدخال الوسائل التكنولوجية الحديثة والميكنة في الجهازين التعليمي والإداري ونظم الإمتحانات واظهار 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.





- 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) بتاريخ ۲۰۱٦/۷۹).
- 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 التالي:

لمعمل	التمرين/اأ	ضرة	المحا
ساعات معتمدة	ساعات إتصال	ساعات معتمدة	ساعات إتصال
١	۲تمرین أو ۳معمل	1	١
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.





الفصل الغير رئيسى (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 ٢,٠٠ 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 إجمالى رسوم الخدمة التعليمية للفصل الصيفى 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 ٢,٠٠٠.
- 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.

Y.Y. _ _ Y _





ه- 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:

- 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 الذى أنهى حضور حصص المحاضرات والتمارين والامتحانات الدورية وامتحان نصف الفصل الدراسي بنجاح في مقرر ما ، أن يتقدم بالتماس الى مجلس ادارة البرنامج بتأجيل الامتحان التحريري النهائي

Y.Y. _ ^ _





وذلك بعذر يقبله المجلس وبعد موافقة أستاذ المقرر وفي هذه الحالة يتم رصد تقدير الطالب في هذه المقرر بـ (I) "غير 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 الى 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 علي 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
(عو ساعة) %٥٦,٩٧	4٤) %٢٦,٦٧ ساعة)	۸٫۷% (۸ ساعة)	نسبة الساعات الإجبارية
٦,٦٧ % (١١ ساعة)	۱٫۲۱% (۲ ساعتان)	7,٦٦% (6 ساعات)	نسبة الساعات الاختيارية
۱۰۵) %۱۳,٦٤ (ساعة)	(۶۱ ساعة) %۲۸,۸۸	(۱٤ ساعة) %٨,٤٨	النسبة الاجمالية

مادة (١٤) تقديرات مقررات متطلبات الدراسة

• تقدر نقاط كل ساعة معتمدة على النحو التالي:

	مدى الدرجات المكافئة (%)				النسبة المئوية الحاصل عليها الطالب	التقدير	عدد النقاط
١	99	٩٨	97		۹۷ فأعلى	A ⁺	4.00
97	90	9 £	98		۹۳% حتى أقل من ۹۷%	Α	4.00
97	91	9	٨٩		۸۹% حتى أقل من ۹۳%	Α⁻	3.70
٨٨	۸٧	八八	ДО	Λź	۸۶% حتى أقل من ۸۹%	B⁺	3.30
۸۳	٨٢	٨١	۸.		۸۰% حتى أقل من ۸۶%	В	3.00
٧٩	٧٨	Y ٦			٧٦% حتى أقل من ٨٠%	B	2.70
٧٥	٧٤	77			٧٣% حتى أقل من ٧٦%	C ⁺	2.30
77	Y1	٧.			۷۰% حتى أقل من ۷۳%	С	2.00
79	て人	٦٧			٦٧% حتى أقل من ٧٠%	C ⁻	1.70





٦٦	٦٥	٦٤		٦٤% حتى أقل من ٦٧%	D ⁺	1.30
٦٣	٦٢	٦١	٦٠	٦٠% حتى أقل من ٦٤%	D	1.00
				أقل من ٦٠%	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	منسحب Withdrawn		
AU	Audit	مستمع	
F	Fail	راسب	
P	Pass	ناجح	
I	Incomplete	غير مكتمل	

مادة (١٥): حساب متوسط النقاط:

- يحسب مجموع النقاط النوعية Quality Points (QP) التي حصل عليه الطالب في كل مقرر على أنها عدد الساعات المعتمدة للمقرر مضروبة في النقاط المخصصة للتقدير الذي حصل عليها الطالب حسب الجدول الوارد بالمادة (٢٥).
- يحسب متوسط النقاط (GPA) Grade Point Average (GPA) لأى فصل دراسى على أنه ناتج قسمة مجموع النقاط النوعية التى حصل عليها الطالب فى المقررات التى سجل فيها فى الفصل الدراسى مقسوما على مجموع الساعات المعتمدة لهذه المقررات بما فيها المقررات التى 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.
- في حالة اعادة الطالب دراسة مقرر سبق أن رسب فيه وحصل على تقدير F ، يحتسب له التقدير الذي حصل عليه في الإعادة بحد أقصى +B ، وعند حساب متوسط النقاط التراكمي يحسب له التقدير الأخير فقط ، على أن يذكر كلا التقديرين في 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	مستوى (٠٠٠)
Level (100)	Sophomore	الأول	مستوی (۱۰۰)
Level (200)	Junior	الثاني	مستوی (۲۰۰)
Level (300)	Senior 1	الثالث	مستو <i>ی</i> (۳۰۰)
Level (400)	Senior 2	الرابع	مستوی (۲۰۶)

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

مادة (١٧): 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 تحريري 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 تحريري 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 ٥٠%، 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 التحريرى النهائى.

مادة (١٨) التحويل من والى برامج الساعات المعتمدة:

• يجوز تحويل الطالب المقيد بنظام الساعات المعتمدة الى نظام الفصلين الدراسيين طالما لم يجتاز ٢٠% من إجمالى الساعات المعتمدة اللازمة للتخرج ، ويتم إجراء مقاصة للمقررات التى إجتازها الطالب فى نظام الساعات المعتمدة وتحدد المقررات المكافئة لها في البرنامج الدراسي 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 التي إجتازها الطالب بنجاح في 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	ت المعتمدة	نظام الساعا
النسبة المئوية المناظرة	التقدير	عدد النقاط
% 9 A	A ⁺	4.00
% ٩ ٣	Α	4.00
%AA	A ⁻	3.70
%AT	B ⁺	3.30
%YA	В	3.00
%v٣	B ⁻	2.70
%v •	C ⁺	2.30
%٦ <i>٧</i>	С	2.00
%٦٣	C-	1.70
%° A	D ⁺	1.30
%0.	D	1.00
_	F	0.00





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

معتمدة	نظام الساعات ال	نظام الفصلين الدراسيين
التقدير	عدد النقاط	النسبة المئوية المناظرة
A^{+}	4.00	من ۹۰% الى ۱۰۰%
А	4.00	من ۹۰% الى أقل من ۹۰%
A ⁻	3.70	من ٥٨% الى أقل من ٩٠%
B⁺	3.30	من ۸۰% الى أقل من ٥٨%
В	3.00	من ٥٧% الى أقل من ٨٠%
B ⁻	2.70	من ۷۱% الى أقل من ٥٧%
C⁺	2.30	من ٦٨% الى أقل من ٧١%
С	2.00	من ٥٦% الى أقل من ٦٨%
C-	1.70	من ٦٠% الى أقل من ٥٦%
D ⁺	1.30	من ٥٥% الى أقل من ٦٠%
D	1.00	من ٥٠% الى أقل من ٥٥%
F	0.00	أقل من ٥٠%

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 التى 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 وتحقيق متطلبات التخرج، إذا كان قد أتم بنجاح دراسة % 80 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 التى يحددها المجلس الأعلى 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 التشييد (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)
هتج DPE	مقررات من قسم هندسة التصميم الميكانيكي والانتاج (Mechanical Design & Production Engineering)
هکت ECE	مُقررات من قسم هندسة الالكترونيات والاتصالات الكهربية (Electronics & Electrical Communications Engineering)
هحس CSE	مقررات من قسم هندسة الحاسبات و المنظومات (Computer & Systems Engineering)
هقك EPE	مقررات من قسم هندسة القوى والألات 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
٩٤) %٥٦,٩٧ ساعة)	۲۲٫۲۷ (4٤ ساعة)	۸٫۸۵% (۸ ساعة)	نسبة الساعات الإجبارية
٦,٦٧ % (١١ ساعة)	۱٫۲۱% (۲ ساعتان)	7,٦٦% (6 ساعات)	نسبة الساعات الاختيارية
(قعاس ۱۰۵) %۱۳,٦٤	(۲۲ ساعة) «۲۸٬۸۸	(۱٤) %٨,٤٨ 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 الاجبارية بنسبة ٥٨,٤% أو الاختيارية بنسبة ٣,٦٦ % 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 ٢٧,٨٨% (بواقع ٤٤ ساعة معتمدة بنسبة ٢٦,٦٧% مقررات إجباريو و ٢ ساعتان بنسبة ١,٢١% 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 (١٤ ساعة معتمدة بنسة ٨٠,٤٨ (٥٨,٤% مقررات إجبارية و ٣,٦٦ % مقررات إختيارية) من إجمالي ١٦٥ ساعة معتمدة)

ساعات الأتصال	معمل	تمرين	محاضرة	الساعات المعتمدة	متطابات الجامعة		۵
Contact Hrs	Lab	Tutorial	Lecture	Credit Hrs	University Requirements		,
۳	۲		,	~	اللغة الأجنبية الفنية	لغف ۲۰۰	,
,	١ '	-	,	'	Technical Foreign Language	TFL001	,
¥			٧	~	تاريخ الهندسة والتكنولوجيا	أنس ۰۰۱	v
'	-	-	'	'	History of Engineering and Technology	HUM001	'
4	2	4	4	2	مقدمة في الحاسبات والبرمجة	هحس ۲۰۰۱	3
4		I	I	2	Introduction to Computers & Programing	CSE001	3
٧			۲	۲	مدخل إلي القانون	أنس ۱۰۱	4
'	_	-	'	,	Introduction to Law	HUM101	4
2			۲	2	مقررإختاري جامعة (١)	اخ-١	٥
	_	-	'	2	University Elective (1)	HUMxxx	
2			٧	2	مقررإختاري جامعة (٢)	اخ-۲	7
2	_	-	'	2	University Elective (2)	HUMxxx	`
2			4	2	مقررإختاري جامعة (٣)	إخ -٣	V
			'		University Elective (3)	HUMxxx	, v
١٧	4	1	17	١٤	جمالـــــي الساعـــات =		

**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 (ج١) 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
2	-	-	2	إدارة الموارد البشرية Human Resources Management		انس ۱۰۲ HUM 10۲	1
2	-	-	۲	2	تاريخ الحضارة العربية والإسلامية History of Arabian & Islamic Civilization	انس ۱۰۳ HUM۱۰۳	۲
۲	-	-	۲	۲	جغرافيا الإنسان والبيئة Geography of Mankind & Environment	انس ۱۰۶ HUM10٤	٣
2	-	-	۲	2	مدخل إلي المنطق Introduction to Logic	انس۱۰۰ HUM۱۰۰	£

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	
2	-	-	2	Communications Introductory Mass		HUMY・1	1
2	_	_	۲	2	مقدمة في علم الإجتماع	أنس ۲۰۲	۲
_				2	Introductory to Sociology	HUMY·Y	
۲			۲	۲	تاريخ مصر القديم	أنس٢٠٣	~
,	_	-	,	,	History of Ancient Egypt	HUMY0°	,
2	_	_	۲	2	مقدمة في علم النفس	أنس ۲۰۶	٤
	_	_	,		Introductory to Psychology	HUMY·£	
2			2	4	سيمنار إنسانيات ١	إنس ۲۰۵	5
	-	-		1	Humanities Seminar 1	HUM 205	

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

ساعات الأتصال	معمل	تمرين	محاضرة	الساعات المعتمدة	إسم المقرر	الكود	م	
Contact Hrs	Lab	Tutorial	Lecture	Credit Hrs	Course Title	Code	Ser	
2			2	4	سيمنار إنسانيات ٢	إنس ٣٠١	,	
2	_	-	2	,	Humanities Seminar 2	HUM ۳۰۱	'	
					طرق البحث العلمي	أنس٣٠٣		
2	-	-	۲	۲	2	Methods of Scientific	нимтът	۲
					research	HUMITI		
					مقدمة في علم النفس الصناعي	أنس٤٠٠		
7	-	-	۲	۲	Introductory to	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	٣	
					industrial Psychology	HUM ٣٠٤		
					مدخل لعلم الإجتماع الصناعي	أنس ٣٠٥		
2	-	-	۲	2	Introductory to	HUMで・○	٤	
					industrial Sociology	nuw.		

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جدول (د-۱) متطلبات الكلية ٢٦ ساعة معتمدة (بإجمالي نسبة ٢٨,٨٨% بواقع ٢٦,٦٧ % مقررات إجبارية و ١,٢١ متطلبات الكلية ٢٠ مقررات إختيارية) من إجمالي ١٦٥ ساعة معتمدة

ساعات الأتصال	,		1	الساعات	: Ich -1 II -		
ساعات الانصبال	معمل	تمرین	محاضرة	المعتمدة	متطلبات الكلية		م
Contact Hrs	Lab	Tutorial	Lecture	Credit Hrs	Faculty Requirements		
٤	_	۲	۲	٣	الرياضيات الهندسية (١)	رفهـ۰۰۱ ۱۳۵۵	1
					Engineering Mathematics (1) الفيزياء الهندسية (١)	EMP001 رفه-۲۰۰۲	
٥	۲	١	۲	٣	Engineering Physics (1)	EMP002	۲
					الرسم الهندسي والإسقاط (١)	<u>۱۱۲۱۲ ۵۵۷ متج</u>	
٥	٣	-	۲	٣	Engineering Drawing and Projection (1)	DPE 011	٣
					الميكانيكا الهندسية (١)	رفه_۰۰۳	
٤	۲	١)	۲	\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \	EMP003	٤
0	٣		۲	٣	Engineering Mechanics (1) الكيمياء الهندسية	هبي ۲۰۰	٥
	'	-	'	,	Engineering Chemistry	ENE001	
٤	_	۲	۲	٣	الرياضيات الهندسية (٢)	رفهـ٥٠٠	٦
					Engineering Mathematics (2) الفيزياء الهندسية (٢)	EMP00°	
٥	۲	١	۲	٣	. ,	رفهـ٦٠٠ EMP00٦	٧
					Engineering Physics (2) الميكانيكا الهندسية (٢)	رفه_۲۰۰۷ رفه_۲۰۰	
٤	۲	١	١	۲	Engineering Mechanics (2)	EMP00 ^V	٨
_					تكنولوجيا إنتاج	هتج ۰۰۱	
5	۲	١	۲	٣	Production Technology	DPE001	٩
0	٣		۲	٣	الرسم الهندسي والإسقاط (٢)	هنج ۱۱۲	10
	'	-	,	,	Engineering Drawing and projection (2)	DPE012	10
٣	_	۲	,	۲	الرياضيات الهندسية (٣)	رفه ۱۰۱	١1
·	_	,	,	·	Engineering Mathematics (3)	EMP)·)	' 1
4	2	1	1	۲	أنظمة كهربية	هقك ١٠١	١٢
-	_	-	-		Electerical systems	EPE 101	
4	2	1	1	2	ديناميكا حرارية وأنظمة ميكانيكية (طلاب برنامج تشييد)	هقم ۱۰۱	١٣
4	2	1	1	2	Thermodynamics and Mechanical systems (Construction Program students)	MPE1 • 1	' '
					دینامیکا حراریة (طلاب میکاترونیات وطیران)	هقم۱۰۲	
4	_	۲	2	٣	Thermodynamics (For mechactronics and Aero-	,	14
					Spacecraft engineering students)	MPE1 · ۲	
٥	۲	,	۲	٣	هندسة المواد	همو ۱۰۱	15
	'	1	,	'	Engineering Materials	MTE101	15
٤	۲	١	,	۲	تطبيقات الحاسب	هحس ۱۰۱	16
					Computer Applications	CSE101	+
4		2	7	2	اقتصادیات الهندسة (طلاب برنامج تشیید)	هتش ۲۰۷	1.77
4	-	2	,	3	Engineering Economics (Construction Program students)	CUE 20 ^V	17
					(Construction Program students) اقتصاد هندسی (طلاب میکاترونیات وطیران)	هصن ۲۰۷	+
					(· · · · · · · · · · · · · · · · · · ·	هصس ۱۰۲	
3	-	2	1	2	Engineering Economy	INIC 2011	18
					(For mechactronics and Aero-Spacecraft	INE 20 ^V	
				engineering students) الإحصاء الهندسي		هصن۲۰۲	1
۲	-	-	۲	الإحصاء الهناسي Engineering Statistics		INE Y.Y	19
			,	اختیاری کارتی (۱		Xxx	-
۲	-	-	۲	Faculty Elective (1)		Xxxx	20
7 ٢	۲١	21	3.	٤٦	إجمالـــــى الســـاعــات =		
				1	<u> </u>		





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

ساعات الأتصال	معمل	تمرين	محاضرة	الساعات المعتمدة	إسم المقرر	الكود	م
Contact Hrs	Lab	Tutorial	Lecture	Credit Hrs	Course Title	Code	Ser
2	_	_	2	إدارة المشروعات الهندسية		هتش ۲۰۸	,
			_		Engineering Project Managment	CUE 20^	
					الطرق االكمية في الهندسة	هصن ۲۰۸	
2	-	-	۲	2	Quantitive Methods in	INE 208	۲
					Engineering	INE 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.
- يُركّرُ برنامج هندسة الانشاءات وادارة التشييد على مقررات في الهندسة الانشائية وإدارة التشييد وتكنولوجيا البناء مثل تحليل الانشاءات وميكانيكا التربة والاساسات وتصميم المنشآت الخرسانية والمعدنية وادارة مشروعات التشييد والمعقود والمواصفات وحصر الكميات وادارة معدات التشييد وادارة جودة التشييد وهذه المقررات واردة في الجداول (ه1) للمقررات الإجبارية و (ه٢) للمقررات التخصصية الإختارية و (ه٣) لنموذج الدراسة الإسترشادية بالبرنامج.
- ويُركّزُ برنامج هندسة الميكاترونيات على مقررات في مجالات: النظم الكهروميكانيكية -الماكينات الدقيقة القياسات واجهزة القياس لمنظومات الميكاترونيات تصميم المنظومات الميكاترونيات المواد الذكية للميكاترونيات المواد الذكية للميكاترونيات المواد الذكية للميكاترونيات -





المحركات والمشغلات لنظم التحكم - أنظمة التحكم الألية - النظم المتكاملة وهذه المقررات واردة في الجداول (و ۱) للمقررات الإجبارية و (و ۳) للمقررات التخصصية الإختارية و (و ۳) 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

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

11	,		1	الساعات	المتطلبات التخصصية		مسلسل
ساعات الأتصال	معمل	ىمرىن	محاضرة	المعتمدة	Speciality Courses		Serial
,		J	J		تحلّيل الانشاءات(1)	هنش ۱۰۱	_
٤	_	۲	۲	٣	Structural Analysis 1	STE101	1
,					میکانیکا الانشاءات(1)	هنش ۱۰۲	_
٤	_	۲	۲	٣	Structural Mechanics 1	STE102	2
					هندسة التشبيد	هتش ۱۰۲	
٤	_	۲	۲	٣	Construction Engineering	CUE102	3
	_				الرسم المدنى	همی ۱۰۱	
0	٤	_	١	٣	Civil Eng. Drawing	WSE101	4
					مو اد التشبيد	۱۰۳ هنش	
٥	۲	١	۲	٣	Construction Materials	STE103	5
					الجيو لوجيا الهندسية	هنش ۱۰۶	
۲	_	-	۲	۲	Engineering Geology	STE104	6
					تحليل الانشاءات(2)	<u>۱۳۱۵، ۱۳۱۵</u>	
٤	_	۲	۲	٣	Structural Analysis 2	STE201	7
					المساحة المستوية	متش ۲۰۳	
٥	۲	١	۲	٣	Plane Surveying	CUE203	8
					nane Surveying ميكانيكا الموائع	۲۰۱ همي	
٥	١	۲	۲	٣	Fluid Mechanics	WSE201	9
					r rund isreemannes تقدير التكلفة و المناقصات	۲۰۶ متش	
۲	_	_	۲	۲	Cost Estimating and Tendering	CUE204	10
					الهندسة الصحية و البيئية (1)	401204 هبی ۲۰۱	
0	١	۲	۲	٣	Sanitary & Environmental Engineering	ENE201	11
					Saintary & Environmental Engineering تخطيط مشروعات التشبيد(1)	۱۹۲۲-201 هتش ۲۰۰	
٤	_	۲	۲	٣	Construction Projects Planning (1)	CUE205	12
					(1) construction Projects Planning میکانیکا التربة(1)	۲۰۲ هنش	
٥	١	۲	۲	٣	Soil Mechanics 1	STE202	13
					نصميم الخرسانة المسلحة(1)	الانتارى منش ۲۰۳	
٤	_	۲	۲	٣	Reinforced Concrete Design 1	STE203	14
					Reinforced Concrete Design 1 المو اصفات و حصر الكميات	الا	
۲	_	_	۲	۲		CUE206	15
					Specifications and Quantity Surveying میکانیکا الانشاءات(2)	۲۰۶ هنش	
٤	_	۲	۲	٣		_	16
					Structural Mechanics 2 تصميم الخرسانة المسلحة(2)	STE204 هنش ۳۰۱	
٤	_	۲	۲	٣	- 1	_	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 هنش 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 (١٠٥ ساعة معتمدة بنسبة ٢٣,٦٤ تابع جدول (هـ١)

ساعات	•		,	الساعات	المتطلبات التخصصية		مسلسل	
الأتصال	معمل	نمرین	محاضرة	المعتمدة	Speciality Courses		Serial	
			-		هندسه القيمه	هتش٥٠٣		
2	_	_	2	2	Value Engineering	CUE305	21	
٥	,	۲	۲	٣	میکانیکا التربة (۲)	هنش ۳۰۳	2.5	
8	1	'	1	١	Soil Mechanics 2	STE303	2 4	
٤		۲	۲	٣	هندسة الطرق	هتش ۳۰۳	۲3	
٤ ا	_	'	1	1	Highway Engineering	CUE303	'3	
۲			۲	۲	التحليل الإنشائي المتقدم	هنش ۳۰۶	٧ ٤	
1	_	ı	'	1	Advanced Structural Analysis	STE304	1 4	
۲			۲	۲	عقود التشييد	هتش ۲۰۶	70	
1	_	_	'	1	Construction Contracts	CUE304	1,5	
٤		۲	۲	٣	مقرر اختياري هندسي (١)	جدول(هـ٢)	77	
·	_	,	,	'	Engineering Elective 1		, ,	
٤		۲	۲	٣	مقرر اختياري هندسي (٢)	جدول(هـ٢)	**	
·	_	,	'	'	Engineering Elective 2		' '	
٤		۲	۲	٣	مقرر اختياري هندسي (٣)	جدول(هـ٢)	28	
·	_	,	'	'	Engineering Elective 3		20	
۲			۲	۲	الادارة المالية في التشييد	هتش ٤٠٢	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	J.	
٤		۲	۲	٣	تصميم الخرسانة المسلحة (٣)	هنش ۲۰۳	32	
	_				Reinforced Concrete Design 3	STE403	<u> </u>	
٤		۲	۲	٣	تصميم المنشات المعدنية (٢)	هنش ۲۰۶	77	
	_				Steel Structures Design ^Y	STE404		
۲			۲	۲	إدارة جودة التشييد	هتش ۲۰۳	34	
	_	_			Construction Quality Management	CUE403		
۲			۲	۲	إدارة معدات ألتشبيد	هتش ٤٠٤	35	
		_			Construction Equipment Management	CUE404		
٥	١	۲	۲	٣	الهندسة الصحية والبيئية (٢)	هبي ٤٠١	36	
					Sanitary & Environmental Engineering 2	ENE401		
۲			۲	۲	مقرر اختياري هندسي (٤)	جدول(هـ٢)	37	
		_			Engineering Elective 4			
٣		۲	١	۲	مشروع التخرج (۱)	هتش ۲۱۰	38	
					Graduation Project (1)	CUE ٤١٠		
٣		۲	١	۲	مشروع التخرج (۲)	هنش ۲۱۱	39	
·	_	,	,	,	Graduation Project (2)	STE411	39	
1 £ Y	۱۳	٥٤	۷٥	١.٥	ــــــــــــــــــــــــــــــــــــــ	إجمالا	1	

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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

عط من دل مجموعه من المعرورات التالية	— 13 JJ-1 J+-1 +-
(هتش ٣٢٠) إدارة المخاطر في التشبيد	
CUE320 Risk Management in Construction	
(هتش ٣٢١) مواد الرصف	
CUE321 Pavement Materials	مقرر اختياري (١)
(هتش ٣٢٢) هندسة وتخطيط السكك الحديدة	Engineering
CUE322 Railway Engineering	Elective (1)
(هنش ٣١٣) ديناميكا المنشات وهندسة الزلازل	(
STE 313 Structural Dynamics & Earthquake Engineering.	
(هنش ۲۱۶) الكباري الخرسانية والمركبة	
STE314 Concrete and Composite Bridges	
(هنش ٣١٥) طريقة العناصر المحددة	مقرر اختياري (٢)
STE315 Finite Element Analysis	Engineering
(هتش ۳۲۳) ادارة الرصف وصيانته	Elective (2)
CUE323 Pavement Management and Maintenance	,
(هنش ٣٢٤) التشييد الثقيل	
CUE324 Heavy Construction	
(هنش ٤١٣) الخرسانة الخاصة	
STE413 Special Concrete	
(هنش ٤١٤) تصميم وتشبيد 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 التشبيد	
CUE425 Construction Productivity	مقرر اختياري (٤)
(هنش ٤٢٦) إدارة الامان والصحة البيئية في التشييد	
CUE426 Safety, Health and Environ. Management in Construction	Engineering
(هنش ٤١٦) المباني المرتفعه 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) Sp	ring	
	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	DPE 012	3
4	میکانیکا هندسیة ۱	EMP004	2	میکانیکا هندسیهٔ 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

		Leve	el 100 (Sop	phomore)							
	Semester (1)	Fall		Semester (2) Sp	ring						
	Course name	Code	СН	Course name	Code	СН					
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	۲					
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	أختيارى جامعة ١	HUMxxx	2					
7	مدخل الى القانون	HUM101	2								
	Total		١٦	Total		١٦					
	Level 200 (Junior)										
	Semester (1) F	all		Semester (2) Spi	ing						
	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 الهندسي	INE202	2					
7	تقدير التكلفة والمناقصات	CUE204	۲	أختياري جامعة 2	HUMxxx	2					
	Total		19	Total		18					
		Le	vel 300 (Se	enior 1)							
	Semester (1) F			Semester (2) Spi							
	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	3					
5	مقرر اختیاری۳	HUMxxx	2	XXXXXX مقرر اختیاری هندسی ۱							
6	التحليل الإنشائي المتقدم	STE304	۲	XXXXXX مقرر اختیاری هندسی ۲							
	Total		١٦	Total		16					

		Leve	el 400 (Se	nior 2)				
	Semester (1) Fall			Semester (2) Spring				
	Course name	Code	СН	Course name	Code	CH		
1	تصميم منشآت معدنية ٢	STE404	3	أدارة جودة التشبييد	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 ک	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	Prerequisite		С	ontact hou	urs		Marks												
Code		Prerequisite	Cr	Lec	Tutorial	Lab	Total	CW	O/P	FE	Total									
EMP001	Engineering	None	3	2	2		4	50	-	50	100									
EIVIFOUT	Mathematics 1	None	7		4	-	4	50%	-	50%	100%									
Catogary		Compulsory (FR)																		
Objective	To learn the main co	oncepts of diff	ferer	ıtiatio	n and alge	ebra.														
	Functions-Elementar	ry functions	-Inve	erse	function-I	Polar	and	para	metri	c coo	rdinates-									
Tonico	Limits-Newoton's method-Derivatives (chain rule, derivation of implicit and inverse										inverse									
Topics	functions)-Macclaurin's and Taylor's expansins-Theory of equations-Matrices-Gauss																			
	elimination method-	Matrix Eigen	valı	ie pro	blem.			-			elimination method-Matrix Eigen value problem.									

	Course Title P	Prerequisite -		Co	ntact ho	urs			N	/larks	
EMP002	Course Title	Prerequisite	Cr	Lec	Tutorial	Lab	Total	CW	O/P	FE	Total
EWIPUUZ	Engineering	None	3	٧	1	2	5	30	20	50	100
	Physics 1	None	<u> </u>	,			3	laws. scosity -Entro	20%	50%	100%
Catogary			Co	ompul	sory (FR)					
Objective	To learn about matte	r properties a	ınd aj	oplica	tions of	Newt	on's la	aws.	•	•	•
Topics	Field of gravitation Temperature-First 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 Ponduction-S ompound pe	id standard	atics lynam Wa lum-L c hea im —	and Dyr nics-Heat ves-Wav iquid V t. Hook's l measur	namic t En ves i Visco law –	es-Viso gines- n ela sity-L	cosity Entro stic iquid urem	py-Se Medi Suri	econd a-Expe face f coefi	law of eriments: Tension- ficient of

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	
EMPUUS	Mechanics (1)	None	2	•	ı		4	30%	20%	50%	100%	
Catogary		Compulsory (FR)										
Objective	To learn the basic con	learn the basic concepts of engineering mechanics.										
Topics	Vector applications- Equilibrium-Reaction machines-Experimen	n-Friction-Ve	ector	calcu	lus-Equil	_	-		-			

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Code	Course Title	Prerequisite -		С	ontact ho	urs		CW O/P 50 - 50% - ometry graphics, ions of lin	N	/larks		
Code	Course rille	Frerequisite	Cr	Lec	Tutorial	Lab	Total	CW	O/P	FE	Total	
DPE011	Eng. Drawing &	None	3	2	_	3	5	50	-	50	100	
DECOIL	Projection (1)	None	ว		•	3	3	50%	-	50%	100%	
Catogary			(Comp	ulsory (FR	?)						
Objective	Introductory concep	ts of engineer	ring	drawi	ng and de	escrip	tive ge	ometi	y			
	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	es, 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	tatio	n of	a straig	ght li	ne-Straight lines intersection					
	Representation of a	plan-Position	pro	blems								

Code	Course Title	Prerequisite		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	
LINEOUT	Ling. Chemistry	None	,		-	3	3	30%	20%	50%	100%	
Catogary			(Comp	ulsory (FR	2)						
Objective	To learn basic conce	earn basic concepts of chemistry										
	The atomic structure and its bearing on chemical and nuclear changes-chemical formulae											
	Percent composition	-Thermoche	mist	ry-Ch	emical ec	quilib	rium-T	The ga	aseous	s state	-Solutes-	
T:-	Electrolytic dissocia	tion & ionic	equ	uilibri	um-Chen	nical	kinem	atics	& rat	e of r	eactions-	
Topics	Sources of element	s-Chemical	indu	ıstries	-Building	mat	erials	Total CW O/P FE 5 30 20 50 30% 20% 50%	dustries-			
	Corrosion-Fuels-Cor	mbustion-Ex	perir	nents	Identific	ation	of sim		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	1	2	_	3	50	-	50	100
IFLOOT	Language	NOHE	_	'	2	•	3	50%	-	50%	100%
Catogary			(Comp	ulsory (UR	₹)					
Objective	To learn basics of fo	reign (Englis	h) te	chnic	al languag	ge.					
	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 io	dea-types
Topics	of paragraphs-Read	ling and an	alys	is of	technica	al pa	ssages	that	cov	er eng	gineering
	disciplines for devel	oping commu	ınica	ation s	kills.	•	Ü			`	

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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 5 egrals-A quation) ion-Cor ht line i	CW	O/P	FE	Total			
EMP005	Engineering	None	3	2	2		4	50	-	50	100			
EINIPUUS	Mathematics 2	None	う		2	-	50% - 50% 100%	100%						
Catogary		Compulsory (FR)												
Objective	To learn the main co	learn the main concepts of differentiation and algebra.												
	Indefinite integratio	n-Methods of	finte	egrati	on-Defini	te int	egrals	-Appl	icatio	ons (ar	c length,			
	areas, volumes, cent	ter of gravity,	firs	t orde	er differen	tial e	quatic	n)-Nı	ımeri	cal me	ethods of			
Topics	integration-Transfor	mations in	plan	e-part	tial differ	entia	tion-C	onic	secti	ons-Fr	ames of			
	work and different l	kinds of syste	ms o	of coo	ordinates-S	Straig	ht line	e in sp	oace-	Plane i	in space-			
	Surfaces of the seco	and different kinds of systems of coordinates-Straight line in space-Plane in space- es of the second degree-The general equation of the surfaces of the second degree.												

		Freshmen	LEVE	L 000	COUR	SES					
	Course Title	Prerequisite		Co	ntact ho	urs			N	Marks	
EMP006	Course Title	Frerequisite	Cr	Lec	Tutorial	Lab	Total	CW	O/P	FE	Total
LIVIPUUU	Engineering	None	3	۲	1	2	5	30	20	50	100
	Physics 2	None	J	'	•		<u> </u>	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 Dielectric										electrics-
	Current, resistance a	and electrome	otive	Force	-Magnet	ic Fie	eld-An	npere'	aw- (Biot-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-Ele	ectromag	netic	Induct	ion-P	ropert	ties of	magnetic
Topics	materials-A/C Curre	nt-Electromag	gnetic	Wav	es-Exper	rimen	ts: Ca	pacito	r Cap	oacity-	Magnetic
	Field-Ohm's Law-So	nic speed	-		-			-	-		
	Lab : Verification	of Ohm's	law -	- me	asuremer	nt of	capac	citance	e of	a cap	oacitor –
	measurement of mag	netic field and	d mag	gnetic	moment	– det	ermina	•	curvature		
	measurements of ligh	a iens – me it velocity	asure	ments	oi reira	ictive	index	or g	iass -	- micr	oscope –

		Freshmen	LEVE	L 000	COUR	SES							
	Course Title	Prerequisite		Co	ntact ho	urs			N	/larks			
HUM001	Course Title	rielequisite	Cr	Lec	Tutorial	Lab	Total	Total CW O/P F 2 50 - 5 50% - 50 ivilizations and the different technologe eience and technologe and cultural environal enviro	FE	Total			
HOWIOUT	History of Eng. &	None	2	7	_	_	2	50	- 50 6 - 50% as and their technology at technology	100			
	Tech.	None		,	_	_		50%	-	50%	100%		
Catogary		Compulsory (UR)											
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							N	/larks			
EMP007	Course Title	rielequisite	Cr	Lec	Tutorial	torial Lab Total CW O/P FE 2 1 4 30 20 50 30% 20% 50% y (FR) neering mechanics. nrtesian, curvilinear, tangential, positiles-Motion under centrifugal	Total						
EIVIF 007	Eng. Mechanics (2)	None	Contact hours Marks Cr Lec Tutorial Lab Total CW O/P FE One 2 1 2 1 4 30 20 50	100									
	Eng. Wechanics (2)	None	2	ı		•	4	30%	20%	50%	100%		
Catogary		Compulsory (FR)											
Objective	Continuing learning	ntinuing learning the basic concepts of engineering mechanics.											
	Displacement, veoli	city and acce	elerat	ion ir	Cartesi	an, ci	urvilin	ear, t	anger	ntial, p	olar and		
- •	cylindrical coordina	ates-relative	moti	on-pi	ojectiles	-Mot	ion u	nder	centi	ifugal	forces-		
Topics	Work-Energy-Mome	entum-Impul	se an	d coll	ision-Ex	perin	nents:	Momo	entun	n cons	ervation-		
	Projectiles-Free falli	_				1							

		Freshmen	LEV	'EL 0	00 COUR	SES								
Code	Course Title	Prerequisite		С	ontact ho	urs			M	Narks				
Code	Course Title	Frerequisite	Cr	Lec	Tutorial	Lab	Total	CW	O/P	FE	Total			
DPE 012	Eng. Drawing &	DPE011	3	2		3	5	50	-	50	100			
DFE 012	Projection (2)	DECOIL	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	boc	lies-D	erivation	of vi	ews o	f a gi	ven b	ody-D	erivation			
	of a missing view	from two	give	n vie	ws-Rules	of s	ection	ing a	nd se	ectiona	ıl views-			
Topics	Drawing of steel se		_					_						
	Sphere-Cone-Cyline		•								•			
	revolution.	del Fidile Se	C110.	11 01	Surraces	, mic	iscetic	,11 OI		Sull	idees of			

		Freshmen	LEV	'EL 0	00 COUR	SES								
Code	Course Title	Prerequisite		С	ontact ho	urs			ı	/larks				
Code	Course Title	Prerequisite	Cr	Lec	Tutorial	Lab	Total	CW	O/P	FE	Total			
DPE001	Production	None	3	2	1	2	5	50	30	50	100			
DFLOOT	Technology	None	,				3	20%	30%	50%	100%			
Catogary			(Comp	ulsory (FR	?)								
Objective	To learn the main c	learn the main concepts of production technology												
	Introduction in ind	-		_	_									
Topics	spinning)-Joining p	loys-Casting processes-Forming processes (forging, rolling, drawing, extrusion and inning)-Joining processes (riveting, welding and adhesive bolding)-Cutting processes achining processes (turning, shaping, drilling, milling and grinding)- Measuring tools												
	(vernier calipers as systems-Practical page 2)	nd micromet	-	_	_	_	_		•		_			

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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	Programming												
Catogary		Compulsory (UR)												
Objective	To learn basic conc	epts of comp	uters	and l	high-level	l prog	ramm	ing la	nguag	ges.				
Topics	flow charts) - Prog	nformation processing-Computer building blocks - Problem solving (Algorithms and low 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	Proroguisito		С	ontact hou	urs			N	/larks				
Code	Course ritte	Prerequisite	Cr	Lec	Tutorial	Lab	Total	CW	O/P	FE	Total			
STE101	Structural	None	3	2	2		4	50	-	50	100			
SILIUI	Analysis-1 50% - 50% 100%													
Category	Compulsory (MR)													
	The course of Structural Analysis (1) aims to provide students with high quality													
Objective	education and to pre	pare them for	r a sı	ucces	sful profes	ssiona	al care	er, an	d pro	duce				
	.graduates take the r	esponsibility	of A	analys	sis the stru	icture	es		-					
	Types of loads - S	upports – De	etern	ninati	on of reac	ctions	s – In	ternal	forc	es in	statically			
	determinate beams,	frames, arche	es an	d trus	sses – Infl	uence	e lines	in be	ams,	frame	s, arches			
Topics	and trusses – Virtual work method for influence lines – Maximum bending moment and													
	shearing force in beams – maximum absolute bending moment.													
	Experimental Tests:	Computer ap	plic	ations	on intern	al for	rces o	f simp	le be	ams				

	S	ophomore L	EVE	EL 10	0 COURS	ES								
Code	Course Title	Proroguicito		С	ontact ho	urs			N	/larks				
Code	Course Title	Prerequisite	Cr Lec Tutorial Lab Total CW O/P FE											
MTE101	Materials	None	3	2	1	2	5				100			
WITEIOI	Engineering	HOIIC	,		'			30%	20%	50%	100%			
Category			С	ompu	lsory (FR)								
	The course of Engin	The course of Engineering Geology aims to provide students with high quality education												
Objective	and to prepare them	and to prepare them for a successful professional career, and produce graduates												
	.Understanding characteristics of building materials													
	Engineering materi	als; an intro	oduc	tion:	types, st	ructu	re, p	ropert	ies,	applic	ations –			
	Stresses and strains	- Elasticity	ano	d pla	sticity –	Stand	lards -	– Me	chani	cal te	sting for			
	metallic materials	tension, cor	npre	ssion	, bending	, she	ear, to	orsion	, har	dness.	impact,			
Taniaa	fatigue, creep) – Co	` '					,				1 '			
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 i	ron and brass	s, Pe	nding	test, Tor	sion t	est fo	r mild	l stee	l and o	east 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.							

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	Sophomore LEVEL 100 COURSES Contact hours Marks														
Code	Course Title	Prerequisite		С	ontact ho	urs			N	/larks					
Code	Course rille	Frerequisite	Cr	Lec	Tutorial	Lab	Total	CW	O/P	FE	Total				
CSE101	Computer	CSE001	2	1	1	2	4	30	20	50	100				
CSETOT	applications	CSEUUI	4				4	30%	20%	50%	100%				
Category	Compulsory (FR)														
	The aim of this cou	rse is to expl	ore c	curren	t AutoCA	D te	chnolo	gies a	and de	evelop	skills in				
Objective	the use of specialis	st CAD softs	ware	to p	roduce 21	D an	d 3D	desig	n spe	ecifica	tions, to				
Objective	transform CAD drav			-				_	_						
	of CAD data and ho								_						
Topics	Topics AutoCAD drawing, 2-D, 3-D Home, Photoshop, Excel, PowerPoint, Word.														
15,5100	diaming,	2 D , 3 D III	,,,,,	1 1100	oonop, En	, 1	5 .7 011	· OIIIt,	,, 01	•••					

	S	ophomore L	EVE	EL 10	0 COURS	SES							
Code	Course Title	Droroguicito.		С	ontact ho	urs			I	Marks			
Code	Course Title	FMP005 Y Y Y 2 - Y 50 - 50											
EMP101	Engineering	EMP005	۲	١,	2	_	۳.	50	-	50	100		
	Mathematics 3	LIVII 003	·	,	_		,	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 supervisio	n of a math t	each	er									
	Linear vector space												
	linear maps- chang	e of basis	- L	inear	program	ming	- sim	plex	meth	od-N	umerical		
	solutions for linear	equations-	Num	erical	solution	s for	non	- linear	equ	ations	- Curve		
Topics	fitting - Approximat	e Interpolation	on ar	nd pol	lynomial.	First	t ordei	diffe	rentia	al equa	ation and		
	their applications -	- Linear and	l hig	gher o	order D.E	anc	d their	r app	licatio	ons N	umerical		
	Solutions for ordina	ry differentia	ıl eqi	uation	ı – Numer	rical s	solutio	ons for	r Part	ial Di	fferential		
	equation – Partial D	\dot{E} – Solution	by s	separa	tion of va	ıriabl	e						

	Sophomore LEVEL 100 COURSES													
Code	Course Title	Prerequisite		С	ontact ho	urs			N	/larks				
Code	Course rille	rierequisite	Cr	Lec	Tutorial	Lab	Total	CW	O/P	FE	Total			
HUM101	Introduction to law	None	2	2	_		2	50	-	50	100			
HOWITOT	introduction to law	None	4		•	-		50%	-	50%	100%			
Category	Compulsory (UR)													
_	The course helps th The relation between economically and cu	n engineering		-				_						
_	Law bases and sources – General bases, sources and characteristics of the administrative Law – public administration organization – General bases of the administrative organization – centralized and decentralized administration – civil servant post.													

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	Sophomore LEVEL 100 COURSES													
Code	Course Title	Proroquicito		С	ontact ho	urs			ľ	Marks				
Code	Course Title	Prerequisite	Cr	Lec	Tutorial	Lab	Total	CW	O/P	FE	Total			
	Thermodynamics							50	-	50	100			
MPE101	and mechanical systems													
Category			C	ompu	lsory (FR)								
Objective	Provide the unders	tanding of o	liffe	rent 1	types of	thern	nodyn	amic	passi	ive an	d active			
Objective	elements and differe	ent mechanica	al sy	stems	•									
	Fundamental conce	Fundamental concepts, state variables, definition of heat and work, properties of gases,												
Topics	application of the 1st and 2nd fundamental theorem for the analysis of closed or open													
•		application of the 1st and 2nd fundamental theorem for the analysis of closed or open systems, heat transfer.												

	Sophomore LEVEL 100 COURSES													
Code	Course Title	Droroguioito		С	ontact ho	urs			N	/larks				
Code	Course ritte	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	4	1	1	4	4	30%	20%	50%	100%			
Category	Compulsory (FR)													
	Provide basic know	ledge, and u	ınde	rstanc	the mag	gnetic	circu	it an	alysis	, type	s of DC			
Objective	generators, constru	ction, the	theor	ry of	operation	on, t	he st	eady	state	perf	formance			
	characteristics and p	arallel opera	tion	of ger	nerators.			•		•				
	Introduction to elec-					latio	n in 1	eside	ntial	and i	ndustrial			
-	buildings (illumination networks in rural areas, data lines, telephone lines and antenna													
Topics														
	security - gas). Plum	<u> </u>		•			•				`			

LEVEL (100) Semester 4

	S	ophomore L	EVE	EL 10	0 COURS	SES							
Code	Course Title	Prerequisite		С	ontact ho	urs			N	Marks			
Code	Course Title	Frerequisite	Cr	Lec	Tutorial	Lab	Total						
STE102	Structural	None	3	2	2		1	50	-	50	100		
S1E102	Mechanics -1	None			_	•	-	50%	-	50%	100%		
Category	Compulsory (MR)												
	This course covers the fundamental concepts of structural mechanics with applications to												
	ivil structures. Topics include the major properties of section that used in the civil												
Objective	application analysis. The different types of stresses that causes due to different interna												
	forces. Also, can ca	lculate the p	rinci	pal st	resses (N	orma	l and	shear)) due	to all	cases of		
	loading by including	g examples fr	om o	civil,									
	Geometrical propert	ies of section	ıs (fi	rst, se	cond, mix	ked, p	olar a	nd pri	incipa	al mon	nent of		
	area), Mohr's circle	of inertia, Di	rect	stress	es and stra	ains,	compo	osite s	tructi	ıral me	embers,		
Topics	Thermal stresses, Do	erivation of b	endi	ng fo	rmula, No	ormal	stress	es, Ne	eutral	Axes,	Core of		
Topics	sections, shear stress	ses, Derivatio	s, Derivation of shear formula, shear stress distribution in thin						hin				
	walled sections, she	ar center, To	rsion	, com	bined stre	esses,	Mohr	's circ	ele of	stresse	es,		
	principal shear & no	rmal stresses	S.										

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	Sophomore LEVEL 100 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				
STE103	Construction	None	3	2	1	2	5	30	20	50	100				
S1E103	Materials	None	3	4	- - 30% 20% 50% 100										
Category	Compulsory (MR)														
Objective	Introduce the studen	Introduce the student to concrete component, concrete mixes, test of fresh and hardened													
Objective	concrete, concrete manufacture and concrete cracks and the affect the work of engineers														
	Concrete component														
	specifications & class:	ification of ce	ment	, admi	xtures, mi	x wat	er, des	ign of	conci	ete mi	x, tests of				
	fresh & hardened con-	crete-mechani	cal p	ropert	ies of cond	crete,	effect	of sur	roundi	ing env	rironment				
	on concrete, special	concrete, frac	ture	mecha	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-in	itial	and 1	final settii	ng tii	ne of	ceme	ent-fri	ction a	and wear				
	resistance of aggregate-crushing resistance of aggregate fineness of cement test-compressive &														
	tensile strength of cen	nent-soundnes	s of o	cemen	t-slump te	st-Ke	lly ball	test-c	ompa	ction fa	actor test-				
l	compressive & tensile	and flexural s	streng	gth tes	ts, splitting	g test.									

	Sophomore LEVEL 100 COURSES													
Code	Course Title	Droroguioito		С	ontact ho	urs			ľ	Marks				
Code	Course ritte	Prerequisite	Cr	Lec	Tutorial	Lab	Total	CW	O/P	FE	Total			
CUE102	Construction	None	3	2	2		1	50	-	50	100			
CUEIUZ	Engineering													
Category		Compulsory (MR)												
Objective	Work in a team, co	mmunicate w	ith o	others	effective	ly, le	ad ind	ividu	als, d	eal wi	th others			
Objective	according to the rule	es of the profe	essic	nal E	thics, eng	age in	n-self	and li	fe- lo	ng lea	rning.			
	Design of concrete	forms, Concre	ete c	onstri	uction (M	ixing	, Tran	sporti	ng, P	lacing	, 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				Marks				
Code	Course Title	Prerequisite	Cr	Lec	Tutorial	Lab	Total	CW	O/P	FE	Total			
STE104	Engineering	None	¥	2			4	50	-	50	100			
S1E104	Geology													
Category	Compulsory (MR)													
Objective	Understanding basic	theoretical e	engii	neerin	g geology	y. Lea	arning	basic	labo	ratory	tests for			
Objective	rocks including dete									•				
	General Introduction	on for Geo	olog	y an	d Engin	eerin	g Ge	ology	, M	inerals	s, Rock			
		General Introduction for Geology and Engineering Geology, Minerals, Rock Classifications, Rock weathering, mass wasting and erosion, Rock Composition, Faults												
Topics	and folds, groundw	nd folds, groundwater and surface water, Tectonics, Earthquakes, Rock Tests and												
	Mechanical Properti	es.			ŕ	ŕ		•	,					

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	Sophomore LEVEL 100 COURSES													
Code	Course Title	Droroguioito		С	ontact ho	urs			N	Marks				
Code	Course ritte	Prerequisite	Cr	Lec	Tutorial	Lab	Total	CW	O/P	FE	Total			
WCE101	Civil Eng. Drowing	None	2	1	Λ	4	_	50	-	50	100			
WSE101	Civil Eng. Drawing	50% - 50% 100%												
Category	Compulsory (MR)													
Objective	To ensure The relation between engineering development and developing the													
Objective	environment socially	environment socially, economically and culturally.												
	Basic Symbols, Eart	hen works, D	Differ	ent ty	pes of cu	ılvert	s, Brio	lges,	Regul	ators,	Syphons,			
T:	Aqueducts, Escapes, weirs, Locks, Different examples civil engineering works.													
Topics	Differnt types of stee	Differnt types of steel works, Metallic bridges, Concert Structures, Different examples civil												
	engineering works.													

Elective (1) Humanities

	Sop	homore LE	VEI	10 0	COUR	SES					
Code	Course Title	Prerequisite			ontact ho			sy - Short account of lety -'Its development amaterial concepts - ethics - the Arabian Islan			
Code	Course Title	Frerequisite	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		_	_		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				
Topics	Defining civilization i Arabic community pre main 'features - Islamic values - the basic c achievements in the fie to the world. civilizatio	n general - e-Islam - sett c Civilization concepts - t lds of science	theding or - the he kn	ories up the b mair	and termine and te	mino nic s al au eteris	ology society nd ma stics ure - t	/ -'Its terial - the the At	deve conc Ara abiar	elopme epts - bian contr	ent and ethical Islamic ribution

	Sop	homore LE	VEI	L 100) COUR	SES							
Code	Course Title	Prerequisite			ontact ho				N	/larks			
Code	Course Title	Frerequisite	Cr	Lec	Tutorial	Lab	Total	CW	o - 50 % - 50% nging the env	Total			
	Geography of Mankind	None	2	2	_	_	2	50	-	50	100		
110101104	& Environment	NOHE			_	_		50%	-	50%	100%		
Catogary		University Elective (1) (UR)											
Objective	Knowledge of the geog	owledge of the geography of mankind & environment											
	Environment of the co	ntemporary r	nan	- th	e role of	f ma	n in c	hangi	ng th	e envi	ironment		
T:-	Analytical studies for	models of t	he	envir	onment	- sc	me e	nviroi	nmen	tal pro	oblems -		
Topics	overpopulation and fo	od shortage	-'Po	olluti	on - de	pleti	on of	the	natur	al reso	ources –		
	desertification.	S											

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	Sophomore LEVEL 100 COURSES											
Codo	Course Title	Droroguioito		C	ontact ho	ours			N	Marks		
Code	Course Title	Prerequisite	Cr	Lec	Tutorial	Lab	Total	CW	O/P	FE	Total	
HUM102	Human Resources	None	2	2			2	50	-	50	100	
HUWIUZ	Management	None	_	_	-	-		50%	-	- 50 100 - 50% 100 for HR, Supply nt – Performa	100%	
Catogary	University Elective (1) (UR)											
Objective												
	Activities of HR mana	gement - HR	pla	nnin	g: Job a	nalys	sis, Do	emanc	l for	HR, S	upply of	
Taniaa	HR - Staffing: Recru	itment, Selec	ctio	n –	Training	and	d dev	elopm	ent -	Perf	ormance	
Topics	Appraisal – Compensa									HR, Su – Perfo ture, Em		
	benefits – Labor/manag	gement relation	ns -	- Mo	tivation	- Lea	adersh	ip – C	Comn	nunica	tion.	

	Sophor	nore LEVEI	10	0 C(OURSES	S								
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	•			2	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 1	the o	ther scie	nces	– type	es of v	ariou	ıs dedi	uctions -			
Topics	modern Logic and the v	• • • • • • • • • • • • • • • • • • • •												
	relationships, form and	nowledge of the logic and relation with the other sciences 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, lationships, form and predicate Logic.												

LEVEL (200) Semester 5

	Junior LEVEL 200 COURSES Contact hours Marks													
Code	Course Title	Prerequisite		(Contact ho	urs			N	larks				
Code	Course Title	Frerequisite	Cr	Lec	Tutorial	Lab	Total	CW	O/P	FE	Total			
CUE 20 [∨]	Engineering	None	3	2	2		4	50	-	50	100			
CUE 201	Economics	None	3		2	-	4	50%	-	reness ence, I m gra ore the methor	50% 1	100%		
Category			(Comp	ulsory (FR	₹)								
Objective	Student understar	ding fundame	ntals	of en	ngineering	econ	omy. S	tuden	t awa	reness				
Objective	of main application	ons applied tec	hniq	ues in	n structure	;			o/P FE - 50 - 50% at awareness uivalence, Inform graded more the braisal methor. C), Payback					
	of main applications applied techniques in structure Time value of money: Interest, Interest formulae, the concept of equivalence, Irra	rregular												
	cash flow, Defer	red annuities,	Inte	rest r	ates that v	vary v	with ti	me, Ū	nifor	wareness valence, Inform grad I more that is all methors, Payback	dient of			
Topics	cash flows, Nom	inal and effect	ive	intere	est rates, I	nteres	st com	pound	ed m		an once			
Topics	per year. Project a	appraisal: Proje	ect a	pprai	sal backgr	ound	, Proje	ct app	raisal		ods, Net			
	present work me	thod (NPW), I	Equi	ivalen	it annual o	cost r	nethod	50 - 50 50% - 50% Student awareness	period					
	method, Average	annual rate of	retu	rn me	ethod, 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	Frerequisite	Cr	Lec	Tutorial	Lab	Total	CW	O/P	FE	Total		
STE201	Structural	STE 101	3	2	2		1	50	-	50	100		
S1E201	Analysis 2	312 101	3	4	4	•	4	50%	-	50%	100%		
Category	Compulsory (MR)												
	Student awareness of the importance of the calculation of deflection of structures.												
Ob is ation	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							alculation of deflectistinguish between s					
	Deflection of st	atically deterr	nina	te st	ructures,	Statio	cally i	ndete	rmina	te str	uctures,		
Tonico	Method of con	sistent deform	nati	on,	Method	of 3	-mome	ent e	quatio	ons,	moment		
Topics	distribution, Appr	roximate meth	ods	to so	lve indeter	rmina	te stru	ctures	lection of struction of deflection of deflection of deflection of deflection of deflections between structure equations, in	lines of			
	Statically indeterr	ninate structur	es										

Junior LEVEL 200 COURSES														
Code	Course Title	Prerequisite		(Contact ho	urs			M	arks				
Code	Course Title	Frerequisite	Cr	Lec	Tutorial	Lab	Total	CW	20 50 20% 50% te important an Size Dises, Soil Condition of So	FE	Total			
STE202	Soil Mechanics 1	STE 104	3	2	2	1	5	30	20	50	100			
S1E202	Son Mechanics 1	31L 104	3	4	4	1	3			100%				
Category		Compulsory (MR)												
Objective	Identify the different types of soil and its properties. Understand the importance of soil													
Objective	classification and	cation and how to classify soils							<u>.</u>					
	Phase Relationsh	ips and Basic	Phy	ysical	Propertie	es of	Soils,	Grain	Size	Distr	ibution,			
- •	Consistency of I	Fine Grained	Soil	ls, So	oil Classif	ficatio	on Sys	tems,	Soil	Com	paction,			
Topics	Hydraulic Proper	ties of Soils, S	tres	s Dist	tribution in	n Soil	ls, Con	solida	ation o	FE 50 6 50% cortance to District Composition of Soil	s. Lab.:			
		roperties of Soils, Stress Distribution in Soils, Consolidation of Soil- ties, soil classification, permeability, compaction, Consolidation.												

	Junior LEVEL 200 COURSES												
Code	Course Title	Proroquisito		С	ontact ho	ours				Marl	ks		
Code	Course Title			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	4	1	3	30%	20%	50%	100%		
Category			Co	ompu	lsory (M	R)							
Objective													
	Dimensions and units	s, Fluid Prop	erti	es, I	Fluid Sta	tics	(Press	ure 1	neası	ıreme	ent, Pressure		
	forces, Buoyancy of	bodies), flu	id	Kine	matics (Flui	d mo	tion,	Con	tinuit	y & energy		
T	principals), Fluid dyn	amics (mom	ent	um p	rincipal)	, res	istanc	e to	Fluid	l mot	ion, Flow in		
Topics	closed conduits, intro	ductions to	flov	v in	open ch	anne	ls, un	stead	ly flo	w, H	ydraulics of		
	network systems. Ex	perimental v	wor	k: E	lydrostati	ics a	and st	abili	ty of	floa	ting bodies,		
	Characteristics of flov	v in pipes and	d cl	osed	conduits				•				

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Junior LEVEL 200 COURSES													
Code	Course Title	Prerequisite		(Contact ho	urs			M	larks			
Code	Course Title	Prerequisite	Cr	Lec	Tutorial	Lab	plane succomputate ar measure preparing veying, ts Trave	CW	O/P	FE	Total		
CUE203	Plane Surveying	EMP101	3	2	1	2	5	30	20	50	100		
	r land dan voying	2.00.			_			30%	20%	50%	100%		
Category			(Comp	ulsory (M	R)							
Objective	Provide a general	l introduction	to th	ne bas	ic concep	ts of	plane s	survey	7.				
Objective	Introduce students to the concepts of basic surveying computations												
	Principles, Theory of measurements & errors, Linear measurements surveying &												
	corrections, Electronic distance measurements, Angular measurements using compass												
	& theodolite, Tra	verses, Areas	& 1	and d	ivision, M	Iap p	reparir	ng, Le	veling	g, Vol	umes &		
	land grading, Vo	lumes of cut &	& fil	l, To ₁	graphing	g surv	veying	, Tach	omet	ric sui	veying,		
Topics	Plane table surve	eying. Practic	al: I	Linear	measure	ment	s Trav	erse,	Using	g Con	pass to		
	measure bearings	s, Linear meas	sure	ments	& compa	ass T	raverse	e, The	odoli	te cali	bration,		
	optical and digit	al theodolite,	the	odoli	te Travers	se, A	rea de	termi	urvey. tions surements surveyir urements using con g, Leveling, Volum Tachometric surve erse, Using Compa , Theodolite calibra ermination using l	g Plane			
	meter, Level calibration, longitudinal leveling, grid leveling, Measuring of distances												
	& height differen	ces using tach	ome	etric s	urveying	•••							

Junior LEVEL 200 COURSES													
Code	Course Title	Prerequisite		(Contact ho	urs			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 Tech	Discuss the Technical management of projects. Practice Quantity Surveying of project											
	P Role of specific	cations, Types	of	specit	fications,	Tech	nical s	pecifi	cation	ıs, De	scriptive		
	specifications,	Performance	•	spec	ifications,	. 1	Von-te	chnica	ıl	specif	ications,		
Topics	Specifications w	riting techniq	ues,	Obj	ectives of	qua	ntity s	urvey	ing, 1	Prepar	ation of		
	Bill of Quantity	(BOQ), Meas	sure	ments	s and qua	ntity	takeof	f of c	constr	ruction	project		
	items.												

	Junior LEVEL 200 COURSES Contact hours Marks												
Code	Course Title	Droroguicito		(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	4	-	-		50%	-	50%	100%		
Category		Compulsory (MR)											
Objective	Discuss the Cost estimating methods; Early cost estimating methods and Detailed cost												
Objective	estimating metho	ds.			•								
	Structures - Tend	dering decisio	ns a	and p	rocess - (Cost 6	estimat	ing n	nethod	ds - E	arly cost		
	estimating metho												
Topics										50 50% d Deta			
	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														
Code	Course Title	Prerequisite		(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	Management None 2 2 - - 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 nodels, human resources management.													

Junior LE	EVEL 200 COURSES	S										
Code	Course Title	Prerequisite		(Contact hou	ırs			1	Marks		
Code	Course Title	Trerequisite	Cr	Lec	Tutorial	Lab	Total	CW	O/P	FE	Total	
INE208	Quantitative Methods	None	2	2	_	_	2	50	-	50	100	
	in Engineering	110110		_				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 LI	CVI	EL 200 COURSE	S										
Code		Course Title	Prerequisite		(Contact hou					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 4	E	ngineering Projects			14 1	DI 4. (IDI							
Catogary	<u> </u>			Fa	culty 1	Elective (Fl	K)						
	St	udents should be											
	•	Effectively use	basic engine	ering	g eco	nomics to	ols to	o eval	luate	majo	r infra	structure	
		projects.											
	•	enderstand when to comprehens this outle unarytis with more sopmeticated tools.											
Objective	•	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 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 large-scale, long-lived projects involving many economic, financial, social, and												
Topics	environmental factors. Students learn the basic techniques of engineering economics,												
	ine	including 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)							0070		00,0	10070		
Category		Compulsory (MR)											
Objective	Analyze and design of sanitary engineering (water treatment and supply) projects												
	Introduction to	ntroduction to Treatment and water supply works and its importance for urban											
	communities, Po	opulation stud	dies	and	consump	otion	rates,	Wat	er so	urces,	Water		
	quality, Water co	ollection from	sur	face s	ources, D	istrib	ution	works	s (elev	ated s	storage,		
Topics	water			distril	bution					net	works).		
	Experimental: Suspended solids concentration, dissolved materials concentration,												
	determining PH,	Turbidity, Ba	acte	rial c	ounting, .	Jar te	st to c	letern	nine n	nateria	al dose,		
	for Optimum Co	agulation, det	erm	ine w	ater hardr	ness,	water	condu	ctivit	y.			

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		Junio	r L	EVE	EL 200 C	OUI	RSES								
Code	Course Title	Proroquicito		С	ontact ho	ours				M	arks				
Code	Course Title	Frerequisite	Cr	Lec	Tutorial	Lab	Total	CW	O/P	FE	Total				
	Reinforced							50	-	50	100				
STE203	Concrete Design 1	STE102	50% - 50% 100%												
Category	Compulsory (MR)														
Objective	Introduce the c	oncepts of th	ie ai	nalys	sis and de	esign	of Re	einfor	ced	Conci	rete Elements				
	Load distribution, design methods, limit state design method: flexure design, shear														
Topics	design, torsion design, beams, solid slabs, hollow block slabs, axially loaded														
	members, and reinforcement detailing.														

		Juni	or I	EVI	EL 200 C	OUR	SES						
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	ry (N	IR)						
Objective	Cost control:	meaning a	ınd	def	initions,	met	hods,	fun	ction	s, re	porting systems,		
Objective	implementation, Characteristics of the construction industry in Egypt, The Construction Team, Types of												
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, Organication of the pts of the pt	f Cor Fund ganiz ons ar Impo charts	nstruction etions, St ation. F nd Activit rtance, a s and link	Projyles, Projecties. Ond Ted ba	ects. In and The and t	Manag Frends nagem ruction . Plants, cu	gemens. Properties. Properties	nt: Ba ojects: Define nagem g: mea tive pr	Team, Types of ckground, Nature, Life Cycle, Task ition, Ingredients, nent: Meaning and aning, definitions, roject progress - S as, PERT, project		

	Junior LEVEL 200 COURSES														
Code	Course Title	Prerequisite		(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	echanics 2 50% - 50% 100%													
Category	Compulsory (MR)														
Objective	Student studying methods for solving of statically indeterminate structures and practice on														
Objective	the application by using the method Moment Distribution.														
Tonico	Moment distribution method, Plates, Shells, Modeling. Computer applications for Plates														
Topics	and shells and Approximate method														

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	Junior LEVEL 200 COURSES Contact hours Marks												
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	None	4	4	•	•		50%	-	50%	100%		
Category				Comp	oulsory (F	R)							
	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										C		
	Graphical presentation of data: Frequency distributions, Histograms, Stem-and-leaf												
	Diagrams – Measures of central tendency: Sample mean for ungrouped data, sample												
	mean of groupe				• •			_	-		-		
Topics											•		
•	Variance and standard deviation for ungrouped sample data, Variance and standard deviation for grouped sample data, Range – Bivariate data: Scatter diagrams, Correlation												
	Coefficient, Linear Regression – Probability Distributions – Sampling and sampling												
	Distributions.	<i>y</i>			J						1 8		

Elective (2) Humanities

		Junior LEV	VEL	200	COURSE	S								
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 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	A ass	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 LEV	VEL	200	COURSE	S							
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 202	Introductory	None	2	2			2	50	-	50	100		
HUW 202	Sociology	Sociology None 2 2 2 50% - 50% 100%											
Catogary	University elective (2) (UR)												
Objective	Knowledge of the bas	ic concept of	soc	iology	/ .								
	Community - Social	relations - 1	prim	ary a	nd second	dary	group	s - N	Iodel	s .of	topics in		
Topics	Sociology - the sociologist - Social control - Planning and development - Research												
	curricula 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			N	Marks					
Code	Course ritle	Frerequisite	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													
Catogary	University elective (2) (UR)														
Objective	To learn bases and na	Γο 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				
	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	nedieval age - the second medieval age - modern state - the third medieval age - the late														
	<u> </u>	edieval 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	Droroguicito		С	ontact ho	urs			N	Marks		
Code	Course ritte	Prerequisite	Cr	Lec	Tutorial	Lab	Total	CW	O/P	FE	Total	
HUM 204	Introductory	None	2	2			2	50	-	50	100	
HUW 204	Psychology				•	-		50%	-	50%	100%	
Catogary	University elective (2) (UR)											
Objective	To learn the basic cor	ncepts of psyc	holo	ogy.								
Topics	Nature of psychology - motives - emotions - attitudes depression, and personal stress - conscientiousness and psychotherapy - recall and forgetfulness.											

LEVEL (300) Semester 7

		Senior 1 LE	VE	300	COURS	ES						
Code	Course Title	Prerequisite		С	ontact ho	urs			N	Marks		
Code	Course ritie	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	3	<u> </u>	4	-	4	50%	100%			
Category		Design 2 3 2 2 4 50% - 50% 100% 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.	
Topics		roduce the concepts of the analysis and design of Reinforced Concrete Elements. sign members under combined flexural and axial loading –Design and detailing of mes 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 Contact hours Marks Code Course Title Prerequisite Contact hours Marks													
Codo	Course Title	Dravaguiaita		С	ontact ho	urs			N	Marks				
Code	Course Title	Prerequisite	Cr	Lec	Tutorial	Lab	Total	CW	O/P	FE	Total			
STE302	Steel Structure	STE201	3	2	2	-	4	50	-	50	100			
	Design 1			L	(1.5)			50%	-	50%	100%			
Category				_	sory (MR)									
	Increase the student	t awareness	of	the d	lifferent	struct	ural	eleme	nts c	compo	sing the			
Objective	Objective industrial steel structure. The design tools for the elements in different codes will be fully													
	explained										_			
	Introduction to steel			-	• 1						_			
	Design of :- (Tension	n members	- Co	mpre	ssion mer	nbers	s Bolte	ed co	nnect	ions –	Welded			
	connections – High s			_										
Topics	includes as well dif	ferent metho	ds f	or acl	hieving	the	design	n and	drav	vings-	-Detailed			
ropics	drawings for the dif	ferent items	and	comp	onents	of in	dustri	al bui	lding	;s – :	Different			
	methods of fabrication	on and erection	on of	findu	strial bui	ilding	gs – (Comp	uter a	aided o	design of			
	steel structures – Ex	ecution and	worł	shop	drawin	gs –	Tests	on w	elded	d steel	sections			
	includes: - Visual ins	pection – Liq	uid p	enetr	ation tests	s - U	ltrasor	nic tes	$ts - \Sigma$	K-ray t	ests			

	Senior 1 LEVEL 300 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			
	Traffic and							50	-	50	100			
CUE301	Transportation	EMP202	3	2	2	-	4	50%	_	50%	100%			
	Engineering				(5.55)									
Category					sory (MR)									
	The students will be													
Objective	engineering discipline	s and use th	e co	des of	f practice	of hi	ghwa	ys and	l traf	fic eng	gineering			
	disciplines effectively	and professi	onal											
	Principals of transpor	tation, data c	olled	tion,	trip gener	ation	& dis	stribut	ion, 1	netho	ds of trip			
	distribution, modal sp	lit, network p	olanı	ning, t	raffic ass	ignme	ent, ev	aluati	on of	f trans	portation			
Tonica	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 s	tudies	s, trav	el tim	e and	l delay	studies,			
	parking studies and c	haracteristics	s, hig	ghway	capacity	and	level	of sei	design of had traffic enguition, method transportion of transportion and delayervice, traffic	c control				
	devices, road marking													

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		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
CUE302	Construction Projects	CUE205	3	2	2		1	50	-	50	100
CUESUZ	Planning (2)	Planning (2)									100%
Category			Co	ompul	sory (MR)						
	Aims to provide an u	nderstanding	of s	ome a	advanced	topic	s in pl	lannin	g and	d sched	duling of
Objective	construction projects	construction projects and their implementation in practice using common software (like									are (like
	Primavera and Micros	soft project).	•		•						•
	Project time reduction	on. Project	resou	arce	managem	ent (Resou	rce a	lloca	tion, I	Resource
	leveling, Limited-reso	ource conside	eratio	ons). I	Project co	st co	ntrol	Mear	ning a	and de	finitions,
T:-	Methods, Functions,	reporting sy	stem	ıs, İm	plementa	tion,	Mate	ials c	ost c	ontrol	, Earned
Topics	value method, and Po										
	Solve problems associate	ciated with the	hese	tropi	cs. Projec	ct pla	nning	by co	ompu	ter (P	rimavera
	software, and MS pro			•	3	•				`	

		Senior 1 LE	VE	300	COURSI	ES						
Code	Course Title	Prerequisite		С	ontact hou	urs			M	Marks		
Code	Course Title	Frerequisite	Cr	Lec	Tutorial	Lab	Total	CW	O/P	50 50% and deterning of ess method attemption of the structure of the stru	Total	
STE304	Advanced Structural	STE201,	4	2			7	50	-	50	100	
S1E304	Analysis	STE204	'	4	•	-	1	50%	-	50%	100%	
Category			Co	mpul	sory (MR)							
	Students are studying how to distinguish between stable / unstable and determinate /											
Objective	indeterminate structures. Students are studying methods for solving of statically											
		ndeterminate structures and practice on the application by using the stiffness method								o - 50 % - 50% ble and deterr solving of solving of solving terminate structures - Ana		
	Matrix algebra by co	omputers – S	Statio	cally	and kinar	natic	ally in	ndeter	mina	te stru	ictures –	
Tonico	Matrix approach (1)	to solve th	e ki	nema	tical inde	termi	inate	struct	ures	- Ana	alysis of	
Topics	kinamatically indeter	minate struc	tures	by :	stiffness 1	metho	od – (Grids	- Pl	50 50% d deterning of significant structure of the struct	nd space	
	trusses, and frames. C	omputer Appli	catio	ns for	trusses, be	eams,	, and fi	rames				

Elective (3) Humanities

		Senior 1 LE	VE	L 300	COURS	ES										
Codo	Course Title	Droroguioito		С	ontact hor	urs			N	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	None	_		-	-	2	50%	-	50%	100%					
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	and developi	ng to	opics	- deducin	g resi	ılts - l	Metho								
	presenting data - meth	_	_	_		_				C	C					

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		Senior 1 LE	VE	L 300	COURS	ES							
Codo	Course Title	Droroguioito		С	ontact hou	urs		2 50 - 50 50% - 50%					
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	None		2	-	-		50%	-	50%	100%		
Catogary		University elective (3) (UR)											
Objective	To learn about charac	teristics of go	od	semin	ar present	ation	•						
	Talks and presentation	ns are invited	fro	m ind	ustrial est	ablisl	nment	s rele	vant t	o/P FE To 1	orogram.		
Tonica	The guest speaker sh	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	/P FE - 50 - 50% - scent techning brief	technical		
	reports on the guest p	mented in his/her industrial establishment. Students exercise writing brief technical s on the guest presentation and deliver their own presentation about the topic.											

	Senior 1 LEVEL 300 COURSES Senior 1 LEVEL 300 COURSES												
Codo	Course Title	Droroguioito		С	ontact ho	urs				Marks			
Code	Course ritle	Prerequisite	Cr	Lec	Tutorial	Lab	Total	CW	O/P	FE	Total		
LIIM 204		None	2	2			2	50	-	50	100		
HUW 304	Industrial Psychology	None	4		•	-	2	50%	-	50%	100%		
Catogary		Ur	iver	sity el	ective (3)	(UR)							
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	motives - c	onsc	ientic	usness, le	earnin	g. and	d reca	o/P FE - 50 - 50%	ence and			
T:							_			_			
Topics		nking - harmony in personality - Applying principles of Psychology in the fields of dustrial Psychology - realizing convenience between the individual and, his profession -											
	Analyzing work - Sel	_								-			
	- Group interaction wi	_					J		,	C			

Codo	Course Title	Droroguicito		С	ontact ho	urs			N	Marks		
Code	Course ritle	Frerequisite	Cr	Lec	Tutorial	Lab	Total	CW	O/P	FE	Total	
LIIM 205	Introductory	None	•	2			2	50	-	50	100	
HOW 303	Industrial Sociology	None	_	_	-	_		50%	-	50%	100%	
Catogary		Ur	niver	sity el	ective (3)	(UR)						
Objective	<u> </u>											
	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	ases r	elated to	
	industry and indust	rialization ii	n th	e de	veloping	cour	ntries	- th	e ne	cessar	y social	
Topics	requirements to face										•	
•	industrial organizatio				_			-	•			
	analyzing the relation			•						_		
	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 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		
		CUE203,						50	-	50	100		
CUE303	Highway Engineering	STE202, CUE301	3	2	2	-	4	50%	-	50%	100%		
Category			Co	mpul	sory (MR)								
	The students will be able to act professionally in maintenance, construction pf pavement												
Objective	layers and use the cod	les of practice	e of l	highw	ays and to	raffic	engin	eerin	g disc	ciplines			
	effectively and profes	sional											
	Basic design controls	, sight distar	nce,	horiz	ontal alig	nmer	ıt, ver	tical	aligni	ment,	climbing		
	lanes, cross section	elements,	inte	ersecti	ions. Typ	pes	of hi	ghwa	y pa	vemei	nts, soil		
Topics	classification, measur	ing soil stren	gth,	stress	ses and sta	rains	in flex	kible	paver	nent, c	design of		
	flexible pavement, ty	ypes of aspl	nalt	matei	rials, desi	ign o	f aspl	halt r	nix,	asphal	t plants,		
	construction of differen	ent pavement	laye	ers.									

	Provide students with high quality education and to prepare them for a successful										
Code	Course Title	Proroquisito		С		urs				Marks	
Code	Course Title	Frerequisite	Cr	Lec	Tutorial	Lab	Total	CW	O/P	FE	Total
CHE304	Construction		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, as	nd produce gr	radua	ates ta	ake the res	spons	ibility	of co	nstru	ction	
	management of proje	cts				•	•				
	Methods of contracto	rs' selection	: op	en te	ndering, s	elect	ive te	nderii	ıg, se	erial te	endering,
	negotiated tenders. C	onstruction o	ontr	acts b	pasics and	l defi	nition	s. Ty	pes (of con	struction
	contracts: cost reimbi							•	•		
- •	cost, Price given in						_	-			
Topics	Contracts based on	a schedule o	of ra	tes, I	Design an	ıd bu	ild co	ontrac	ts -	The p	rivatized
	approach - Concept of	f managemer	it 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	Egyptia	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	Droroguioito		С	ontact hor	urs			N	/larks			
Code	Course ritte	Prerequisite	Cr	Lec	Tutorial	Lab	Total	CW	O/P	FE	Total		
STE303	Soil Mechanics 2	STE202	3	2	2	1	5	30	20 50 20% 50% roperties and cations	100			
S1E303	Son Wechanics 2	316202	3	<u> </u>	2	1	5	30%	20%	50%	100%		
Category		Compulsory (MR)											
	the students will be ab	e students will be able to Identify the different types of soil and its properties and											
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	VEI	300	COURS	ES						
Codo	Course Title	Droroguioito		С	ontact ho	urs			ľ	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	<i>_</i>	<u> </u>	-	-	4	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 career, and produce graduates take the responsibility of											
-	construction management of projects											
	Definitions of value	engineering,	Valu	e eng	gineering	requi	iremen	ts, In	centiv	e prov	isions in	
Tanias		cruction contracts, Factors to be considered when applying value engineering concept,										
Topics	Fundamentals of value engineering, Methodology in generating value engineering proposals,											
	Creativity in value engi	neering, Life o	ycle	cost a	nalysis, W	eight	ed eval	luatior	1.			

Engineering Elective (1)

		Senior 1 LE	VE	L 300	COURS	ES							
Code	Course Title	Prerequisite		С	ontact ho	urs			N	Marks			
Code	Course ritle	Frerequisite	Cr	Lec	Tutorial	Lab	Total	CW	O/P	FE	Total		
CHE224	Pavement Materials	LEVEL 300	3	2			2	50	-	50	100		
CUE321	Pavement waterials	LEVEL 300	ာ		-	-		50%	-	50%	100%		
Catogary		Engineering Elective (1) (MR)											
Objective		his 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		he materials used. grade soil- subbase soil- base soil – wearing surface- paving soil tests- asphalt layer s- material quality control.											

	Senior 1 LEVEL 300 COURSES Contact hours Marks												
Code	Course Title	Droroguicito		С	ontact hor	urs			ľ	Marks			
Code	Course Title	Prerequisite	Cr	Lec	Tutorial	Lab	Total	CW	O/P	FE	Total		
CUE322	Railways Engineering	LEVEL 200	3	2			2	50	-	50	100		
CUESZZ	Railways Engineering	LEVEL 300	3	_	-	-		50%	-	50%	100%		
Catogary		Engineering Elective (1) (MR)											
Objective	Support the graduate students with high-quality level of theoretical knowledge and												
	research skills to enab	ole them add	valu	e in t	heir profe	ssion	al pra	ctice a	and fo	urtheri	more, for		
	the master conduct 1	high-quality	thec	retica	al and ap	plied	resea	ırch i	n va	rious	fields of		
	Railways.				-	-							
	Types of railways lines, Speeds Practical Consideration to increase speed, Preparing												
Topics	railways for High spec	eds, Vertical	Alig	nmer	it, Horizoi	ntal <i>A</i>	Alignn	nent, S	Super	elevat	ion Rate,		
	Effective and suitable	Running, Al	lowa	able C	Centrifuga	l Ford	ce, Re	verse	d Trai	nsition	Curves		

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		Senior 1 LE	VE	L 300	COURS	ES					
Codo	Course Title	Drogowiaita		С	ontact hor	urs			N	/larks	
Code	Course Title	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	3		-	-		50%	-	50%	100%
Catogary		Eng	jinee	ring E	Elective (1)) (MR)				
Objective	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	Construction.				
	Roots of uncertainty	in constru	ction	pro	jects, nee	d fo	r risk	man	agem	ent, s	steps for
	managing project risk										
Topics	quantitative approach	es, risk miti	gatio	n and	d transfer	strate	egies,	risk s	harin	g, risl	k control
	during project execu-		_				_			_	
	based decision making		_			_					

		Senior 1 LE	VE	L 300	COURS	ES					
Code	Course Title	Prerequisite			ontact ho				ľ	Marks	
Code		Frerequisite	Cr	Lec	Tutorial	Lab	50	O/P	FE	Total	
STE313	Structural Dynamics & Earthquake .Engineering	LEVEL 300	3	2	-	-	2	50 50%	-	50%	100 100%
Catogary	i_iigiiig	Eng	inee	ring E	lective (1)) (MR)		ı		
Objective	Aims to provide an understanding of the main concept of structure dynamic, ormulation of the dynamic equation of motion of single and multi-degrees of freedom and here solution under different types of dynamic loads and provide also the earthquake azard, analysis of structures subject to earthquake-induced loads and evaluation of a range of design techniques (simplified modal response spectrum method, multi modal response spectrum method, and time history analysis) and their implementation in practice, using the Egyptian earthquake design code.										
Topics	Equation of motion of Multi-degrees of from mechanism and char lateral resistance system to be determined the seismic earthquakes. Know the problems associated to seismic control system.	reedom systemateristics are for the build force in the earthquaken of the architecture.	em nd it nildin ne st e pro	modas eng ngs Caructur ovisio	analysineering shoose the ral elements in the	is. F signif suita nts to Egyp	Responicance ble modesign design c	nse se, Detection ethodes sate of the sate	spectr termin of se fe str f load	a. Eane the bismic uctures ding. S	rthquake suitable analysis. s against Solve the

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Engineering Elective (2)

		Senior 1 LE	VEI	300	COURSI	ES						
Code	Course Title	Prerequisite		С	ontact hou	urs			N	/larks		
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	っ		•	-	4	50%	-	50%	100%	
Catogary		Engineering Elective (2) (MR)										
Objective	The students will be	e able to un	dersi	and t	he Finite I	Eleme	ent Me	ethod.				
	Stiffness matrix method	od for grid, S	Stiffi	ness n	natrix met	hod 1	or spa	ace tri	iss, S	tiffnes	s matrix	
Topics	method for space fran	ne, Finite ele	emen	it met	hod and a	ıdvan	tages,	shap	e fun	ction,	mapping	
	function											

		Senior 1 LE	VE	L 300	COURS	ES					
Code	Course Title	Prerequisite		С	ontact ho					/larks	
	Course Title	rerequisite	Cr	Lec	Tutorial	Lab	Total		O/P	FE	Total
CUE324	Heavy Construction	LEVEL 300	3	2	-	-	2	50 50%	-	50 50%	100 100%
Catogary		Eng	jinee	ring E	lective (2) (MR)				
Objective	Teach students and e construction that are a	applied in cor	ıstru	ction	of some n	nega	civil p	rojec	ts.		
Topics	Construction methodengineering tasks an applications and discibuildings, sewage and structures, earth filled other mega projects. It the structural system projects will demonst the presented material should be supplement well as identifying the This approach is projects. They typical and innovative developmental machinery. A quick of presented. Emphasis mega projects. The presented. The relation project, on one hand, hand, is discussed.	nd activities. plines in civit d drinking w d dams and The pertaining and equip trate the applated with ade ne required reproduct for instrumental r lly mandate opment in the overview on will be place appropriate onship between	Typill en avater leve g comen licatii ies quat meas tech ole i conte e ass funced or comen ti	pical gineer netw e syst nstruc it tecl ion of con pro e cho cures o inolog n civi tinuou sociate damen n sele nstruc he ge	large scaring: transorks, waters, heard tion methonology. I such technology during the sy-driven and constructed constructals of shection of a tion methological/s	ale proportion of the proporti	rojects ation, leatment dustrice will be entation of the etion rapporary applicates in equiporal and the etion and the etion of the eti	s span oridge at plan al and demons o Sound project metho y pha vil en tions constructions deep oundate key cond	n a ves, turnts, a d pove onstraint seld import regions on seld and ses on gine — particular found found tion sequipitions	wide nnels, irports ver pla ited al ected lemen quirem l equij f cons ering. rticula n tech supple dation ystem ment and	range of high rises, marine ants, and ong with real-lifestation of the tation of tation of the tation of the tation of tation

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Senior 1 LEVEL 300 COURSES **Contact hours** Marks **Course Title Prerequisite** Code Cr Lec | Tutorial | Lab | Total | CW O/P FΕ **Total** Composite 50 100 50 **STE314 LEVEL 300** 3 2 2 **Concrete Bridges** 50% 50% 100% **Engineering Elective (2) (MR)** Catogary The objective of course is to introduce the theory and application of analysis and design of Objective concrete composite bridges. The course focuses on understanding the behavior of composite bridge components (beam, slab and column) subjected to gravity as well as lateral loads. Identify composite structures, their types and components. Explain the behavior of constituents in the composite structures. Determine stresses and strains relation in composite bridge members. Illuminate the knowledge and analysis skills for concrete composite bridges. To make the students to learn the advantages and dis advantages of concrete composite **Topics** bridges. Be able to analyze composite bridge structural systems under gravity and lateral loads. Be able to design different elements of composite bridge structural systems subjected to gravity and lateral loads. Be able to produce a complete project document and present in a concise and complete manner to include structural drawings and structural calculations.

		Senior 1 LE	VE	300	COURS	ES					
Code	Course Title	Prerequisite		С	ontact hor	-				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	Elective (2)	(MR)				
Objective	Provide students with high quality knowledge of Pavement Management & Maintenance and to prepare them for a successful professional career, and produce graduates take the responsibility of design the well-known.										
Topics	Introduction to Pav Pavement Distresses, Road Test, Performa Pavements, Structural	Condition S	urve	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			ontact ho				N	Marks		
Code	Course Title	Frerequisite	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							00 /0		00 70	10070	
Category			Con	npuls	ory (MR)							
	Provide students with high quality education and to prepare them for a successful											
Objective										struction		
	management of projects.											
	Project financial manag	gement: Cash	flov	w pre	ediction,	Cash	flow a	analys	sis, C	ost of	finance -	
	Basics of accounting: 1	pase of accor	unti	ng, a	ccountin	ig co	nventi	ons,	Meth	ods of	fincome	
	recognition - Compar	y financial	do	cume	ents: Ba	lance	e shee	et, Ir	ncom	e stat	ement -	
-	Compilation of financia	•										
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	e: Evaluation	of	retu	rn on in	vestr	nent a	ind as	ssocia	ated ri	sks, risk	
	return tradeoff relations	hip										

	Se	enior 2 LEV	EL	<u>40</u> 0 (COURS	ES		•	•	•	
Code	Course Title	Prerequisite			ontact he				ľ	Marks	
Code	Course Title	rielequisite	Cr	Lec	Tutorial	Lab	Total	CW	O/P	FE	Total
STE404	Steel Structures Design 2	STE 302	3	2	2		4	50	-	50	100
S1E404	Steel Structures Design 2	31E 302	3		4	-	4	50%	-	50%	100%
Category			Con	npuls	ory (MR))					
	Provide students with	high quality	y e	duca	tion and	to p	orepar	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 st	eel	bridg	ges – Lo	ads c	n bric	lges -	Wor	king s	stresses -
	Plate girder bridges – F	looring of ro	adw	ay b	ridges - l	Floor	ing of	railw	ay bi	ridges	- Design
Taulas	of: - Bracings - Bearin	gs – Main g	irde	r inc	luding b	uckli	ng in	web	plate	and d	design of
Topics	Flanges – Curtailment	of flange plat	tes -	- Des	sign of st	tiffen	ers an	d con	necti	ons- [Design of
	splices - Computer aide	ed design of	stee	el bri	dges – T	Γests	on va	lidity	of o	rdinar	y bolts –
	Tension Tests – Shear T	_			•			•		•	•

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	S	enior 2 LEV	EL	400	COURS	ES						
Code	Course Title	Droroguioito		С	ontact he	ours			N	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	professional career, an	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 structures										
Topics	Waters tanks - Deep loading – Shells.	Vaters tanks - Deep beams - Large span systems - Design of buildings under lateral										

	Se	enior 2 LEV	EL.	400	COURSI	ES							
Code	Course Title	Prerequisite		С	ontact ho	ours			N	Marks			
Code	Course Title	Frerequisite	Cr	Lec	Tutorial	Lab	Total	CW	O/P	FE	Total		
STE 402	Composito Stantaturas	STE301,	3	2	2		4	50	-	50	100		
STE402	Composite Structures	S1E302 50% - 50% 100%											
Category		Compulsory (MR)											
Objective	Understand the method	s and procedu	ıres	for c	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	lumns – Design of composite beams – Types of composite stabs – Design of stabs – Types of lumns – Design of columns. Experimental Tests: Push out test – Tension test – Sliding test.											

	Se	enior 2 LEV	EL.	400 (COURS	ES						
Code	Course Title	Prerequisite		С	ontact he	ours			ı	Marks		
Code	Course Title	Frerequisite	Cr	Lec	Tutorial	Lab	Total	CW	O/P	FE	Total	
STE401	Foundations	STE303	3	2	2		1	50	-	50	100	
S1E401	Foundations	315303	7	<i>_</i>	4	-	4	50%	-	50%	100%	
Category			Con	npuls	ory (MR)							
	Compulsory (MR) Students with high quality education and to prepare them for a successful professional											
Objective	career, and produce	graduates U	Jnd	ersta	nding s	ite i	nvesti	gation	ns a	nd de	esign of	
-	foundations				<u> </u>						C	
	Site investigations- Ch	oice of type o	of F	ound	ation- de	sign	of sha	llow	founc	lations	- Design	
Topics	of deep foundations- (Construction	dev	vater	ing and	grou	nd wa	ater c	ontro	ol- Pro	blematic	
	soils.											

	S	enior 2 LEV	EL	400	COURSI	ES					
Code	Course Title	Droroguioito		С	ontact ho	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	1 ⁷ 0 CH completed	2	1	2	-	3	50%	50%		100%
Category		(Con	npuls	ory (MR)						
Objective	Application	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 (COURSI	ES					
Code	Course Title	Prerequisite		С	ontact ho	ours			N	Marks	
Code	Course Title	Frerequisite	Cr	Lec	Tutorial	Lab	Total	CW	O/P	FE	Total
CUE403	Construction Quality	CUE205,	2	2			2	50	-	50	100
CUE403	Management	CUE206	4	4	•	-	4	50%	-	50%	100%
Category			Con	npuls	ory (MR)						
	Provide students with	high quality	y e	ducat	ion and	to p	repar	e the	m fo	r a sı	iccessful
Objective	professional career, as	nd produce	gra	duate	es take	the	respo	nsibili	ty o	f con	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.	-

	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
CUE404	Construction Equipment	CUE201,	2	2			2	50	-	50	100
COLTOT	Management	STE202		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	the	respo	nsibili	ity o	f con	struction
	management of projects										
	Fundamentals of moving	ng earth: Mat	teria	ıl pro	perties,	Exca	vating	equi	pmen	t, Loa	ding and
	hauling equipment, G	rading and	cor	npac	tion equ	iipme	ent, N	I atchi	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	e, 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 Marks Cr Lec Tutorial Lab Total CW O/P FE Total											
	O T'()			С	ontact ho	ours			N	/larks		
Code	Course Little	Prerequisite	Cr	Lec	Tutorial	Lab	Total	CW	O/P	FE	Total	
	Sanitary &							30	20	50	100	
ENE401	Engineering (2) 30% 20% 50% 100%											
Category	Compulsory (MR)											
Objective	Understand the fundamental concepts of collection and treatment of wastewater to develop the basic skills necessary for the rational design of collection, treatment and control systems used in wastewater engineering as well as for an understanding of those processes at work in the natural environment.											
Topics	An introduction about wastewater works and wastewater characteristics – estimation of wastewater quantities and sources – design of wastewater networks and pump stations- treatment processes (preliminary, biological + sludge disposal). Experiments to determine: Volatile suspended solids concentration - volatile dissolved solids concentration –consumed biochemical oxygen –consumed chemical oxygen – nitrate concentration – nitrite concentration – phosphor concentration.											

Engineering Elective (3)

		Senior 2 LE	VE	L 400	COURSI	ES							
Code	Course Title	Prerequisite		С	ontact hou	urs				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		
312413	Steel Structures.	LLVLL 400	J		-	_		50%	-	50%	100%		
Catogary		Engineering Elective (3) (MR)											
	Provide students with high quality knowledge of Special Concrete & Steel Structures. and to prepare them for a successful professional career, and produce graduates take the												
Objective	and to prepare them t	for a success	ful p	orofes	sional car	eer,	and pi	roduc	e gra	duates	take the		
-	responsibility of desig	n the well-kı	nowi	1			•		Ü				
	Design special concr	ete and stee	l str	ucture	es under l	latera	ıl loac	ls; ea	rthqu	ake aı	nd wind.		
Tonics	Lateral load resisting Reinforced concrete special considerations	bridges; loa	•				•				· ·		

	Sen	ior 2 LE	VEI	400	COURSI	ES					
Code	Course Title	Prerequ		С	ontact hou	urs			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
312414	of Tunnels	400	?	2	•	-		50%	-	50%	100%
Catogary		Eng	inee	ring E	Elective (3)) (MR))				
	Provide students with high	h quality	kno	wledg	ge of Desi	gn an	d Con	struc	tion c	f Tuni	nels. and
Objective	to prepare them for a si	uccessful	pro	fessio	onal caree	er, ar	nd pro	duce	grad	uates	take the

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	responsibility of design the well-known
	Project Development, Soft Ground Tunnelling, Concrete Lining, Hard Ground Tunnelling,
Topics	advanced Design and Construction of Tunnels

		Senior 2 LE	VEI	400	COURSI	ES						
Code	Course Title	Prerequisite		С	ontact hou	urs			ľ	Marks		
Code		•	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		Enç	ginee	ring E	Elective (3) (FR)						
	Provide students v	vith high qua	lity	know	ledge of I	Desig	n and	Repai	ir and	Stren	gthening	
Objective	of Structures. and to prepare them for a successful professional career, and produce											
	graduates take the responsibility of design the well-known Introduction Repair and Strengthening of Structures., Causes of Deterioration and needs											
	Introduction Repair a	and Strengthe	ening	g of S	tructures.	, Cai	ises o	f Dete	eriora	tion a	nd needs	
	for Repair, Methodo	ology and st	rateg	y of	repair, t	he ty	pe an	d exte	ent of	f deter	rioration-	
	causes of deteriorati	ion and wh	ethe	r the	deterior	ation	is	still a	active	, the	rate of	
Tonico	deterioration, the time	remaining b	efor	e rep	air or repl	acem	ent, t	he eff	ects	of dete	rioration	
Topics	on serviceability if re	epair or repl	acen	nent i	s deferred	d, the	mos	t cost	-effe	ctive 1	neans to	
	prevent further deter	ioration to t	he s	tructu	ire, Conc	rete (defect	s, Co	lumn	jacke	et, Beam	
	jacket, Slab jacket, F	oundation re	pair	, Insp	ection of	conc	erete s	structu	ıres,	Concr	ete tests,	
	Repair materials											

		Senior 2 LE	VE	L 400	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		
	Temporary							50	-	50	100		
CUE425	Structures in	LEVEL 400	3	2	-	-	2	50%	-	50%	100%		
	Construction							30 /0		30 /0	10070		
Catogary		Eng	jinee	ring E	Elective (3) (MR)						
	Provide students with high quality knowledge of Temporary Structures in												
Objective	Construction. and t	nstruction. and to prepare them for a successful professional career, and produce											
	graduates take the re					-					•		
	Introduction to cons	truction appli	catio	ons of	concrete	, Eco	nomy	and s	afety	of fo	rmwork,		
Topics	Material properties lateral pressure), Me Forms for beams a	ethod of analys	sis, F	orms	for footin	ıgs, I	Forms	for v	walls	and o	columns,		

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Engineering Elective (4)

	Se	enior 2 LEV	EL	400	COURS	ES							
O a al a	Corres Title	Duana muiaita		С	ontact he	ours			N	Marks			
Code	Course Title	Prerequisite	Cr	Lec	Tutorial	Lab	Total	CW	O/P	FE	Total		
CUE425	Construction Productivity	I EVEL 400	2	2	_	_	2	50	-	50	100		
CULTZS	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, as	rovide students with high quality education and to prepare them for a successful ofessional career, and produce graduates take the responsibility of construction											
	professional career, and produce graduates take the responsibility of construction management of projects												
	Construction productive	ity basics,	Ter	ms	and def	initio	ns, C	Constr	uction	n pro	ductivity		
	measures, Factors a	ffecting pro	duc	ctivit	y, Prod	luctio	n ra	tes:	meas	sureme	ent and		
Topics	improvement, Producti				-								
_	Productivity and quali	•		•			O 1				•		
	productivity in Egypt				-		01			, , , ,			

		Senior 2 LE	VE	400	COURSI	ES							
Code	Course Title	Prerequisite		С	ontact hou					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.	Enc	ninoo	rina E	lective (4)	/MD	\ \						
Catogary	D 11 (1)	•			•	•							
	Provide students				_		-				_		
Objective	Construction and to prepare them for a successful professional career, and produce graduates take the responsibility of design the well-known.												
	graduates take the res	ponsibility of	f des	ign th	e well-kn	own.							
	Health and safety issu	ues to be mai	nage	d in tl	he constru	iction	indus	stry to	prot	ect en	ployees,		
		1 41	,	rı 1		1 1	1	TC1			C 1		
	contractors, neighbor	ars and otne	ers,	ine t	basics of	local	law	The	ımpo	ortance	oi risk		
	assessments and met	hod statemer	nts a	nd the	e develop	ment	proce	ess, Si	ite re	quiren	nents for		
Topics	the welfare of cons	truction wor	rkers	on	site, Haz	ards	and	contro	ols a	ssocia	ted with		
	construction sites an	d activities i	nclu	ding	working a	at he	ight a	nd co	onfine	ed spa	ces, Site		
	environmental manag	ement includ	ling 1	nanag	gement of	wast	e and	ecolo	gy				

	Senior 2 LEVEL 400 COURSES										
Code	Course Title	Prerequisite		С	ontact hou	urs			N	/larks	
Code	Course Title	rielequisite	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	inee	ring E	lective (4)) (MR)				
Objective	Provide students	with high q	ualit	ty kno	owledge o	of Hi	gh Ri	se bu	ilding	gs and	special
Objective	structures and to prep	are them for	a su	iccess	ful profes	siona	l care	er, an	d pro	duce g	raduates

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	take 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	L 400	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
STE417	Prestressed Concrete	LEVEL 400	2	2 -		_	2	50	-	50	100
	roomooda comoroto			_	_			50%	-	50%	100%
Catogary	Engineering Elective (4) (MR)										
	Provide students with high quality knowledge of Prestressed Concrete and to prepare										
Objective	them for a successful	professional	care	er, an	d produce	e grac	duates	take	the re	espons	ibility of
	design the well-know	n.			-	_				-	-
	Prestressed concrete:	basic concep	ots o	f pres	tressing,	fibre	stress	es in	a pre	stresse	ed beam,
Tanias	load balancing, perm						-				-
Topics					Ü	•					
	indeterminate PC st	ructures, pr	estre	essed	concrete	slat	os. A	pplica	itions	on	common
	commercial software										

	Senior 2 LEVEL 400 COURSES										
Codo	Code Course Title Prerequisite Contact hours Marks Contact hours Marks										
Code	Course Title	Frerequisite	Cr	Lec	Tutorial	Lab	Total	CW	O/P	FE	Total
STE41	Graduation Project 2	50 50 100									
SIE4I	Graduation Project 2	COE410	_	1	4	-	3	50%	50%		100%
Category			Con	npuls	ory (MR)						
Objective	Applications on structural engineering and construction management projects										
Topics	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 (۱۰۵ ساعة معتمدة بنسبة ۲۳,٦٤ %)

ساعات	,		,	الساعات	المتطلبات التخصصية		مسلسل
الأتصال	معمل	تمرین	محاضرة	المعتمدة	Speciality Courses		Serial
4		J	J		مُقدمة في الميكاترونيك	هقم 104	
٤	-	۲	۲	٣	Introduction to Mechatronics	MPE 104	1
			,		نظرية الدوائر	هقك ١٠٢	
5	2	١	۲	3	Circuit Theory	EPE 102	2
4			J	J	الطرق العددية	ر فهـ ۱۰۶	2
4	1	١	۲	۲	Numerical Techniques	EMP104	3
٤		2	۲	٣	ميكانيكا الألات	هتج ۱۰۱	1
ζ	-	2	'	,	Mechanics of Machines	DPE	4
٥	٣		2	3	رسم الماكينات	هتج ۱۰۲	_
J	'	-	2	3	Machine Drawing	DPE102	5
٤		2	۲	٣	تحليل الإجهادات	هتج۱۰۳	
۲	_	2	'	'	Stress Analysis	DPE103	6
٥		٣	۲	٣	تصميم أجزاء الماكينات	ھتج 202	7
•	_	'	,	'	Machine Elements Design	DPE202	'
٤		۲	۲	٣	نظرية الماكينات والأليات	ھتج 203	8
۲	-	1	1	'	Theory of Machines and mechanisms	DPE203	o
٤	,	۲	۲	٣	ميكانيكا الموائع	هقم ۲۰۱	9
	'	1	1	'	Fluid Mechanics	MPE201	9
٥	۲	١	۲	٣	هندسة الالكترونيات	هکت ۲۰۱	10
	,	,	1	'	Electronics Engineering	ECE 201	10
٥	1	۲	۲	٣	الإهتزازات الميكانيكية	هتج ۲۰۱	11
	1	,	'	'	Mechanical Vibrations	DPE 201	11
٤	_	۲	۲	٣	الدوائر الالكترونية	هکت ۲۰۲	12
•	_	,	,	,	Electronic Circuits	ECE 202	12
٥	۲	,	۲	٣	انتقال الحرارة والكتلة	هقم ۲۰۲	13
	·	·	·		Heat and Mass Transfer	MPE 202	13
٣	,	_	7	۲	المعالجات الدقيقة	هحس ۲۰۱	14
					Microprocessors	CSE 301	17
4	_	2	7	٣	عمليات التصنيع	هتج ۲۰۶	15
			·		Manufacturing Processes	DPE204	10
٤	_	۲	۲	٣	نظرية التحكم	ھتج 308	16
					Control Theory	DPE308	10
٤	,	١	۲	٣	التصميم المنطقي الرقمي	هحس 202	17
					Digital Logic Dsign	CSE 202	1
٥	۲	١	۲	٣	آلات الموائع	هقم ۳۰۲	18
					Turbomachinery	MPE 302	
٤	_	۲	۲	٣	تصميم منظومات الميكاترونيات	ھتج 302	19
					Mechatronics Systems Design	DPE 302	
٤	,	١	۲	٣	المحركات والمشغلات	هحس ۲۰۶	20
					Drives and Actuators	CSE 304	
٤	,	١	۲	٣	الكترونيات القدرة	هقك ۲۰۲	21
-					Power Electronics	EPE 302	— 1

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

11	, _			الساعات	المتطلبات التخصصية		مسلسل
ساعات الأتصال	معمل	ىمرين	محاصره	المعتمدة	Speciality Courses		Serial
0	٣		۲	٣	التصميم والتصنيع بالحاسب	ھتج 406	22
	,	-	'	,	CAD/ CAM	DPE 406	22
٣	,		۲	۲	النمذجة والمحاكاة	ھتج 307	23
'	,	1	'	,	Modeling and Simulation	DPE 307	23
٣	-	١	۲	۲	نظرية النظم المتكاملة	هکت ۳۰۰	24
'	_	,	'	'	Theory of Integrated systems	ECE 305	24
٣	,	_	۲	۲	الروبوتات (١)	هتج ٣٠٦	25
·					Robotics (1)	DPE 306	25
٥	٣	_	۲	٣	تكنولوجيا المحاكاة	هتج ۲۰۷	26
					Simulation Technology	DPE 407	
٣	_	١	۲	۲	المتحكمات المنطقية	هحس ۳۰۲	27
					Logic Controllers	CSE302	
٤	_	۲	۲	٣	تصميم المنظومات الميكانيكية	هتج 301	28
					Mechanical Systems Design	DPE 301	
٤	_	۲	2	٣	مقرر هندسی أختیاری ۱	جدول (و۲)	29
					Engineering Elective (1)		
٣	1	-	2	۲	مقرر هندسی أختیاري ۲	جدول (و۲)	30
					Engineering Elective (2) مقرر هندسی اُختیاری ۳	/W A 1.4-	_
٣	1	-	2	۲		جدول (و۲)	31
					Engineering Elective (3) القياسات وأجهزة القياس	هـقم 308	
٤	۲	-	۲	۲	Measurements and Instrumentation	معم 308 MPE 308	32
					ryleasurements and mstrumentation تطبيقات الحاسب في الميكاترونيك	۱۷۱۲ کا ۱۷۱۲ هتج ۲۰۱	
٤	٣	-	١	۲	Computer Applications in Mechatronics	DPE 401	44
					المتحكمات الدقيقة	<u>۱۳۵۲ کا ۱</u>	
٣	١	-	۲	۲	Microcontrollers	CSE401	34
		_			الروبوتات (۲)	هتج ٤٠٣	
0	١	2	۲	٣	Robotics (2)	DPE 403	35
		_	.,		أنظمة قوي الموائع	هقم ٥٠٤	•
0	١	2	۲	٣	Fluid Power Systems	MPE 405	36
	,		Ų	2	مقرر هندسي أختياري ٤	جدول (و۲)	25
٣	١	-	۲	2	Engineering Elective (4)	• •	37
٣	١		۲	۲	مقرر هندسی اختیاری ٥	جدول (و۲)	20
1	'		<u>'</u>		Engineering Elective (5)		38
,					مشروع تخرج (۱)	هقم ۲۰۶	
٤	٣	-	١	۲	Graduation Project (1)	MPE 402	39
					مشروع تخرج (2)	هتج 404	
٤	٣		1	2	`,'	•	40
					Graduation Project (2)	DPE 404	
177	££	٤١	٧٧	1.0	ــــــي الســــــاعــــات =	إجمال	

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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)
هندسی (۱)	الطاقة المتجددة Renewable Energy	هقم 310 (MPE 310)
() હ	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	Image Processing and Computer Vision	(CSE 405)
مقرر إختياري		هکت 406
هندسي (۳)	تصميم الأنظمة المدمجة Embedded Systems Design	(ECE 406)
	ديناميكا أنظمة السيارات والتحكم فيها Vehicle System Dynamics and Control	(DPE 411) 411 هنج
	أجهزة الإستشعار ومعالجة الإشارات	(ECE 404) ٤٠٤ هکت
مقرر إختياري	Sensors and Signal Processing	` ′
هندسي (٤)	محطات الطاقة Power Plants	هقم 409) 409 (MPE 409)
\	أنظمة التحكم الألي المتقدمة Advanced automatic control systems	(DPE 412) 412 هنج
	Industrial Safety Engineering هندسة الأمان الصناعي	هصن ۴۰۳ (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 (F	reshman)					
	Semester (1)	Fall		Semester (2) S	Semester (2) Spring				
	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	•	17	Total		۱۸			

		Love	o2) 00 (So	ophomore)		
	Semester (1) F		00 (50	Semester (2) S	pring	
	Course name	Code	СН	Course name	Code	СН
1	ریاضیات هندسیهٔ ۳	EMP101	۲	مدخل إلى القانون	HUM101	۲
2	المواد الهندسية	MTE101	3	رسم الماكينات	DPE102	3
3	ميكانيكا الات	DPE101	٣	مقدمة في الميكاتر ونيات	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 ٧
		L	evel 200 (Junior)		
	Semester (1) F	'all		Semester (2) S	pring	
	Course name	Code	CH	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
			vel 300 (S			
	Semester (1) F	'all		Semester (2) S		
	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	1 1 1
Total 18 Total						

		Lev	el 400 (Se	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 LEVEL 000 COURSES											
Codo	Course Title	Droroguioito		С	ontact hou	urs			N	Marks		
Code	Course ritte	Cr Lec Tutorial Lab Total CW O/P FE										
EMP001	Engineering	None	3	2	2		4	50	-	50	100	
EIVIPUUI	Mathematics 1	None	3		2	-	4	50%	-	50%	100%	
Catogary			С	ompu	llsory (FR))						
Objective	To learn the main co	oncepts of diff	ferer	itiatio	n and alge	ebra.						
	Functions-Elementar	ry functions	-Inve	erse	function-I	Polar	and	para	metri	c coo	rdinates-	
Tonico	Limits-Newoton's r	Limits-Newoton's method-Derivatives (chain rule, derivation of implicit and inverse										
Topics	unctions)-Macclaurin's and Taylor's expansins-Theory of equations-Matrices-Gauss											
	elimination method-	Matrix Eigen	valı	ie pro	blem.			_				

Code	Course Title	Broroguicito		Co	ntact ho	urs			N	/larks	
Code	Engineering Cr Lec Tutorial Lab Tot	Total	CW	O/P	FE	Total					
EMP002	Engineering	None	3	7	1	2	5	30	20	50	100
LIVIFUUZ	Physics 1	None	3	'	ı	2	3	30%	20%	50%	100%
Catogary			Co	mpul	sory (FR)					
Objective	To learn about matte	r properties a	ınd ap	plica	tions of	Newt	on's la	ıws.			
Topics	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	rmod nd w iquid ndulu tensio	lynam aves-' l visc ım –	iics-Heat Waves in cosity-Lio Hook's l measur	eng n elas quid	gines-l stic me surfac	Entropedia-E	py-Se Experi nsion-	cond iments Coeff	law of s: Simple icient of

Code	Course Title	Broroguicito		C	ontact ho	urs				Marks		
Code	Course rille	Prerequisite	Cr	Lec	Tutorial	Lab	Total	CW	O/P	FE	Total	
EMP003	Engineering	None	2	1	1	2	4	30	20	50	100	
EMPUUS	Mechanics (1)	None		ı			4	30%	20%	50%	100%	
Catogary		Compulsory (FR)										
Objective	To learn the basic co	p 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	Course Title	Proroguicito		С	ontact ho	urs			ry nics, techrof lines, let	/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)	None	,		_	3	3	50%	-	50%	100%			
Catogary			(Comp	ulsory (FR	?)								
Objective	Introductory concep	croductory 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 project	on-Represen	tatio	n of	a straig	ht li	ne-Str	aight	lines	inter	sections-			
	Representation of a	plan-Position	pro	blems	,	-								

Code	Course Title	Proroquisito		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	arn basic concepts of chemistry											
	The atomic structure and its bearing on chemical and nuclear changes-chemical formulae-												
	Percent composition	n-Thermoche	mist	ry-Ch	emical ec	quilib	rium-T	The ga	aseou	s state	-Solutes-		
Tanina	Electrolytic dissocia	ation & ionic	equ	uilibri	um-Chen	nical	kinem	atics	& rat	e of r	eactions-		
Topics	Sources of elemen	ts-Chemical	indu	ıstries	-Building	mat	5 30 20 50 30% 20% 50% 1	dustries-					
	Corrosion-Fuels-Co	mbustion-Ex	perir	nents	Identific	ation	of sim	ple sa	alts-Id	entific	cations of		
	acids.	•	_					_					

Code	Course Title	Prerequisite		С	ontact ho	urs			N	_	
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	reign (Englis	h) te	chnic	al languag	ge.					
	Introduction: Basic	concepts of	tech	nical	English-F	Reviev	w of e	essenti	als o	f gram	mar and
Topics	mechanics rules for	effective Sen	tenc	es-Sty	le errors.	Build	ling Pa	aragra	phs: N	Main io	dea-types
Topics	of paragraphs-Read	ling and an	alys	is of	technica	al pa	ssages	that	cov	er en	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	Marks			
Code	Course Title	Frerequisite	Cr	Lec	Tutorial	Lab	Total	rals-Applications (ation)-Numerical rn-Conic sections-l	FE	Total			
EMP005	Engineering	None	3	2	2		4	50	-	50	100		
EMPUUS	Mathematics 2	None	う		2	-	4	50%	-	50%	100%		
Catogary		Compulsory (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, cent	ter of gravity,	firs	t orde	er differen	tial e	quatio	n)-Nı	ımeri	cal me	ethods of		
Topics	integration-Transfor	mations in	plan	e-part	tial differ	entia	tion-C	onic	section	ons-Fr	ames of		
	work and different l	kinds of syste	ms o	of coc	ordinates-S	Straig	ht line	e in sp	oace-	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	LEVE	L 000	COUR	SES							
Code	Course Title	Prerequisite		Co	ntact ho	urs			N	Marks			
Code	Course Title	Frerequisite	Cr	Lec	Tutorial	Lab	Total	CW	O/P	FE	Total		
EMP006	Engineering	None	3	۲	1	2	5	30	20	50	100		
LIVIFOOO	Physics 2	NOHE	J	'	•		J	30%	20%	50%	100%		
Catogary			Co	ompul	sory (FR	2)							
Objective	To learn the main con	To learn the main concepts of integration and analytical geometry.											
Topics	Current, resistance ar Fraday's law of ir Interference and defl	Charge and matter-Electric field-Gauss law-Electric potential-Capacitors and dielectrics-Current, resistance and electromotive force-Magnetic field-Ampere's law- (Biot-Savart) law-Fraday's law of induction-Inductance magnetic properties of matter-Physical optics-Interference and deflection-Laser physics-Electromagnetic induction-Properties of magnetic materials-A/C current-Electromagnetic waves-Experiments: Capacitor capacity-Magnetic											
	Lab: Verification measurement of mag and focal length of measurements of ligh	of Ohm's l netic field and 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 (- micr	pacitor – curvature oscope –		

		Freshmen	LEVE	L 000	COUR	SES								
Code	Course Title	Prerequisite		Co	ntact ho	urs			N	Marks				
Code	Course Title	rielequisite	Cr	Lec	Tutorial	Lab	Total	CW	O/P	- 50 - 50% and their nnology ar	Total			
HUM001	History of Eng. &	None	2	*	_	_	2	50	-	50	100			
TIOWIOOT	Tech.	None		'	_	_		50%	-	50%	100%			
Catogary		Compulsory (UR)												
Objective	o learn about the history of engineering and technology													
	Definitions of Art, s	efinitions of Art, science, technology and engineering-Civilizations and their												
	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							
Code	Course Title	Prerequisite		Co	ntact ho	urs			N	/larks			
Code	Course Title	rielequisite	Cr	Lec	Tutorial	Lab	Total CW O/P 4 30 20 30% 20% 5 echanics. curvilinear, tangentition under centrif	FE	Total				
EMP007	Eng. Mechanics (2)	None	2	1	2	4	4	30	20	50	100		
EIVIFUUI	Eng. Wechanics (2)	None	2	ı		ı	4	30%	20%	50%	100%		
Catogary	Compulsory (FR)												
Objective	Continuing learning	Continuing learning the basic concepts of engineering mechanics.											
	Displacement, veoli	city and acce	elerat	ion ir	Cartesi	an, cı	urvilin	ear, t	anger	tial, p	olar and		
Tonico	cylindrical coordin	ates-relative	moti	ion-pı	ojectiles	-Mot	ion u	nder	centi	ifugal	forces-		
Topics	Work-Energy-Mome	entum-Impul	se an	d coll	ision-Ex	perin	nents:	Mom	entun	cons	ervation-		
	Projectiles-Free falli	ng.				-							

		Freshmen	LEV	'EL 0	00 COUR	SES							
Code	Course Title	Prerequisite		С	ontact ho	urs			M	Marks			
Code	Course Title	Prerequisite	Cr	Lec	Tutorial	Lab	Total	CW	O/P	FE	Total		
DPE 012	Eng. Drawing &	DPE011	3	2		3	5	50	-	50	100		
DPE 012	Projection (2)	DECOIL	3		•	3	3	50%	-	50%	100%		
Catogary		Compulsory (FR)											
Objective	Continuing learning	ontinuing learning of engineering drawing and descriptive geometry.											
	Pictorial drawing of	engineering	boo	lies-D	erivation	of vi	ews o	f a gi	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-Cylind	ler-Plane se	ectio	n of	surfaces	s-Inte	rsectio	on of	two	o surf	faces of		
	revolution.												

		Freshmen	LEV	EL 0	00 COUR	SES							
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		
DECOU	Technology	None	າ				3	20% 30% ypes and prope	50%	100%			
Catogary			(Comp	ulsory (FR	?)							
Objective	o learn the main concepts of production technology												
	Introduction in industrial safety-Engineering materials (types and properties)-Metallic												
	alloys-Casting proc	esses-Formir	ng p	roces	ses (forgi	ing, 1	rolling	, drav	wing,	extru	sion and		
- •	spinning)-Joining p					_	_		_				
Topics	Machining processe	es (turning, s	hapi	ng, di	rilling, mi	illing	and g	rindir	ig)- N	1easur	ing tools		
	(vernier calipers ar	nd micromete	ers)-	Introd	duction to	pro	ductio	n cos	sts an	d mar	nagement		
	systems-Practical pr	racticing.				-					•		

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Freshmen LEVEL 000 COURSES													
Code	Course Title	Prerequisite		С	ontact ho	urs			N	Narks			
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% 20% 50% 100											
Catogary		Compulsory (UR)											
Objective	To learn basic conc	epts of comp	uters	and l	high-level	l prog	ramm	ing la	nguag	ges.			
Topics	flow charts) - Prog	Information processing-Computer building blocks - Problem solving (Algorithms and low charts) — Programming languages- Applications: Mathematical analysis, business and administration, application in industry and communications, etc.											

LEVEL (100) Semester 3

	Sophomore LEVEL 100 COURSES												
Codo	Course Title	Droroguioito		С	ontact ho	urs				Vlarks			
Code	Course Title	Prerequisite	Cr	Lec	Tutorial	Lab	Total	CW	O/P	FE	Total		
EMP101	Engineering	EMDOOF	¥	,	2		~	50	-	50	100		
EIVIFIUI	Mathematics 3 EMP005 100% 2 - 50% - 50% 100%												
Catogary	Compulsory (FR)												
Objective	Knowledge of the n	nethods and a	pplic	cation	s of advar	nced 1	mathe	matic	s.				
Topics	complex calculus,	ectors, matrix, differential equations, eigenvalue problems, linear systems of equations, emplex calculus, Fourier ranks, Fourier transformation, Fourier analysis, Laplace ansformation, z-transformation.											

Sophomore LEVEL 100 COURSES											
Code	Course Title	Prerequisite		С	ontact ho	urs	Marks				
			Cr	Lec	Tutorial	Lab	Total	CW	O/P	FE	Total
DPE101	Mechanics of	EMP007	3	2	2	-	4	50	-	50	100
	Machines							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 of a rigid body –Conservation of momentum										

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Sophomore LEVEL 100 COURSES												
Code	Course Title	Prerequisite	Contact hours						Marks			
Coue			Cr	Lec	Tutorial	Lab	Total	CW	O/P	FE	Total	
MPE10 [†]	Thermodynamics	None	3	2	2	_	- 4	50	-	50	100	
					_			50%	-	50%	100%	
Catogary	Compulsory (MR)											
	This course aims to compare the quality of energy in various forms, to understand how											
Objective	thermodynamic systems are constructed and used in the world and to perform a first law											
	analysis (cycle analysis) on the systems producing power or heating/cooling effect, to											
	comprehend the thermodynamic property relations and to calculate property data using											
	fundamental thermodynamic relations.											
	Fundamental concepts, definition of heat and work, properties of gases, 1st and 2nd laws,											
	analysis of closed and open systems, basic thermodynamics cycles. Introduction of gas											
	power cycles, Otto and Diesel cycles. Brayton cycle, modifications to simple Brayton											
	cycle. Steam cycles, Rankine cycle, methods to increase efficiency of Rankine cycles,											
	Regenerative Rankine cycles, cogeneration, combined gas-power cycles. Introduction of											
Topics	refrigeration cycles, refrigerators and heat pumps, refrigerant types, some innovative											
-	vapor compression refrigeration cycles. Regenerative cycles, Thermodynamic property											
	relations, Maxwell relations. Gas mixtures, ideal and real gas mixtures. Gas-vapor											
	mixtures, dry and atmospheric air, specific and relative humidity, dew point temperature,											
	adiabatic saturation and wet bulb temperature. Psychrometric chart, air conditioning											
	processes.											

Sophomore LEVEL 100 COURSES											
Code	Course Title	Prerequisite		С	ontact hou	urs	Marks				
			Cr	Lec	Tutorial	Lab	Total	CW	O/P	FE	Total
EPE102	Circuits Theory	None	3	2	1	2	5	30	20	50	100
								30%	20%	50%	100%
Catogary	Compulsory (MR)										
Objective	Knowledge of the basic laws, applications and mathematic methods of calculation of										
	electrical engineering										
Topics	Fundamental laws, continuous current, design of networks, electrical and magnetic										
	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											
Code	Course Title	Prerequisite		С	ontact hou				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	
WITETOT	Engineering	None	, J		•		, , , , , , , , , , , , , , , , , , ,	30%	20%	50%	100%	
Catogary			С	ompu	Isory (FR))						
	Knowledge of the c	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	s of	different	
-	materials including smart materials											
	Atomic structure of industrial materials, lattice structure, mechanical properties,											
	electrical properties, thermal properties, chemical properties, material testing,											
	manufacturing me	thods, mate	rial	dam	age, sta	ndard	lizatio	n, s	mart	mate	rials in	
T:	mechatronics (piezo	electric mate	erials	s, sha	pe memoi	y all	oys aı	nd po	lymer	s, elec	ctro- and	
Topics	magnetorheological			-	-	-	•	-	•			
	magnetostrictive m	naterials, na	notu	bes,	smart p	aints,	the	more	spons	ive i	norganic	
	materials, ceramics	and electroce	rami	cs).	•				-		-	
	Lap: Mechanical tes	sts; tension, c	omp	ressio	on, bendin	g, toı	sion,	impac	ct, fati	gue.		

	(Sophomore l	LEV	EL 1	00 COUF	RSES							
Code	Course Title	Prerequisite		С	ontact hou	urs			ı	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		
HOWITOT	introduction to law	None	4		•	-		50%	-	50%	100%		
Catogary		Compulsory (UR)											
Objective	Knowledge about th	Inowledge about the law bases, sources and characteristics											
	Law bases and source	ces - General	bas	es, so	urces and	char	acteris	stics c	of the	admir	nistrative		
i opics	Law -public admi organization - centra										nistrative		

LEVEL (100) Semester 4

	Sophomore LEVEL 100 COURSES											
Code	Course Title	Droroguioito		С	ontact hou	urs			N	/larks		
Code	Course Title	Prerequisite	Cr	Lec	Tutorial	Lab	Total	CW	O/P	FE	Total	
CSE101	Computer	CSE001	2	1	1	2	4	30	20	50	100	
CSETOT	applications	CSEUUI	4				4	30%	20%	50%	100%	
Catogary	Compulsory (FR)											
Objective	Learning skills of programming complex software tools with high level programming											
Objective	languages.								_	_	_	
	Overview of different programming languages, programming within C, efficient											
Topics	programming, object-oriented programming (for example with JAVA), software design											
Topics												
	Lab: Computer Lab											





	Sophomore LEVEL 100 COURSES Contact bourse												
Code	Course Title	Prerequisite		С	ontact ho	urs			N	/larks			
Code	Course ritte	Prerequisite	Cr	Lec	Tutorial	Lab	Total	CW	O/P	FE	Total		
EMP104	Numerical	CSE101	2	2	4	1	4	30	20	50	100		
CIVIP 104	Techniques	Techniques - - - 30% 20% 50% 100%											
Catogary	Compulsory (MR)												
Objective	Knowledge of the construction and analysis of algorithms for continuous mathematical												
Objective	problems.												
	Improvement, approximation, numerical solutions of non linear systems of equations,												
Topics	numeric of integral equations, numerical linear algebra, numerical number theory,												
										3 /			

	Sophomore LEVEL 100 COURSES Contact hours Marks												
Code	Course Title	Prerequisite		С	ontact ho	urs			N	Marks			
Code	Course Title	Frerequisite	Cr	Lec	Tutorial	Lab	Total	CW	O/P	FE	Total		
DPE102	Machine Drawing	DPE·۱۲	3	2	_	3	5	50	-	50	100		
DFLIUZ	Machine Drawing	DFL	3		-	3	3	50%	-	50%	100%		
Catogary			(Compi	ulsory (MF	₹)							
Objective	Continuing learning	ontinuing learning of engineering drawing and descriptive geometry.											
Topics	Introduction to mec and geometrical tol threaded joints - D keyed, pined and s Applications to as mechanical drawing	erances – As Prawing of risplined joints sembly and	semivetes —]	bly ar d joit Drawi	nd detailed ts — Draw ing of spi	d drawing wing h	wings of we elical,	– Dra lded j bevel	awing oints and	g of scr – Dra warm	rews and awing of gears –		

	Sophomore LEVEL 100 COURSES												
Code	Course Title	Prerequisite		С	ontact ho	urs			N	Marks			
Code	Course Title	Frerequisite	Cr	Lec	Tutorial	Lab	Total	ystem, electromechani artificial muscles usin natic systems (FLUID	Total				
MPE 104	Introduction to	None	3	2	2	_	4	50	-	50	100		
IVIPE 104	Mechatronics	None	ာ		2	-	4	50%	-	50%	100%		
Catogary	Compulsory (MR)												
Objective	To learn the basic c	o learn the basic concepts of mechatronics											
	Methodology of an	nalysis and c	desig	n of	mechatro	nic	systen	ı, ele	ctron	nechan	ical and		
Tanias	electromagnetical a	ctuators, shap	e m	emory	y alloys (S	SMA)	, artif	icial r	nuscl	es usii	ng SMA,		
Topics	piezoelectric actuat	learn the basic concepts of mechatronics ethodology of analysis and design of mechatronic system, electromechanical and ctromagnetical actuators, shape memory alloys (SMA), artificial muscles using SMA, zoelectric actuators, pneumatic actuators, electropneumatic systems (FLUID – SIM											
	software), analysis	of actuator dy	nam	ics us	sing field-	circu	it metl	nods	`				

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Elective (1) Humanities

	Sop	homore LE	VEI	100	COUR	SES					
Code	Course Title	None 2 2 2 - 2 50 - 50% 1 University Elective (1) (UR) wledge of the history of arabian and islamic civilization ning civilization in general - theories and terminology - Short account of pic community pre-Islam - setting up the Islamic society -'Its development in 'features - Islamic Civilization - the basic moral and material concepts - ethes - the basic concepts - the main characteristics - the Arabian Islatevements in the fields of science knowledge and culture - the Arabian contribution.									
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
110101103	Islamic Civilization	NOHE		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 i	n general -	thec	ries	and ter	minc	logy	- Sho	ort ac	count	of the
	Arabic community pre	-Islam - sett	ing	up t	the Islan	nic s	ociety	-'Its	deve	elopme	ent and
			_	-			•			-	
Topics										-	
	to the world. civilizatio	n an human p	rog	ress ·	- the con	temp	orary	Arab	-Isla	mic W	orld or a second

	Sophomore LEVEL 100 COURSES												
Code	Course Title	Broroguicito			ontact ho					Marks			
Code	Course Title	Transfer Prerequisite Cr Lec Tutorial Lab Total CW O/P FE		FE	Total								
HUM104	Geography of Mankind	None	2	2	_		2	50	-	50	100		
HOW 104	& Environment	None			_	_		50%	-	50%	100%		
Catogary		University Elective (1) (UR)											
Objective	Knowledge of the geog	owledge of the geography of mankind & environment											
	Environment of the co	ntemporary 1	nan	- th	e role of	f ma	n in c	hangi	ng th	e envi	ironment		
T	Analytical studies for	models of t	he	envir	onment	- sc	me e	nviroi	nmen	tal pro	oblems -		
Topics	overpopulation and fo	od shortage	-'P	olluti	on - de	pleti	on of	the	natur	al res	ources –		
	desertification.					1							

	Sophomore LEVEL 100 COURSES												
Codo	Course Title	Prerequisite		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		
HOWITOZ	Management	None	_		_	-		50%	-	- 50 - 50% for HR, So ent – Perforucture, En	100%		
Catogary		University Elective (1) (UR)											
Objective	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		
Toulog	HR - Staffing: Recru	itment, Selec	ctio	n –	Training	and	d dev	elopm	- 50 - 50% d for HR, S	ormance			
Topics	Appraisal – Compensa	ation: Type	of e	equit	y, Desig	ning	the	pay s	truct	FE 50 50% HR, S - Perf ure, E	mployee		
	benefits – Labor/manag	gement relation	ns -	- Mo	tivation	- Lea	adersh	ip – (Comn	nunica	tion.		

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Sophomore LEVEL 100 COURSES													
Codo	Course Title	Dranamuiaita		C	ontact ho	ours				Marks			
Code	Course Title	Prerequisite	Cr	Lec	Tutorial	Lab	Total	CW	O/P	FE	Total		
HUM105	Introduction to Logic	None	2	2			2	50	-	50	100		
HUMIUS	None 2 2 2 50% - 50%												
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 1	the o	ther scie	nces	– type	es of v	vario	ıs dedi	actions -		
Topics	modern Logic and the various methods of research - Mathematical Logic –prepositional,												
-	relationships, form and								C		,		

Sophomor	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		
DPE103	Stress Analysis	MTE101	3	2	2	_	4	50	-	50	100		
DELIUS	Siless Allalysis	WITETOT)		2	_	-	50%	-	50%	100%		
Catogary			С	ompu	lsory (MR)							
Objective	Knowledge about stress analysis under different loadsfor different mechanical elements												
Objective	and failure theories.												
	Stress-strain relationship and Hook's law – Axial stresses – Torsional stresses –												
	Bending stresses in	n beams – S	hea	r stre	sses in be	eams	. shea	r flov	w and	d shea	r center		
	Combined stres												
Topics										•			
	Introduction to the	rmai stresse	s an	id the	generali	zea 1	HOOK	s law	- F2	ulure	theories		
	and their application	ons. Deflecti	on i	n bea	ıms.								

Sophomor	ophomore LEVEL 100 COURSES											
Code	Course Title	Prerequisite		С	ontact ho	urs				Vlarks		
Code	Course Title	Frerequisite	Cr	Lec	Tutorial	Lab	Total	CW	O/P	FE	Total	
EPE101	Electrical systems	None	2	1	2	_	3	50	-	50	100	
	Licotriour systems	Hone		·	_			50%	-	50%	100%	
Catogary			C	ompu	ılsory (FR)						
Objective	Knowledge of the d	ifferent type:	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 ana	alysis - types	of I	OC ge	enerators -	- cons	structi	on - t	heory	of op	eration -	
	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								_			
	theory of operation	V I			U							
Topics	phasor diagram - lo					_			-			
	operation of trans		-					•		-	-	
	transformers - basic											
				-							-	
	performance analysi	1	pera	uon (n generati	ors -	types	oi sta	riers	- testii	ig of DC	
	machines - special D	machines										

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LEVEL (200) Semester 5

Faculty elective (1)

Junior LE	Junior LEVEL 200 COURSES												
Code	Course Title	Duomoguisito		(Contact hou	ırs			I	Marks			
Code	Course Title	Prerequisite	Cr	Lec	Tutorial	Lab	Total	CW	O/P	FE	Total		
CUE208	Engineering Project	None 1 1 1 1 1 1 1 1 1							-	50	100		
CUE208	Management	None / - - /											
Catogary			Fa	culty l	Elective (Fl	R)							
Objective	Competence to plan	, lead and su	cces	sfully	close pro	jects							
Topics		roject management, settlement of projects, timetable, cost planning, management odels, human resources management.											

Junior LE	EVEL 200 COURSE	S									
Code	Course Title	Prerequisite		(Contact hou	ırs			1	Marks	
Code	Course Title	Trerequisite	Cr	Lec	Tutorial	Lab	Total	CW	O/P	FE	Total
INE208	Quantitative Methods in Engineering	None	2	2	-	-	2	50 50%	-	50 50%	100 100%
Catogary			Fa	culty 1	Elective (FI	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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Codo		Course Title	Duomo aniaita		(Contact hou	ırs			I	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%			
	E	ngineering Projects							2070		2070	10070			
Catogary	~			Fa	culty l	Elective (Fl	R)								
	St	udents should be	able to:												
	•	Effectively use basic engineering economics tools to evaluate major infrastructure													
		projects.													
	•	Understand when to complement this basic analysis with more sophisticated tools.													
Objective	•	Critique the proc	ess used to e	valu	ate ty	pical infra	astruc	ture p	roject	ts.					
Objective	•	Understand a broad	oad range of	pro	ject ty	ypes of re	elevar	ice to	Civil	and	Enviro	onmental			
		Engineering and	related field	s.		_									
	•	Understand some	e ways in wh	ich p	orojec	t perform	ance	can be	meas	sured	and ir	nproved.			
	•	Understand the r	ole of uncert	ainty	in pi	oject eval	luatio	n.							
	•	Do an end-to-end	d project eva	luati	on.										
	Th	nis course covers	methodologi	es fo	or eva	luating e	ngine	ering	proje	cts, v	vhich	typically			
			_			_	_	_				• •			
Topics		are large-scale, long-lived projects involving many economic, financial, social, and environmental factors. Students learn the basic techniques of engineering economics,													
	ino	cluding net presen	it value anal	ysis,	life-	cycle cost	ing, l	benefi	t-cost	anal	ysis, a	nd other			
	ap	proaches to projec	t evaluation.												

		Sophomore l	LEV	EL 1	00 COUF	RSES)							
Code	Course Title	Prerequisite		С	ontact hou	urs			N	/larks				
Code	Course Title	Prerequisite	Cr	Lec	Tutorial	Lab	Total	CW	O/P	FE	Total			
DPE203	Theory of Machines	DDE101	9	2	2		4	50	-	50	100			
DFE203	and mechanisms DPE101 3 2 2 - 4 50% - 50% 100%													
Catogary	Compulsory (MR)													
Objective	Knowledge about th	e theory of m	nachi	ines.]	Basic term	is and	d defir	nitions	s for r	otatio	n scenes.			
	Machine kinematics	s, position a	nd d	lisplac	cement, v	eloci	ty and	dacce	elerat	ion; st	tatic and			
Topics	dynamic forces, Car	m profile and	d car	m des	sign, gears	s and	gear	train,	bala	nce of	rotating			
	dynamic forces, Cam profile and cam design, gears and gear train, balance of rotating reciprocating masses, flywheels.													

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		Junior LE	VE	L 200	COURS	ES									
Codo	Course Title	Droroguioito		С	ontact ho	urs			N	/larks					
Code	Course Title	Prerequisite	Cr	Lec	Tutorial	Lab	Total	CW	O/P	FE	Total				
MPE201	Fluid Mechanics	DPE101	3	2	2	1	5	30	20	50	100				
WIPEZUI	Fiuld Mechanics	- - 30% 20% 50% 100%													
Catogary	Compulsory (MR)														
Objective	Knowledge about fl	luidic streams	and	their	properties	S									
	Definition and prop	erties of fluid	s, m	ass tr	ansfer, lan	ninar	and to	ırbule	nt str	eams,	friction,				
T:	Definition and properties of fluids, mass transfer, laminar and turbulent streams, friction, measurement technologies, aerodynamic, hydrostatic, conservation equations.														
Topics															
	Lap: Linear Momentum. The Energy Equation in a Venturi-Type Flow; Friction in Laminar and Turbulent Pipe Flow; The Hydraulic Jump														

	Junior LEVEL 200 COURSES												
Code	Course Title	Prerequisite		С	ontact hou	urs				Marks			
Code	Course Title	Frerequisite	Cr	Lec	Tutorial	Lab	Total	CW	O/P	FE	Total		
ECE201	Electronics	None	3	2	1	2	5	30	20	50	100		
ECEZUI	Engineering	None	?				3	30%	20%	50%	100%		
Catogary			C	Compu	ulsory (MR	,							
Objective	Knowledge about components and structure of semiconductor materials												
Topics	Semiconductor materi P-n Junction the curr phenomena. p-n junction Transistor BJT: generand small signal model Transistor FET: generand small signal	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 operants op	(drift application, contains application or contains)	and diffus tions. haracteristi , character eration, ch ons a, Oscilloso	sion), ic and ristic naract	diffus I mode and m eristic und its	ion call, the odel, and	apacita equiva the eco model	alent ci quivale l, the	rcuits (DC nt circuits equivalent asurement		

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		Junior LE	VEL											
Code	Course Title	Prerequisite		С	ontact hor					Marks				
Code	Course Title	rerequisite	Cr	Lec	1	Lab	Total	CW	O/P	FE	Total			
INE202	Engineering	None	2	2	_	_	2	50	-	50	100			
IIILZUZ	Statistics	None		_	_	_		50%	-	50%	100%			
Catogary			C	ompu	ulsory (FR)								
	By the end of the co	By the end of the course, the students will be able to:												
	1. Demonstrate the ability to apply fundamental concepts in exploratory data analysis													
	2. Design studies for obtaining data whilst avoiding common design flaws that incur													
	bias, inefficiency and confounding													
Objective	3. Understand the concept of the sampling distribution of a statistic, and in particular													
Objective	describe the behavior				0	ation	or a s	statist.	ic, ai	iu iii p	articulai			
						. .	1 1	4!1	_4:					
	4. Apply inferential													
	5. Demonstrate an				•					/A).				
	6. Interpret and ana	llyses data th	at m	ay be	displayed	in a	two-	way t	able					
	T. 4 4	:4:	4 :	41	C	4 1	4 1		1.	-1-1114-				
	Introduction to des	-			•			-	-	-	•			
Topics	random variables,													
· opioo	estimation methods	s, test of l	nypo	thesis	, linear	regre	ession,	non	ı-line	ar coi	rrelation			
	correlation analysis,	analysis of v	aria	nce, a	nd statisti	ical a	pplica	tion ii	n eng	ineerir	ng			

		Junior LE	VEL	200	COURSE	S							
Code	Course Title	Broroguicito		С	ontact ho	urs			N	Marks			
Code	Course Title	Prerequisite	Cr	Lec	Tutorial	Lab	Total	CW	O/P	FE	Total		
DPE204	Manufacturing	DPE001	3	2	2	_	4	50	-	50	100		
	processes		L				_	50%	-	50%	100%		
Catogary					sory (MR)								
Objective	Learning the different manufacturing techniques.												
	Examination of metal cutting processes including turning, shaping, drilling and milling.												
	Mechanics of cutting,	Mechanics of cutting, chip formation, shear plane, velocity relations, merchant circle, tool											
	material, tool wear, to	ol life, econd	my	in me	tal cutting	ζ.							
	Casting: Types of foundries, steps in making a casting; cast metals; types, materials and												
	allowances of pattern	_			_	_			• 1				
	defects.	,	, 1				, 6	6			,		
	Forming: Metal for	ming proces	s cl	lassifi	cation. b	asic	metal	wor	king	conce	ents and		
Topics	plasticity; yield criter								_		-		
	technology of bulk								_,	-			
	features of different ty				~ 1		-			-	rocesses,		
	Welding: Welding pr			_		-				_	uvac and		
	0 0 1		_	_	•								
	coatings; weldability		_					iu ai	ioys,	meta	anurgicai		
	characteristics of weld	aea joints; wo	eid to	esting	and inspe	ection	1.						
	Course project.												

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Elective (2) Humanities

		Junior LE	VEL	200	COURSE	S							
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 201	Introductory Mass	None	2	2			2	50	-	50	100		
HOW 201	Communication None 2 2 - - 2 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	on- hi	story	of Ma	ass C	ommu	nication-		
Topics	General introduction- concept of Mass Communication- history of Mass Communication-tructure of the functions of Mass Communication - mass media and technology- Ethics												
-	nd traditions of Mass Communication - mass media and technology- Etnics												

	Junior LEVEL 200 COURSES																	
					ontact hou					Marks								
Code	Course Title	Prerequisite	Cr	Lec	Tutorial		Total	CW	O/P	FE	Total							
HUM 202	Introductory	None	2	2			2	50	-	50	100							
HOW ZUZ	Sociology	None			_	•		50%	-	50%	100%							
Catogary		Ur	niver	sity el	ective (2)	(UR)												
Objective	Knowledge of the bas	sic concept of	soci	iology	/ .													
	Community - Social	relations -	prim	ary a	nd second	dary	group	s - N	Iodel	s .of	topics in							
	_	-		•		•												
-	Sociology - the sociologist - Social control - Planning and development - Research curricula and tools in Sociology - Surveys in Sociology.																	
						•												
0-1-	O T'11-	D		_			Junior LEVEL 200 COURSES											
				C	ontact hou	urs			N	Marks								
Code	Course Title	Prerequisite	Cr	Lec	Tutorial		Total	CW	O/P	/larks FE	Total							
	History of Ancient	•	Cr	Lec				CW 50			Total 100							
HUM 203		None	Cr 2				Total 2			FE								
	History of Ancient	None	2	Lec 2		Lab -		50		FE 50	100							
HUM 203	History of Ancient	None Ur	2 nivers	Lec 2 sity el	Tutorial - ective (2)	Lab - (UR)		50		FE 50	100							
HUM 203 Catogary Objective	History of Ancient Egypt	None Ur	2 nivers	Lec 2 sity el nt Egy	Tutorial - ective (2) ptian hist	- (UR)	2	50 50%	O/P - -	FE 50 50%	100 100%							
HUM 203 Catogary Objective	History of Ancient Egypt To learn bases and na Earth: natural resource	None Ur ture of the A	2 nivers	Lec 2 sity el nt Egy ases a	Tutorial - ective (2) /ptian hist	- (UR) cory. of th	2 e Egy	50 50% ptian	O/P - - histo	FE 50 50% ry - St	100 100% one ages							
HUM 203 Catogary Objective	History of Ancient Egypt To learn bases and na	None Ur ture of the Ares and wealth and modern) p	2 nivers ncier n - barehis	2 sity elent Egyases a storic	rutorial - ective (2) yptian hist and nature age - An	- (UR) cory. of the cient	e Egy state	50 50% ptian - the	o/P histo	FE 50 50% ry - St	100 100% one ages							
HUM 203	History of Ancient	None	2	Lec 2	Tutorial -	Lab -		50		5(E 0							

	Junior LEVEL 200 COURSES												
Codo	Course Title	Prerequisite		С	ontact hou	urs			N	Marks			
Code	Course Title	Prerequisite	Cr	Lec	Tutorial	Lab	Total	CW	O/P	FE	Total		
HUM 204	Introductory	None	•	2			2	50	-	50	100		
HUW 204	Psychology	None			-	-	_	50%	-	50%	100%		
Catogary		Ur	iver	sity e	ective (2)	(UR)							
Objective	To learn the basic co	ncepts of psyc	cholo	ogy.									
Topics	Tature of psychology - motives - emotions - attitudes depression, and personal stress - conscientiousness and psychotherapy - recall and forgetfulness.												

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LEVEL (200) Semester 6

		Junior LE	VEL	200	COURSE	S									
Code	Course Title	Prerequisite		С	ontact hou	urs				Marks					
Code	Course ritte	Frerequisite	Cr	Lec	Tutorial	Lab	Total	CW	O/P	FE	Total				
INE207	Engineering	None	2	4	2		2	50	-	50	100				
INEZUI	Economy	Economy None 2 1 2 - 3 50% - 50% 100%													
Catogary	Compulsory (FR)														
Objective	To learn the basic cor	ncepts 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 Analysis -General accounting-Cost accounting - Time														
	Value of money - Bal	ance sheet –	Dep	reciat	ion-Invest	ment	Evalu	ation	•						

		Junior Ll	EVE	EL 20	0 COUR	SES							
		Prerequisit		C	ontact ho	urs				Mark	S		
Code	Course Title			Tutorial	Lab	Tota I	cw	O/P	FE	Total			
ECE202	Electronic Circuits	ECE201	3	2	2	_	4	50	-	50	100		
LCL202	Liectionic Circuits	LCLZ01	,		2		_	50%	-	50%	100%		
Catogary			(Comp	ulsory (M	IR)							
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 nuatio	sic ci	rcuits ircuits	with FETs and Bode		

	,	Sophomore l	LEV	EL 1	00 COUR	RSES	5						
Code	Course Title	Prerequisite		С	ontact hou	urs			I	Narks			
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	3		7	_	3	50%	-	50%	100%		
Catogary			С	ompu	Isory (MR	.)							
Objective	Knowledge about d	ifferent macl	hine	elem	ents, their	app	licatio	n and	l met	hods o	of design		
Objective	under different statio	and fatigue	load	S.									
	Fundamentals of machine design – Fits and tolerance, geometrical tolerances and												
	machine marks –	Design con	side	ratio	Fits and tolerance, geometrical tolerance tions: design criteria, selection of mat	aterials,							
	dimensions and sh	apes, produ	ictio	n, as	sembly a	nd n	nainte	on and methods of cometrical toleranda, selection of material ending to the selection of material ending to the strength — Definits — Design of of shrink-fitted j	Design				
Topics	for statis loads –	Design for	dyı	namio	loads a	and 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	Total CW O/P FE 5 50 - 50 50% - 50% Dilication and methods of the geometrical tolerance.	riteria					

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	Junior LEVEL 200 COURSES Contact hours Marks												
Code	Course Title	Prerequisite		_	ontact ho	urs			Ŋ	/larks			
Coue			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 Mecha	nical Vibration	ons a	and N	oise								
Topics	of Single DOF system Free and forced vibrate absorbers, Continuous shapes, Vibrations m studies. Course project Lab.: 1- Practice on simuland Lab view Pace 2- Use of computation Phenomena, base 3- Practice on Vibration Accelerometers, see Practice on vibration Computer Orientee Practice on Vibration Phenomena, base	tions of two-s systems, Measurement of the casurement of the casur	for tc.	or of on of instruct.	tems, Vib OF system Application Mass - Sp mation of ruments:	pring of Ro Excit	n cont l natur comp - Dan esonar	rol m ral fre puter nper S nce l	ethod equen simul Syster Frequ	s and cies a ation m usin ency,	vibration nd mode and case g Matlab Beating		

	Junior LEVEL 200 COURSES Contact bours Marks												
Code	Course Title	Prerequisite		С	ontact hou	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		
WII LZUZ	Transfer	WII LIUZ	3		•		3	30%	20%	50%	100%		
Catogary			Co	mpul	sory (MR)								
Objective	To learn the fundamen	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 - Introduc	ction to conv	vecti	on he	eat transfe	er - I	Extern	al flo	w -]	Interna	al flow -		
	Natural convection - 1	Empirical rel	atior	ns for	convectiv	e he	at tran	sfer c	oeffic	cient I	Radiation		
Topics	heat transfer - Introdu	ction to heat	excl	nange	rs.								
	Lab.: Determination	of Thermal (Conc	luctiv	ity of a M	I etal	Rod.	Deter	mina	tion o	f Overall		
	Heat Transfer Coef	ficient of a	Co	mpos	site wall.	Det	termin	ation	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		С	ontact hor	urs			N	/larks			
Code	Course Title	Frerequisite	Cr	Lec	Tutorial	Lab	Total	CW	O/P	FE	Total		
CSE 202	Digital Logic Design	ECE201	3	2	1	1	4	30	20	50	100		
C3E 202	(DLD)	ECEZUI	3	4	I	•	4	30%	20%	50%	100%		
Catogary		Compulsory (MR)											
Objective	Knowledge about the components and the design of digital circuits												
	Basic logic circuits, combinational circuits, sequential circuits, basic hardware												
	components: flip-flops, logic gates, classical design methods for digital logic, digital												
T:	hardware: Complex	Programma	ble	Logi	ic Device	es (CPLD), A	pplica	ation	Specific		
Topics	Integrated Circuits (A	_		_							-		
	hardware design, intr	oduction in	hard	ware	description	on la	nguag	es (F	IDL),	synth	esis and		
	hardware design, introduction in hardware description languages (HDL), synthesis and simulation, realisation and test, HDL examples (VHDL, Verilog)												

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LEVEL (300) Semester 7

		Senior 1 LE	VE	L 300	COURS	ES						
Code	Course Title	Prerequisite		С	ontact hor	urs			N	Marks		
Code	Course Title	Frerequisite	Cr	Lec	Tutorial	Lab	Total	CW	O/P	FE	Total	
MPE308	Measurements &	MPE201	2	2	_	2	4	30	20	50	100	
MIFESUO	Instrumentation	WIFEZUI	4		-		4	30%	20%	50%	100%	
Catogary	Compulsory (MR)											
Objective	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	oridges, compensators, time and value discretization, sampling, industrial analog-digital											
	converters, digital sys	tems, softwar	re.									

	Senior 1 LEVEL 300 COURSES												
Codo	Microprocessors Microprocessors: Architecture of the memory management mechanism interrupt heb-Microcontrollers: Definition of microcomicrocontroller- The	Broroguisito		С	ontact ho	urs			N	Marks			
Code	Course Title	Frerequisite	Cr	Lec	Tutorial	Lab	Total	CW	O/P	FE	Total		
CSE301	Microprocessors	ECE202	2	2		4	3	30	20	50	100		
CSESUI	Microprocessors	LCL202					J	30%	20%	50%	100%		
Catogary					sory (MR)								
Objective	Microcontroller, type	rocontroller, types, programming and design											
Topics	Architecture of the memory management mechanism interrupt hb- Microcontrollers: Definition of microcontrollers	e, process manandling, system controller and construction	nage em	ement interfa	t, virtual in aces, asserted Syster	memo mblei ms –	ories, r prog	proce ramm and	ess pe ing, I const	ripher Os tructio	y, safety n of the		

Engineering Elective (1)

	Sen	ior 1 LEVE	L 3 (00 C	OURSES	3						
Code	Course Title	Droroguioito		С	ontact ho	ours		k and Knock Through Cylind				
Code	Course Title	Prerequisite	Cr	Lec	Tutorial	Lab	Total	CW	O/P	FE	Total	
MPE309	Internal Combustion	Level 300	٣	2	٧		4	50	N O/P O - W - CE, Acand Karough (50	100	
MIPESUS	Engines	Level 300	,		,	•	•	50%	•	50%	100%	
Catogary	Engineering Elective (1) (MR)											
Objective	Knowledge about internal	Engineering Elective (1) (MR) lowledge about internal combustion engines.										
	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	stion	Knoc	k an	d Kr	ock]	Rating,	
Topics	Expansion and Exhaust, I										_	
	Piston, Performance, Emi	ssion, Engine	sys	stems	Design.	Gas	Turbi	ne Po	wer U	Jnits. S	Special	
	Design Engines.	J	•		C						-	

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		Senior 1 LE	VEI	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		
MPE310	Renewable Energy	MPE101&	*	2	¥		4	50	-	50	100		
MIPESIU	Reflewable Effergy	LEVEL300	'		,	-	-	50%	-	50%	100%		
Catogary	Engineering Elective (1) (MR)												
Objective	Knowledge of types a	owledge of types and concepts of renewable energy systems											
Topics	Solar energy engineer heat energy by centra Energy engineering machines, Types of ho	al reciver, he (Wind pow	eat o	conve Wind	rsion syst turbine	ems, oper	heat ation,	storag sma	ge sy ll m	stems) achine	- Windes, large		

	Senior 1 LEVEL 300 COURSES Contact hours Marks													
Code	Course Title Prerequisite Cr Lec Tutorial Lab Total CW O/P FE Total Manufacturing Management Level 300 Total CW													
Code	Course Title	Prerequisite Cr Lec Tutorial Lab Total CW O/P Ft	FE	Total										
INE 301	Manufacturing	Lovel 200	4	2			4	50	•	50	100			
INE 301	Management	Level 300	'		,	•	-	50%	•	50%	100%			
Catogary														
Objective	Knowledge about the plan	nning of manu	ıfac	turing	gprocess	es, ar	ıd qua	lity as	spects	S				
	Production planning and of	control, syster	nati	ics, st	andardiza	ation,	quali	ty pla	nning	g, quali	ty			
Topics	control, quality assurance	ontrol, quality assurance, quality improvement, computer-aided quality management,												
	guidelines and standards				•		•			-				

	Senior 1 LEVEL 300 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		
EPE 302	Power electronics	ECE 201	3	2	1	1	4	30	20	50	100		
	1 01101 010011 011100	202 201		_	•	•	_	30%	20%	50%	100%		
Catogary					sory (MR)								
Objective	Knowledge about pow	er electronic i	netw	ork de	esign, mult	ti pha	se syst	tems a	ınd po	wer el	ectronic		
Objective	control systems												
	Basics of power electronic		_	-	_		_	_					
	center circuits, bridge circuits, commutation procedures, load versions, power converter transformations, direct converters, reverse converters, net controlled converters, single and												
	transformations, direct	converters,	reve	rse co	onverters,	net c	ontrol	led co	onvert	ers, si	ngle and		
	multi quadrant contro	llers, current	and	volta	ige indire	ct co	nverte	rs, co	ntrol	theori	es, EMC		
	problems.												
	Lab.:												
Topics	Characteristics of Thy	ristors and Ti	riacs	. Exp	erimentati	ion o	n Sing	le - P	hase	Semic	onverters		
	_						_						
		_				_							
				_	•					-			
	•	•		_									
	_	•							ms and power electron power semiconductorsions, power converted converters, single at control theories, EN e - Phase Semiconverted on on Three - Phase ver Factor Improvement - Modulation Control experimentation on Steingle - Phase and Three				
	Phase Inverters. Characteristics												
L	z mass miteress. Chara	ttilibuo ana	~poc			111			21146	, - 1100			

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	Senior 1 LEVEL 300 COURSES Contact hours Marks													
Code	Course Title	Prerequisite		С	ontact ho	urs			N	/larks				
Code	Course Title	rielequisite	Cr	Lec	Tutorial	Lab	Total	CW	O/P	50 50% applica lling b gs - D	Total			
DPE 301	Mechanical	DPE202	3	2	2		4	50	-	50	100			
DFE 301	Systems Design	DFEZUZ	ว	2	2	•	4	50%	-	50%	100%			
Catogary			С	ompu	lsory (MR	()								
Objective	Knowledge about different mechanical systems, its components, application and													
Objective	methods of design under different static and fatigue loads.													
	Fundamentals of p	ower transn	nitio	n ele	ments de	sign	– Des	sign c	of rol	ling b	earing –			
	Design of sliding	bearing – I	Desi	gn of	rigid an	nd fle	exible	cour	oling	s - Do	esign of			
Topics	Design of sliding bearing – Design of rigid and flexible couplings - Design of brakes and clutches - Design of flat and V belts – Design of sprockets and chains													
	 Design of spur, helical, bevel and warm gears. 													

		Senior 1 LE	VE	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	
DPE 302	Mechatronics	ECE 201 &	3	2	2		4	30 30% achines stems - Moo y - Moo g appro	20	50	100	
DFE 302	Systems Design	DPE202	3		4	-	4	30%	20%	50%	100%	
Catogary			Co	mpul	sory (MR)							
Objective	o learn about classification, operation and principle of fluid machines											
	Introduction to design and development of mechatronics systems - demonstration of											
	problem solving tech	iniques as a	mad	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	appi	roach	es. To	ools and	
	packages software us						_					
	Openmodelca, Labvie	ew, etc.) - va	ariou	is exa	imples in	desig	gn tec	hniqu	O/P FE 20 50 20% 50% s - demonstrodel as a model and proroaches. Toges eg. (AS, ues: i.e.: car	braking		
	system, painting syste				-	_	-	_			_	

Elective (3) Humanities

	Senior 1 LEVEL 300 COURSES												
Codo	Course Title	Droroguicito		С	ontact hou	urs			ľ	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	None		2	-	-		50%	-	50%	100%		
Catogary		University elective (3) (UR)											
Objective	To learn about Scienti	ific Research	Me	thods									
	Setting up, developme	ent and meth	ods	of sci	entific thi	nking	- Sci	entific	c Res	earch (curricula		
Topics	and tools - Selecting	ng up, development and methods of scientific thinking - Scientific Research curricula tools - Selecting and developing topics - deducing results - Methods of gathering and											
·	presenting data - meth	-	_	-		_				U	C		

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Senior 1 LEVEL 300 COURSES													
Codo	Course Title	Droroguioito		С	ontact hor	urs			N	/larks			
Code	Course Title	Prerequisite	Cr	Lec	Tutorial	Lab	Total	CW O/P 50 - 50% - s relevant , and recesse writing	O/P	FE	Total		
HUM 301	Seminar 1	None	2	2			2	50	50 - 50 1 50% - 50% 10 relevant to the progrand recent technological rec				
HOW 301	Seminar	None	4		-	•		50%	-	50%	100%		
Catogary		University elective (3) (UR)											
Objective	To learn about chara	o learn about characteristics of good seminar presentation.											
	Talks and presentation	ons are invited	fro	m ind	ustrial est	ablisł	nment	s rele	vant t	o the p	orogram.		
Taniaa	The guest speaker sl	nould discuss	*										
Topics				_		_			elevant to the prind recent technic writing brief te	_			
	reports on the guest j	oresentation ar	nd d	eliver	their own	pres	entatio	on abo	out th	e topic	: .		

		Senior 1 LE	VEI	300	COURS	ES								
Code	Course Title	Droroguioito		С	ontact ho	urs				Marks				
Code	Course ritie	Prerequisite	Cr	Lec	Tutorial	Lab	Total	CW	O/P	FE	Total			
HUM 304	Introductory	None	2	2			2	CW O/P 50 - 50% - in practical defeated recall - in yehology in idual and, h	50	100				
HUW 304	Industrial Psychology	None	4		-	-	2	50 - 50 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	n pra	ctical	life -	Bases of			
	Definition of fields and aims of Psychology and its importance in practical life - Bases human behaviour and motives - conscientiousness, learning, and recall - intelligence a													
-	thinking - harmony is						_			_				
Topics	Industrial Psychology	- realizing c	onve	enieno	ce between	n the	indivi	idual	and, l	nis pro	fession -			
	Analyzing work - Sel	ecting the ind	divid	lual -	Industrial	train	ing a	nd its	Psycl	D/P FE - 50 - 50% ical life - 1 - intellige gy in the fad, his project.	cal bases			
	- Group interaction wi	ithin the Indu	ıstria	ıl orga	anizations				•					

		Senior 1 LE	VE	L 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	
HUM 305	Introductory	None	2	2	_	_	2	50	-	g up recessar theoricing co	100	
HOW 303	Industrial Sociology			_	-	_		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 relations -											
	Processes of organizi	ng the social	l sys	tems	and the s	ocial	chan	ge so	cial c	ases r	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	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											
	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	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
DPE308	Control Theory	DPE 201	3	2	2	_	4	50	-	50	100
DFL300	Control Theory	DFL 201	7		2	_	-	50%	-	50%	100%
Catogary			Co	ompul	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	ol theory, sys	tem	prope	rties, mod	deling	g, spec	cificat	ion n	nethod	s for the
	time and frequency	domain, tra	nsfe	r fun	ctions, fr	equer	icy re	espons	se, N	yquist	-criteria,
Topics	stability, leadership a					-	•	-			
	controllers, Ziegler-N	Nichols adjus	stme	nt pr	ocedures,	com	puter	aided	l des	ign of	control
	circuits, basics of rapi	d control pro	toty	ping							

		Senior 1 LE	VE	L 300	COURS	ES						
				С	ontact hor	urs			N	/larks		
Code	Course Title	Prerequisite	Cr	Lec	Tutorial	Lab	Total	CW	O/P	FE	Total	
CSE 304	Drives and Actuators	DPE 302	3	2	1	1	4	30	20	50	100	
CSE 304	Drives and Actuators	DFE 302	3			ı	4	30%	20%	50%	100%	
Catogary	Compulsory (MR)											
Objective	Knowledge about con	nmon industr	ial a	ctuato	ors and dri	ves						
	Power electronics, ele sensors and circuits, piezo actuators, micro	control desig				•			•			

		Senior 1 LE	VE	L 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			
ECE 305	Theory of Integrated	ECE202	2	2	1		3	50	-	50	100			
ECE 303	Systems	Systems - - 50% - 50% 100%												
Catogary		Compulsory (MR)												
Objective	Knowledge about syst	nowledge about system solutions with integrated circuits												
	Basics of atom, mole	ecular- and se	olid	state	physics,	basis	s tech	nolog	ies, f	unctio	n layers,			
Tonico	volume micro mecha	anics, surface	e mi	cro n	nechanics	, thic	k-film	i tech	nolo	gy, lay	yout and			
Topics	joining techniques,	LIGA tech	niqu	es, a	pplication	ns, d	lesign,	, sim	ulati	on, m	naximum			
	utilization of the chip		-											

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		Senior 1 LE	VEI	300	COURSI	ES							
Codo	Course Title	Droroguioito		С	ontact hou	urs			M	Narks			
Code	Course Title	Prerequisite	Cr	Lec	Tutorial	Lab	Total	CW	O/P	FE	Total		
DPE 306	Robotics (1)	DPE203	2	2	1	_	3	50	-	50	100		
DPE 300	50% - 50% 100%												
Catogary	Compulsory (MR)												
Objective	Knowledge about the	Knowledge about the application of modern robotics systems in an industrial enironment.											
	Introduction to Robo	tics Technol	ogy,	Robe	ot structu	res a	nd co	mpon	ents,	Kinen	natics of		
Tautaa	planar robots, Kinen	natics of 3-I) ro	bots	and home	ogene	ous t	ransfo	rmat	ion. C	Computer		
Topics	simulation and practic	anar robots, Kinematics of 3-D robots and homogeneous transformation. Computer mulation and practical training. Robotics programming languages, applications, tools to											
	use with robots, softw	_		_	_								

	Senior 1 LEVEL 300 COURSES Contact hours Marks												
Code	Course Title	Prerequisite		С	ontact ho	urs			ľ	Marks			
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 LJUZ	Turbo Macrimarey	WII LIVI	3		•		J	30%	20%	50%	100%		
Catogary			Co	ompul	sory (MR)								
Objective	To learn about classif	ication, opera	ition	and p	orinciple of	of flui	d mac	chines					
Topics	Introduction; similit mechanics, efficience Hydraulic pumps (dyn (pelton wheel – rad turbine -Compressor compressor and fans (two-dimensional an turbomachinery - Commachines	y)- Classific namic and ne- lial turbine)- fan -Axil con (three Dim alysis) - Ra	eation t post Be- Be- mpre- mensi adia	on of sitive est de essor ional l infl	turboma displacem sign poin and fans analysis) ow turbi	aching nent) t – o (two- o - Ce ines.	ery Cavi ff des Dime entifus - Tr	Cassa itatior sign properties of the constant	dine n – hy perfor al ana ompre nic a	2D drauli nance alysis essors nd su	analysis- c turbine – steam) - Axial and fans upersonic		

		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 50 - 50% - I regulation communication	FE	Total		
CSE302	Logic Controllers	ECE202	2	2	4		3	50	-	50	100	
CSE3UZ	Logic Controllers	ECEZUZ	4		I	-	3	50%	-	50%	100%	
Catogary	Compulsory (MR)											
Objective	Knowledge about the	electronic co	mpc	nents	for contr	olling	and	regula	ation	of ind	ustrial	
Objective	machines		-									
	Structure and function	ns of PLCs, co	ente	r com	ponents, I	Os, d	lata co	mmu	nicati	on, bi	nary	
Topics	control systems: logic	control and	sequ	ential	control, o	ligita	l cont	rol sys	stems	: IEC	1131-3	
	programming languag		-			_		•				

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		Senior 1 LE	CVEI	L 300	COURS	ES								
Code	Course Title	Prerequisite		С	ontact hor	urs			N	/larks				
Code	Course Title	Frerequisite	Cr	Lec	Tutorial	Lab	Total	CW	O/P	FE	Total			
DPE307	Modeling and	EMP104+	2	2	_	1	3	30	20	50	100			
DI E307	Simulation	DPE302			_		3	30%	20%	50%	100%			
Catogary			Co	ompul	sory (MR)	1								
Objective	Skill to build mather	kill to build mathematical models of Mechatronics systems												
	a- Modelling:													
	Relevance of simula	tions, mathem	atica	ıl bacl	kground, 1	nume	rical n	netho	ds, de	lescription of				
	differential equation	s, block diagra	ams,	syste	m identifi	catio	n, disp	lay of	f mec	hanica	l and			
	electrical componen	ts, modelling,	subs	ystem	ıs, enclosi	are of	syste	ms						
Topics	b- Simulation Techn	<u>iology:</u>												
	Choose of simulatio	n instruments,	deve	elopm	ent of sin	nulati	ons, s	imula	tion to	echniq	ues,			
	simulation of compl	ex systems, st	ep si	ze pr	oblems, aj	pplica	ation c	of the	diffe	rent so	olving			
	methods, different se	oftware tools (Pspi	ce, M	athcad, M	[atlab	-Simu	link,	Simp	lorer,				
	Dymola,), Program	mming of sim	ulatio	on too	ls									

LEVEL (400) Semester 9

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

	Senior 2 LEVEL 400 COURSES											
Code	Course Title	Prerequisite			ontact ho				N	/larks		
Code	Course Title	Gr Lec Tutorial Lab Total CW O/P FE To								Total		
CSE401	Microcontrollers	ontrollers Level 400 2 2 - 1 3 30 20 50 100										
CSE401	Wilcrocontrollers	Level 400 2 2 - 1 3 30% 20% 50% 100%										
Catogary		Compulsory (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												
Codo	Course Title	Dravaguiaita		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	
<u> </u>					(110)			30%	20%	50%	100%	
Catogary					sory (MR)							
Objective	Knowledge of CAD/O	CAM fundam	enta	ls and	I CAD/CA	AM so	oftwar	e desi	ign.			
Topics	Fundamentals of com Software design wi computer-aided design and axisymmetric pro- oriented dimensioning manufacturing process Lab.: Part modeling and go used in the design of elements.	th application on of bars, be oblems - Intro g of mechanics.	n to eams duct cal c	mech , trus ion of compo	anical eleses, frame foptimum onents in a	ementes, and desired CA	ts - Th nd 2D gn – f D-pro	ne fin plane unction gram,	ite ele e stres onal a requi	ement ss, pla nd pro iremen	method ne strait oduction nts to th	

Engineering Elective (2)

	Senior 2 LEVEL 400 COURSES														
Codo	Course Title	Prerequisite		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	4	_	3	50	-	50	100				
DPE 409	Fluid Fower Control	LEVEL400													
Catogary	Engineering Elective (2) (MR)														
Objective	To learn the fluid power	To 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				
Tanias	Valves - Valve Configurations - Steady-State Valve Operating Forces - Transient Forces														
Topics	nd Valve Stability - Servo Valves with Feedback - Analog and Digital Closed-loop														
	Control.														

Senior 2 LEVEL 400 COURSES															
Code	Course Title	Prerequisite			ontact ho				N	larks					
Code	Course Title	Frerequisite	Cr	Lec	Tutorial	Lab	Total	CW	O/P	FE	Total				
	Electro Mechanics &							50	-	50	100				
DPE 408	Motion Control	50% - 50% 100%													
Catogary	Engineering Elective (2) (MR)														
Objective	Learn about the electromechanical systems components and characteristics.														
	<u> </u>	Principles of electromechanical energy conversion, motion actuators: solenoids, stepping													
	motors, DC motors, B	LDC motors	, in	duct	ion moto	ors, s	ynchr	onous	s mot	tors, s	witched				
Topics	reluctance motors, Toro	oidal torque n	oto	rs, s	ervos and	d syn	chros,	linea	r indı	action	motors,				
Topics	reluctance motors, Toroidal torque motors, servos and synchros, linear induction motors, transformers for power, signal and pulse processing. Characteristics of machines: braking,														
	four quadrant operation	n with power	co	nditi	oners. P	ower	ampl	ifiers:	line	ar and	l PWM,				
	Power Operational amp	lifiers, Chopp	ers,	, rect	ifiers, inv	verter	s and	cyclo	conve	erters.					

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	Senior 2 LEVEL 400 COURSES											
Code	Course Title	Prerequisite		С	ontact he	ours			M	arks		
Code	Course Title	Prerequisite	Cr	Lec	Tutorial	Lab	Total	CW O/P 50 - 50% - chining pro tting, discorroughness of gear manufactur	FE	Total		
DPE410	CNC Machines & Material	Level 400	2	2	1	_	3	I CW O/P 50 - 50% - achining pro utting, discorroughness on the second of the second o	50	100		
DFE410	Cutting Processes	Level 400	4		I	-	3	50%	-	50%	100%	
Catogary	Engineering Elective (2) (MR)											
Ohioativa	To learn about mechanics of metal cutting and nonconventional machining processes and											
Objective	CNC machines.											
	Mechanics of metal cutting	, shear plane	theo	ries i	n continu	ious c	chip cu	tting,	disco	ntinuo	us chip	
	formation theories, tool v	wear and too	l lit	fe, c	utting te	mpera	ature,	rough	ness	of ma	achined	
Toution	surfaces, economic of cutti	ng processes,	div	iding	and divi	ding	heads,	gear	manu	factur	ing and	
Topics	surfaces, economic of cutting processes, dividing and dividing heads, gear manufacturing and measurements, screw thread manufacturing and measurements, cam manufacturing, abrasive											
	machining processes, no	n-convention	al	mach	nining p	roces	ses, (CNC	Macl	hines:	types,	
	specification, programming										• 1	

	Senior 2 LEVEL 400 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				
DPE 407	Simulation	DPE 307	3	2		3	5	30	20	50	100				
DPE 407	Technology	Technology													
Catogary	Compulsory (MR)														
Objective	Knowledge of how to create a simulation of a technical system with modern software tools														
	Choose of simulation	n instruments	s, de	evelor	ment of	simu	lation	s, sin	nulati	on tec	hniques,				
Tonica	Choose of simulation instruments, development of simulations, simulation techniques, imulation of complex systems, step size problems, application of the different solving														
Topics	methods, different	ethods, different software tools (Pspice, Mathcad, Matlab-Simulink, Simplorer, ymola,), Programming of simulation tools.													
	Dymola,), Program														

On do		enior 2 LEV			coursi				N	/larks				
Code	Course Title	Prerequisite	Cr	Lec	Tutorial	Lab	Total	CW	O/P	FE	Total			
MPE		CSE001+						50	50	-	100			
402	Graduation Project 1	1 1 0 CH 50% 50 - 100%												
Category	Compulsory (MR)													
Objective	To learn and work as ateam work to design and manufacturing applications on													
Objective	mechatronics engineering	nechatronics engineering projects												
Topics	collaborate with faculty laboratory or conduct in experience provides study	he content of this course is variable and therefore it is repeatable for credit. Students ollaborate 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													
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 403	Robotics (2)	DPE 306	3	2	1	2	5	30	20	50	100			
DFE 403	Robotics (2)	DFE 300	ว				3	30%	20%	50%	100%			
Catogary	Compulsory (UR)													
Objective	To learn about Robot	o learn about Robotics system and control												
	- Introduction, Robo	t 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 Planning of manipulator trajectories - Control of Robot Manipulators Near- minimum time													
Topics														
	i i	control, Variable structure control Nonlinear Decoupled Control Robot Programming Language, Robot intelligence & task planning, Robot reaming.												

Senior 2 LEVEL 400 COURSES Contact hours Marks													
Code	Course Title	Prerequisite		С	ontact ho	urs			N	/larks			
Code	Course Title	rierequisite	Cr	Lec	Tutorial	Lab	Total	CW	O/P	FE	Total		
MPE 405	Fluid Power Systems	MPE202	3	2	1	2	5	30	20	50	100		
WIFE 403	I luiu Fower Systems	WIFLZUZ	J					30%	20%	50%	100%		
Catogary			Co	ompul	sory (UR)								
Objective	To learn about fluid power systems and its applications.												
Topics	Fluid power transmiss displacement pumps geometric volume undirectional control valued and spools, static charanteristic characteristic chara	and motors; its, flow rate lves; direct a racteristics of s —Basics of	type, too and p f val f de	es, st rque a pilot o ves – sign	atic charand power operated, Accumul	acteri r – C static ators	stics Cylind flow – Acc	of co ers – force cessor	nstan Press s acti ies –	t and ure, fl ng on Thrott	variable low, and poppets thing and		

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

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Engineering Elective (3)

	Senior 2 LEVEL 400 COURSES											
Code	Course Title	Prerequisite		С	ontact ho	ours			М	arks		
Code	Course Title	Frerequisite	Cr	Lec	Tutorial	Lab	Total	CW	O/P	FE	Total	
CSE 405	Image Processing and	Lovel 400	2	2	1		2	50	-	50	100	
CSE 405	Computer Vision	Level 400 2 2 1 - 3 50% - 5										
Catogary		Computer Vision Level 400 2 2 1 50% - 50% 100% Engineering Elective (3) (MR)										
Objective	To learn about Image Pro	cessing										
Tonios	- Image Processing, Image Representation, Description of Line & Shape, Descriptive											
Topics	Methods in Scene Analys	n Scene Analysis, Hardware & Software Considerations.										

	Senic	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	erii	ng El	ective (3) (MI	₹)				
Objective	Knowledge about the de	esign techniqu	es o	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 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	l.		
	Automotive Chassis Lay	out, Frame a	ınd	body	Constru	ction	, I.C.	Engir	ne Co	nstru	ction
	and Components. Engin	e Cooling ar	nd I	Lubri	cation S	ysten	ı, Fue	l Sup	ply S	ysten	ı for
Topics	petrol and diesel Engine,	, Ignition Sys	tem	, Clu	itches, Ti	ransn	nissior	ı Syst	em, I	Drive	Line
	System, Steering System	n, Suspensior	n an	d Sh	ock Abs	orbei	Syste	em, B	rakin	g Sys	tem,
	Automotive Electrical Sy	stem, Mainte	enan	ice, E	Engine Te	esting	g, Serv	icing	and I	Repair	

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Engineering Elective (4)

	Senior 2 LEVEL 400 COURSES												
Code	Course Title	Prerequisite		С	ontact ho	ours				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		Engine	erin	g Ele	ective (4)	(MR)							
Objective	Knowledge about sensor t	technology, se	ensc	or sys	stems and	l eval	uatior	elect	tronic	es			
	Introduction and motivat	ion, classific	atio	n of	sensors	, sen	sor ch	naract	eristi	cs, ana	alog and		
Taniaa	digital sensors, optical se	igital sensors, optical sensors, pressure sensors, chemical and biochemical sensors, micro											
Topics		echanical sensors, test circuits and signal processing for sensor systems, future											
	development of the market	et.			•				•				

	Se	nior 2 LEVE	L 4	100 C	COURSE	S					
Code	Course Title	Prerequisite		С	ontact ho	ours			N	Marks	
Code	Course Title	Frerequisite	Cr	Lec	Tutorial	Lab	Total	CW	O/P	FE	Total
MPE409	Power Plants	Level 400	2	2	4		3	50	-	50	100
WIFE409	Power Plants	Level 400	_		'	-	3	50%	-	50%	100%
Catogary		Engine	erin	g Ele	ective (4)	(MR)					
Objective	To learn about energy con	nversion syste	ms								
	Introduction to energy co	nversion syste	ems	-St	team pow	ver pl	ant –	Boile	rs - S	team t	turbine –
Topics	Theory of combustion and	d fuel types –	Gas	s turt	oine and						
	wind energy conversion s	ystems – Ene	rgy	stora	ige.						

	Seni	or 2 LEVEL	400	0 CO	URSES	Senior 2 LEVEL 400 COURSES											
Code	Course Title	Prerequisite		С	ontact ho	ours			Ma	arks							
Code	Course ritte	Prerequisite	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	Level 400		_	I	-	3	50%	-	50%	100%						
Catogary		Engineering Elective (4) (MR)															
Objective	Knowledge about digital	control syster	ms.														
	Review of Classical	Control- St	ate-	-spac	ce Cont	rol -	- Sta	tic (Optin	nizat	ion –						
	Dynamic Optimization			_					_								
	Filtering – Analysis, des	sign and sim	ula	tion	of contro	ol sys	stems	using	g cor	npute	ers.						

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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 Title	Frerequisite	Cr	Lec	Tutorial	Lab	Total	CW	O/P	FE	Total
INE403	Industrial Safety	Level 400	2	2	1	_	3	50	-	50	100
INL403	Engineering	Level 400			I	_	3	50%	-	50%	100%
Catogary		Enginee	ring	g Elec	ctive (5) (MR)					
Objective	Knowledge about industri	al safety engi	nee	ring.							
	Upon completion of the co	ourse, the stu	den	ts wi	ll be equi	ipped	l with	conce	pts o	f engii	neering
Tonica	systems safety, dimension	stems safety, dimensions of engineering systems safety, safety design and analysis									
Topics	mathematics, design for e	engineering sy	yste	ms sa	afety and	cont	trol fo	r safe	ty, an	d inte	grating
	safety with other operation				•				•		0 0

	Sen	ior 2 LEVEL	40	0 CC	OURSES	l)					
Code	Course Title	Prerequisite		С	ontact he	ours			M	arks	
Code	Course Title	Frerequisite	Cr	Lec	Tutorial	Lab	Total	CW	O/P	FE	Total
CSE402	Artificial Intelligence	Level 400	2	2	1	_	3	50	-	50	100
C3E402	Artificial intelligence	50% - 50% 1009									
Catogary		Enginee	ring	Elec	tive (5) (ľ	MR)					
Objective	Knowledge about Artifici	al Intelligence	9								
	- Intelligence. in humans	& machines, l	Bas	ic Iss	ues in A	I, Inti	oduct	ion to	AI I	angua	iges,
	Basic Search Techniques	Problem Solv	ing	, Cor	nputation	nal lir	nguisti	ics and	d natı	ıral	
	Language Processing K		_		-		_				base,
	Leaving Techniques, Kno	wledge Organ	niza	tion	& Manip	ulatio	on P	roduc	ction	Syster	ns,
	Expert Systems & Applic	ations Compu	ıter	Visio	on etc	c.					

	Se	nior 2 LEVE	L 4	00 C	COURSE	S						
Code	Course Title	Prerequisite		С	ontact ho	ours			N	Marks		
Code	Course Title	Frerequisite	Cr	Lec	Tutorial	Lab	Total	CW	O/P	FE	Total	
ECE 403	Digital Electronics	Lovel 400	2	•	4		2	50	-	50	100	
ECE 403	Systems	Systems										
Catogary		Engineering Elective (5) (MR)										
Objective	Knowledge about Signal	modulation e	lect	ronic	circuits.							
	Signal modulation electron	nal modulation electronic circuits: (Multiplier, AM, PLL,FM) differentiator and										
	integrator circuit, pulse	train, multi v	/ibr	ator,	circuit,	on-of	f circ	uit, t	ransis	stor as	switch,	
Topics	negative resistor circuit,	tunneling di	ode	, sili	con cont	rol re	ectifie	r and	appl	lication	n, signal	
	transformation: analog to	digital and di	gita	l to a	analog tra	ansfo	rmatio	n. Pu	lse co	ode mo	dulation	
	circuit amplitude modulat	ion, width mo	odul	atior	n, positio	n mo	dulatio	on and	d 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 ٢٣,٦٤%)

ل	الاتصا	اعات		الساعات	5.71	. ~11	
مجموع	معمل	تمرين	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 209ھنج	۲
4	-	2	۲	٣	Theory of Machines نظریة الماکینات	DPE101 متج ۱۰۱	٣
5	1	2	۲	٣	Mechanics of Material میکانیکا المواد	DPE102 متج ۱۰۲	٤
5	3	-	2	3	Machine Drawing رسم الماكينات	DPE103 منج ۱۰۳	0
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 متج ۲۱۰	٧
5	1	2	2	3	Machine Element Design تصميم أجزاء الماكينات	DPE201 هتج ۲۰۱	٨
5	1	2	2	٣	Modern Production Systems أنظمة الانتاج الحديثة	DPE202 هنج ۲۰۲	٩
5	1	2	2	3	Electronic Circuits الدوائر الإلكترونية	ECE201 دکت۲۰۱	١.
5	1	2	2	3	Aerodynamics الديناميكا الهو ائية	MPE201 هقم ۲۰۱	11
5	1	2	2	3	Aero-spacecraft Structure Design-1 تصميم هياكل الطائرات والمركبات الفضائية-١	DPE 211 متج ۲۱۱	١٢
4	1	١	2	2	Orbits & Flight Trajectory المدار ات ومسار ات الطير ان	DPE 212 هنج ۲۱۲	١٣
5	1	2	2	3	Mechanical Vibrations الاهتز از ات الميكانيكية	DPE203 هتج ۲۰۳	١٤
5	1	2	2	3	Finite Elements Analysis التحليل باستخدام العناصر المحدودة	DPE204 متج ۲۰۶	10
4	1	1	2	۲	Gas Dynamics دینامیکا الغاز ات	<u>M</u> PE202 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 منج ۳۰۲	19
٥	١	2	2	3	Stability and Control الثبات والتحكم	DPE301 هنج ۳۰۱	۲.
٥	١	2	2	3	Engineering Elective (2) مقرر هندسي اختياري ۲	جدول (ز۳)	21
٥	١	۲	۲	٣	Engineering Elective (3) مقرر هندسي اختياري3	جدول (ز ؛)	77

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تابع جدول (ز۱) متطلبات التخصص لبرنامج هندسة الطيران ومركبات الفضاء (۱۰۵ ساعة معتمدة بنسبة ٢٣,٦٤%)

3	-	1	2	2	Design of Rocket Propulsion Systems تصميم أنظمة دفع الصواريخ	MPE 311 هقم ۳۱۱	78
5	1	2	۲	3	Computer Aided Aero-spacecraft Structure Analysis تحليل هياكل الطائرات والمركبات الفضائية بالحاسب	DPE 312 ۳۱۲ هنچ	7 £
5	2	1	2	3	Sensors and Actuators الحساسات و المحركات	CSE 313 ۳۱۳مم	70
4	1	١	۲	2	Heat Transfer إنتقال الحرارة	MPE301 هقم ۳۰۱	۲٦
0	١	2	2	3	Engineering Elective (4) مقرر هندسي اختياري4	جدول (زه)	77
0	١	2	2	3	Engineering Elective (5) مقرر هندسي اختياري5	جدول (ز٦)	۲۸
٤	٣	-	١	۲	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 د ۲۰۶	٣.
4	2	1	1	2	Modeling and Simulation النمذجة والمحاكاة	DPE 403 403هتج	٣١
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	77
0	1	2	2	3	Engineering Elective (6) مقرر هندس <i>ي</i> اختيا <i>ري6</i>	جدول (ز ^۷)	٣٣
0	1	2	2	3	Engineering Elective (7) مقرر هندسي اختيا <i>ري7</i>	جدول (ز ۸)	٣٤
٤	٣	-	١	۲	Graduation Project (2) مشروع التخرج (۲)	DPE 410 دنج ۱۰	40
4	2	١	1	2	Planning and Testing of Space vehicles التخطيط واختبارات المركبات الطائرة	DPE 411 دنج ۱۱	77
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 دهم ۲۱۳	٣٨
5	2	1	۲	3	Data Analysis & System Identification تحليل البيانات والتعرف علي الأنظمة	DPE405 هتج ۲۰۰	٣٩
0	١	2	2	3	Engineering Elective (8) مقرر هندسي اختياري8	جدول (ز۹)	40
18.	٤٧	٥٩	٧٤	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 (ز٣) قائمة المقرر الهندسي الاختياري(٢) لمتطلب التخصص

<u> </u>		3, 53 .	
لمقرر	اسم ا	الكود	م
تصميم المهام الفضائية	Space Mission Design	DPE 303 «متج»	1
ديناميكا الطائرات الهليوكوبتر	Helicopter Dynamics	MPE 304 ۳۰۰ هقم	۲
الديناميكا الهوائية للطائرات الهليوكوبتر	Helicopter Aerodynamics	MPE 305 هقم ۰ ۳	3
المركبات الفضائيه بدون طيار	Unmanned Air Vehicles	MPE 306 هقم ۳۰۲	4

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

		<i>)</i>	
لمقرر	استم ا	الكود	م
تكنولوجيا الأقمار الصناعية	Satellite Technology	DPE 307 ۳۰۷هنج	١
الديناميكا الهوائية للطائرات الرأسيه الاقلاع والمقلعه من ممرات قصيره	Aerodynamics of V/STOL	MPE 308 ۳۰۸مقم	۲
اجهزه الطائرات الهليكوبتر	Instruments of Helicopters	MPE 309 «قم ۳۰۹	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 هتج	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 هقم ۳۱۷	4

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

	() 1	4 / 4 1	
	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

•	()25	<i>3) -3 .</i>	
	اسم المقرر	الكود	م
النظم اللاخطية والتحكم اللاخطي	Nonlinear Systems & Control	DPE 406 د به ۲۰۳	١
التحليل الأمثل لأداء الطائرات	Analysis and Optimization of Airplane Performance	DPE 407 د ن ب غ	۲
المرونة الهوائية	Aeroelasticity	DPE 408 د ، هنج ه ، ٤	3
تصميم محركات الصواريخ	Design of Rocket Engine	MPE 409 هقم ۲۰۶	4

جدول (ز ٨) قائمة المقرر الهندسي الاختياري (V) لمتطلب التخصص

	/ · · · · · · · · · · · · · · · · · · ·	3, 3, .	
قرر	اسم الما	الكود	م
 التحكم في المركبات الفضائية 	Spacecraft Control	DPE 414 د ۱۶ ۱۶	١
الديناميكا الهوائية الحسابية	Computational Aerodynamics	هقم ۱۰ کا MPE	۲
 انظمة التحكم بالصواريخ 	Missile Control Systems	DPE 4۱٦ دنج ۱۱۶	3
[معمل إختبارات الطيران التكنولوجي	Flight Test Techniques Laboratory	MPE 41۷ هقم ۱۷	4

جدول (ز ٩) قائمة المقرر الهندسي الاختياري (٨) لمتطلب التخصص

<u> </u>	<u> </u>	3, 03 .	
ڔ	اسم المقر	الكود	م
التحليل الحراري	Thermal Analysis of Spacecrafts	DPE 41 ۸ د ۱۸ متج	١
الديناميكا الهوائية للصواريخ والمقذوفات	Missile and Projectile Aerodynamics	MPE 41۹ د ۱۹هم	۲
تصميم وتحليل المركبات الطائرة	Spacecraft design and analysis	DPE 4۲ ۰ ۶۲ ۰ هتج	3
أنظمة المركبات الطائرة	Space Systems Engineering	DPE 4۲۱ هنج ۲۱	4

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

		Level	000 (Fresh	man)			
	Semester (1)	Fall		Semester (2) Spring			
	Course name	Code	Code CH Course name Code				
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	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	ng					
	Course name	Code	СН	Course name Code						
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	المدارات ومسارات الطيران	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 الطائر ات	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	CH	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)	XXXXXXXX	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 Prerequisite Contact hours Marks											
Code	Course rille	Frerequisite	Cr	Lec	Tutorial	Lab	Total	CW	O/P	FE	Total	
EMP001	Engineering	None	2	•	2		4	50	-	50	100	
EIVIPUUI	Mathematics 1	Mathematics 1 None 3 2 2 - 4 50% - 50% 100%										
Catogary			С	ompu	llsory (FR))						
Objective	To learn the main co	ncepts of dif	ferer	itiatio	n and alge	ebra.						
	Functions-Elementar	ry functions	-Inv	erse	function-I	Polar	and	para	metri	c coo	rdinates-	
T:	Limits-Newoton's r	nethod-Deriv	ative	es (ch	nain rule,	deri	vation	of i	mplic	it and	inverse	
Topics	Limits-Newoton's method-Derivatives (chain rule, derivation of implicit and inv functions)-Macclaurin's and Taylor's expansins-Theory of equations-Matrices-G											
	elimination method-		•			-	•	1				

	Course Title Prerequis			Co	ntact ho	urs			N	/larks	
Topics S	Course Title	Prerequisite	Cr	Lec	Tutorial	Lab	Total	CW	O/P	FE	Total
	Engineering	None	3	7	1	2	5	30	20	50	100
	Physics 1	None	<u> </u>	'	•		,	30%	20%	50%	100%
Catogary			Co	mpul	sory (FR)					
Objective	To learn about matte	To learn about matter properties and applications of Newton's laws.									
	Field of gravitation Temperature-First Thermodynamics-Ga Simple Pendulum- Coefficient of heat C Lab : Simple and coviscosity of liquid measurement of the	law of The as Theory-S Complex Ponduction-Spompound 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 meas	Entro stic quid ureme	py-Se Medi Sur	econd a-Expo face f coeff	law of eriments: Tension- ficient of

Code	Course Title	Broroguicito		С	ontact ho	urs				Marks	
Code	Course Title	Prerequisite	Cr	Lec	Tutorial	Lab	Total	CW	O/P	FE	Total
EMP003	Engineering	None	2	4	4	2	4	30	20	50	100
EMPUUS	Mechanics (1)	None		•			4	30%	20%	50%	100%
Catogary		Compulsory (FR)									
Objective	To learn the basic co	ncepts of eng	ginee	ring r	nechanics	S.					
	Vector applications- Equilibrium-Reaction machines-Experimen	n-Friction-Ve	ector	calcu	lus-Equil	_	-		-		

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Codo	Course Title	Proroguicito		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
DECOIL	Projection (1)	None	ว		-	3	3	50%	-	50%	100%
Catogary			(Comp	ulsory (FR	?)					
Objective	Introductory concep	ts of engineer	ring	drawi	ng and de	escrip	tive ge	eometi	y		
	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 project	on-Represen	tatio	n of	a straig	ht li	ne-Str	aight	lines	inter	sections-
	Representation of a	plan-Position	pro	blems	,						

Code	Course Title	Broroguicito		С	ontact ho	urs			N	/larks	
Code	Course Title	Prerequisite	Cr	Lec	Tutorial	d nuclequilibratical kg mater	Total	CW	O/P	FE	Total
ENE001	Eng. Chemistry	None	3	2	_	2	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	To learn basic concepts of chemistry									
	The atomic structure	e and its bear	ing o	on che	mical 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-
Taniaa	Electrolytic dissocia	ation & ionic	equ	uilibri	um-Chem	nical	kinem	atics	& rat	e of r	eactions-
Topics	Sources of elemen	ts-Chemical	indu	ıstries	-Building	mat	erials	and	ceran	nics in	ndustries-
	Corrosion-Fuels-Co	mbustion-Ex	perir	nents	Identific	ation	of sim	iple sa	alts-Id	entific	cations of
	acids.							-			

Code	Course Title	Prerequisite		С	ontact ho	urs			N	/larks	
Code	Course rille	Frerequisite	Cr	Lec	Tutorial	Lab	Total	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			(Comp	ulsory (UR	₹)					
Objective	To learn basics of fo	reign (Englis	h) te	chnic	al languag	ge.					
	Introduction: Basic	concepts of	tech	nical	English-F	Reviev	w of e	essenti	als o	f gram	mar and
Taniaa	mechanics rules for	effective Sen	tenc	es-Sty	le errors.	Build	ling Pa	aragra	phs: N	Main io	dea-types
Topics	of paragraphs-Read			•			_		-		• •
	disciplines for devel	oping commu	ınica	tion s	kills.						

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LEVEL (000) Semester 2

	Freshmen LEVEL 000 COURSES												
Code	Course Title	Droroguioito		С	ontact hou	urs			ľ	Marks			
Code	Course ritle	Prerequisite	Cr	Lec	Tutorial	Lab	Total	CW	O/P	FE	Total		
EMP005	Engineering	None	3	2	2		4	50	-	50	100		
EMPUUS	Mathematics 2	Mathematics 2 100% 100% 100%											
Catogary		Compulsory (FR)											
Objective	To learn the main co	oncepts of dif	fere	ntiatio	on and alg	ebra.							
	Indefinite integration	n-Methods of	f into	egrati	on-Defini	te int	egrals	-Appl	icatio	ons (ar	c length,		
	areas, volumes, cent	ter of gravity,	, firs	t orde	er differen	tial e	quatic	n)-Nı	ımeri	cal me	ethods of		
Topics	integration-Transfor	mations in	plan	e-part	tial differ	entia	tion-C	onic	secti	ons-Fr	ames of		
	work and different k		•	-									
	Surfaces of the seco	•				_	•		-		-		

		Freshmen l	LEVE	L 000	COUR	SES					
	Course Title	Prerequisite		Co	ntact ho	urs			N	Narks	
EMP006	Course Title	Frerequisite	Cr	Lec	Tutorial	Lab	Total	CW	O/P	FE	Total
LIVIFUUU	Engineering	None	3	٧	1	2	5	30	20	50	100
	Physics 2	None	,	'			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 dielectric										
	Current, resistance an	nd electromot	ive fo	rce-N	lagnetic 1	field-	Amper	e's la	w- (B	iot-Sav	vart) law-
	Fraday's law of ir	nduction-Indu	ctance	e ma	gnetic p	roper	ties o	f ma	tter-P	hysica	1 optics-
	Interference and defl	ection-Laser	physi	cs-Ele	ectromag	netic	induct	ion-Pı	ropert	ies of	magnetic
Topics	materials-A/C curre	nt-Electromag	gnetic	wav	es-Exper	iment	ts: Ca	pacito	r cap	acity-	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 o micr	pacitor – curvature oscope –

		Freshmen I	LEVE	L 00	COUR	SES							
	Course Title	Prerequisite		Co	ntact ho	urs			Marks				
HUM001	Course Title	Frerequisite	Cr	Lec	Tutorial	Lab	Total	CW	O/P	FE	Total		
HOMOU	History of Eng. &	None	2				2	50	-	50	100		
	Tech.	None	4	'	-	•		50%	-	50%	100%		
Catogary			Co	mpul	sory (UR	2)							
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	ations	and t	their			
	relationship with na	tural and hum	nan so	cience	s-Histyo	ry of	differ	ent te	chnol	ogy ar	nd		
Topics	engineering speciali				•	•				~.			
	between developme	nts in enginee	ering,	socia	l, econo	mical	and c	ultura	l env	ironm	ents-		
	Practical examples of	_	_										

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		Freshmen	LEVE	L 000	COUR	SES					
	Course Title	Prerequisite		Co	ntact ho	urs			N	/larks	
EMP007	Course Title	rielequisite	Cr	Lec	Tutorial	Lab	Total	CW	O/P	FE	Total
EIVIF 007	Eng. Mechanics (2)	None	2	1	2	4	4	4 30 20 50 30% 20% 50%			100
	Eng. Wechanics (2)	None	2	ı		ı	4	30%	20%	50%	100%
Catogary			Co	ompul	sory (FR	.)					
Objective	Continuing learning	the basic cor	ncepts	s of e	ngineerin	ng me	chanic	cs.			
	Displacement, veoli	city and acce	elerat	ion ir	Cartesi	an, cı	urvilin	ear, t	anger	itial, p	olar and
Tonico	cylindrical coordin	ates-relative	moti	ion-pı	ojectiles	-Mot	ion u	nder	centi	ifugal	forces-
Topics	Work-Energy-Mome	entum-Impul	se an	d coll	ision-Ex	perin	nents:	Mom	entun	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 rille	rierequisite	Cr	Lec	Tutorial	Lab	Total	CW	O/P	FE	Total
DPE012	Eng. Drawing &	DPE011	3	2	_	3	5	50	-	50	100
DFEUIZ	Projection (2)	DFEUII	3		•	3	3	50%	-	50%	100%
Catogary			(Comp	ulsory (FR	?)					
Objective	Continuing learning	of engineeri	ng d	rawin	g and des	cripti	ive geo	ometry	y .		
	Pictorial drawing of	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-Cylind	der-Plane se	ectio	n of	surfaces	s-Inte	rsectio	on of	two	o surf	faces of
	revolution.										

		Freshmen	LEV	EL 0	00 COUR	SES										
Code	Course Title	Prerequisite		С	ontact ho	urs			I	/larks						
Code	Course Title	rielequisite	Cr	Lec	Tutorial	Lab	Total	CW	O/P	FE	Total					
DPE001	Production	None	3	2	1	2	5	50	30	50	100					
DECOU	Technology	None	າ				3	20% 30% 50% 100%								
Catogary			(Comp	ulsory (FR	?)										
Objective	To learn the main co	oncepts of pro	oduc	tion t	echnology	y										
	Introduction in ind	ustrial safety	/-En	gineer	ring mate	rials	(types	and	prop	erties)	-Metallic					
	alloys-Casting proc	esses-Formin	ng p	roces	ses (forgi	ing, 1	rolling	, drav	wing,	extru	sion and					
- •	spinning)-Joining p	rocesses (rive	eting	, wel	ding and	adhes	sive bo	olding	g)-Cut	ting p	rocesses-					
Topics	Machining processe	,	_		_			_		- 1						
	(vernier calipers ar	nd micromete	ers)-	Introd	luction to	pro	ductio	n cos	sts an	d mar	nagement					
	systems-Practical pr	acticing.														

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	Freshmen LEVEL 000 COURSES Contact hours Marks												
Codo	Course Title	Drovoguioito		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	None	2	1	1	2	4	30%	20%	50%	100%		
Catogary			(Comp	ulsory (UF	₹)							
Objective	To learn basic conc	epts of comp	uters	and l	high-level	l prog	ramm	ing la	nguag	ges.			
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

Codo	Course Title	Droroguicito.		С	ontact ho	urs			ľ	Marks			
Code	Course Title	Prerequisite	Cr	Lec	Tutorial	Lab	Total	Total CW O/P FE 50 - 50 3 50% - 50% the atmosphere and	Total				
	Introduction to Aero-							50	-	50	100		
MPE 101	Spacecraft Engineering	EMP 007	2	2	1	-	3	50%	-	50%	100%		
Catogary		Compulsory (MR)											
	. Introduction to Space Engineering. Flight vehicles in the atmosphere and in space. Flight technologies, including structures, materials, propulsion, aerodynamics, vehicle												
Topics	1 2	_			•			-		_			

Code	Course Title	Prerequisite		С	ontact hou	ırs		Marks					
Code	Course Title	Frerequisite	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	<u> </u>	4	30%	20%	50%	100%		
Catogary		Compulsory (FR)											
	Overview of diffe	rent progran	nmir	ng la	nguages,	prog	ramm	ing v	withir	ı C,	efficient		
Topics	programming, objec	t-oriented pro	ogra	mmin	g (for exa	ample	e with	JAV	A), s	oftwai	e design		
	tools	_				_							

Code	Course Title	Prerequisite		С	ontact ho	urs			N	Marks	
Code	Course Title	Frerequisite	Cr	Lec	Tutorial	Lab	Total	CW	O/P	FE	Total
DDE101	Theory of Machines	EMP007	3	2	2		1	50	-	50	100
DEFIOI	Theory of Machines	ENTOUT	3		2	-	4	50%	-	50%	100%
Catogary			С	ompu	lsory (MR)					
Topics	Centroid of Rigid be rigid body: Kinemat Impulse and Momer work of rigid bodie motion, Energy and Kinematics of mach Velocity and acceler rotating bodies - roll	tics, Kinetics ntum, Impact es, Equilibrium omentum on nines; Fundan ation; mathe	and, Into	l applernal and stid bootal columns.	forces, Slability, Pdies, Mononcepts — and graphic	of planer and the pla	and B motion mand s of a alysis	notion ending on, La Impu motion cam:	y Wo g of I inear ilse, A ns – s – C	rk and rand rand rand rand rand rand rand	d energy, s, Virtual rotational ations. ections — between

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by separation of variable.

اللائحة الداخلية لمرحلة البكالوريوس بنظام الساعات المعتمدة



Code	Course Title	Prerequisite		С	ontact hou	urs			N	/larks			
Code	Course Title	Frerequisite	Cr	Lec	Tutorial	Lab	Total CW O/P FE 50 - 50 50% - 50% subspaces and span plex method - Curve	FE	Total				
EMD101	Engineering Mathematics 3	EMP005 7		2		٧.	50	-	50	100			
EMIPIUI	Mathematics 3		EIVIPUUS \	,	<u> </u>	-	,	50%	-	50%	100%		
Catogary		Compulsory (FR)											
	Linear vector space	- vector space	ces 1	inear	independ	lence-	- subs	paces	and	spann	ing sets,		
	inear maps- change of basis - Linear programming- simplex method - Curve fitting -												
		pproximate Interpolation and polynomial. First order differential equation and their											

applications – Linear and higher order D.E and their applications – Partial D.E – Solution

Code	Course Title	Prerequisite		te Contact hours					N	/larks	
Code	Course Title	Prerequisite	Cr	Lec	Tutorial	Lab	Total	CW	O/P	FE	Total
MTE101	Engineering Materials	None	3	2	1	2	5	30	20	50	100
MILEIOI	Engineering Materials	None	3	4	1	4	3	30%	20%	50%	100%
Catogary					lsory (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 stress iron and brass, F	 Elasticity tension, con instruction m mild steel est, Torsion eel, Impact to 	and test	d plassion, als ar	sticity — bending and their to be the store that th	Stand s, she ests – pressi and c	lards ear, to Testi ton tes ast iro	Me orsionng rest foron, Di	chani , har sults mild rect s	cal te 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	Cr	Lec	Tutorial	Lab	Total	CW	O/P	FE	Total		
TITIM 101	Introduction to Law	None	2	2			2	50		50	100		
HOMITOI	Introduction to Law	None	2	2	-	-		50%		50%	100%		
Catogary		Compulsory (FR)											
Topics	Law bases and source Law -public administ - centralized and dec	ces - General tration organi entralized ad	bas izatio mini	es, so on - C stratio	ources and deneral bas on - civil s	char ses of servar	racteris f the a nt post	stics odmini	of the strativ	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	_	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 indeterminate Structures Strain – Hook'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
	and strain.	-			•	corial Lab Total CW O/P FE 2 1 5 30 20 50 30% 20% 50% 50% 50%	•				

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Code	Course Title	Prerequisite		С	ontact hou	urs		Solid Work a vide a first visual repr	Marks			
Code	Course Title	Frerequisite	Cr	Lec	Tutorial	Lab	Total		FE	Total		
DDE102	Machine Drawing	DPE012	3	2		2	_	50	-	50	100	
DPE103	Macinile Drawing	DPEUIZ	3	2	-	3	5	50%	-	50%	100%	
Catogary			С	ompu	Isory (MR)						
	Utilizes up-to-date computer-aided design software (such as Solid Work and AutoCAD)											
	for mechanical dra	wings and	mec	hanic	al design	s to:	prov	total CW O/P FE 50 - 50 50% - 50% as Solid Work and Autoprovide a first exponent of the solid visual representation of the solid work and visual representation.	osure to			
		•			_		-			_		
-		U					5 Total CW O/P FE 50 - 50 50% - 50%					
	mechanical design.	1		1	C	•		U				

Code	Course Title	Broroguisito		С	ontact hou	urs			N	/larks			
Code	Course Title	Prerequisite 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	4	1	l I	<i>_</i>	4 30 20 50 10 30% 20% 50% 10 on in residential and induses, telephone lines and anter	30% 20% 50	100%				
Catogary	Compulsory (FR)												
	Introduction to electrical circuits - electrical installation in residential and industrial												
Topics	buildings (illuminati	ion networks	in 1	ural a	areas, data	a line	s, tele	phon	e line	s and	antenna,		
Topics	control of air condi-	tioning, lift)	cal circuits - electrical installation in residential and industric networks in rural areas, data lines, telephone lines and antenna- ning, lift) - requirements of audio systems - alarm devices (fire	es (fire -									
	security - gas).												

Code	Course Title	Prerequisite		С	ontact hou				N	/larks			
Code	Course Title	rierequisite	Cr	Lec	Tutorial	Lab	Total	CW	O/P	FE	Total		
EMD103	Numerical Techniques	EMP101	•	2	1	1	4	30	20	50	100		
EMP102	Numerical Techniques	ENIFIUI	2	4	1	I	4	30%	20%	50%	100%		
Catogary		Compulsory (MR)											
	Numerical solutions Numerical Solutions Differential equation	for ordinary								-			

Code	Course Title	Prerequisite		С	ontact ho	urs				Marks	
Code	Course Title	Frerequisite	Cr	Lec	Tutorial	Lab	Total	CW	O/P	FE	Total
INE202	Engineering Statistics	None	2	2			2	50	-	50	100
INEZUZ	Eligineering Statistics	None	4	<u> </u>	-	-	4	50%	-	50%	100%
Catogary			С	ompu	ulsory (FR))					
Topics	Graphical presentat Diagrams – Measur mean of grouped of Variance and stand deviation for groupe Coefficient, Linear Distributions.	es of centra data, weighte ard deviation d sample dat	l ter ed n n fo a, R	ndency nean, r ung ange	y: Sample Median, grouped s – Bivariat	e mea Moc ample e dat	an for le – e data a: Sca	ungr Meas , Vai tter d	oupe ures riance iagrai	d data of Di e and ns, Co	, sample spersion: standard orrelation

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Code	Course Title	Droroguioito		С	ontact hou	urs					
Code	Course Title	Prerequisite	Cr	Lec	Tutorial	Lab	Total	CW	O/P	FE	Total
MDE101	Thermodynamics	None	3	2	2		1	50	-	50	100
MIFEIUI	Thermoughannes	None	ว	<i>_</i>	4	-	4	50%	-	50%	100%
Catogary			С	ompu	Isory (MR)					
Topics	Concepts and definit – Thermodynamic p availability - Mixtu measurements - Idea actual cycle Analysis – Solar Energy – Ge	rocesses – 2 ares - Basic al gases – Sta as – Power Cy	and Ind I is one of the control of t	heat aw of f cor rd air – Fue	- 1 st Law of thermodenbustion cycles - 1	of Th lynam - Ba Heat (ass –	nics, e asic c engine	ntropy ycles e cycl	y, irro – T es – T	eversib hermo Theore	oility and odynamic etical and

Elective (1) Humanities

	Sop	homore LE	VEI	100	COUR	SES					
Code	History of Arabian and Islamic Civilization None University Elective (1) (UR) Extive Knowledge of the history of arabian and islamic civilization Defining civilization in general - theories and terminology - Service Arabic community pre-Islam - setting up the Islamic society - main 'features - Islamic Civilization - the basic moral and mater values - the basic concepts - the main characteristics - the main characterist		N								
Code	Course Title	rielequisite	Cr	Lec	Tutorial	Lab	Total	CW	O/P	FE	Total
HUM103	History of Arabian and	None	•	2	_		2	50	-	50	100
HOWIUS	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	lizat	ion				
	Defining civilization i	n general -	thec	ries	and ter	mino	ology	- Sho	Short account 'Its developmerial concepts - the Arabian I	of the	
	Arabic community pre	-Islam - sett	ing	up t	the Islan	nic s	society	-'Its	deve	elopme	ent and
T:	main 'features - Islami	c Civilization	1 - t	he b	asic moi	al a	nd ma	terial	conc	epts -	ethical
Topics	values - the basic c	oncepts - t	he	mair	n charac	cteris	stics -	- the	Ara	bian	Islamic
	achievements in the fie									50 50% count lopme epts - bian contr	
	to the world. civilizatio				_						

	Sop	homore LE	VEI	L 100	COUR	SES					
Codo	Course Title	Droroguioito		C	ontact ho	ours			N	/larks	
Code	Course Title	Prerequisite	Cr	Lec	Tutorial	Lab	Total	CW	O/P	FE	Total
HUM104	Geography of Mankind	None	2	2			2	50	-	50	100
HOWITU4	& Environment	None			-	-		50%	-	50%	100%
Catogary	University Elective (1) (UR)										
Objective	Knowledge of the geog	raphy of man	kin	d & 6	environn	nent					
	Environment of the co	ntemporary r	nan	- th	e role of	ma	n in c	hangi	ng th	e envi	ironment
Toulog	Analytical studies for	models of t	he	envir	onment	- sc	me e	nviroi	nmen	tal pro	oblems -
Topics	overpopulation and fo	od shortage	-'Po	olluti	on - de	pleti	on of	the	natur	al res	ources –
	desertification.	C				•					

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	Sophor	nore LEVEI	L 10	0 C(OURSES	5						
Codo	Course Title	Droroguioito		C	ontact ho	ours			N	/larks		
Code	Course Title	Prerequisite	Cr	Lec	Tutorial	Lab	Total	CW O/P FI 50 - 50 50% - 50 emand for HR elopment – P	FE	Total		
HUM102	Human Resources	None	2	2			2	50	-	50	100	
HOWITOZ	Management	None		_	-	-	_	50%	-	50%	100%	
Catogary		University Elective (1) (UR)										
Objective	Knowledge of the huma	an resources i	nan	agen	nent.							
	Activities of HR mana	gement - HR	pla	nnin	g: Job a	nalys	sis, De	emano	l for	HR, S	upply of	
Tonico	HR - Staffing: Recru	itment, Selec	ctio	n –	Training	and	d dev	elopm	ent -	- Perf	ormance	
Topics	Appraisal – Compensa	ation: Type	of e	equit	y, Desig	gning	the	pay s	tructi	ure, E	mployee	
	benefits – Labor/manag	gement relation	ns -	- Mo	tivation	- Lea	adersh	ip – (Comn	nunica	tion.	

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

LEVEL (200) Semester 5

Junior LEVEL 200 COURSES

Code	Course Title	Prerequisite		С	ontact hou	ırs			N	/larks	
Code	Course Title	Frerequisite	Cr	Lec	Tutorial	Lab	Total	CW	O/P	FE	Total
DDE 210	Space Mission	MPE 101	2	2	1	1	1	30	20	50	100
DFE 210	0 Space Mission Analysis	MIFE 101	VII E 101 Z		1	1	4	30%	20%	50%	100%
Catogary			С	ompu	Isory (MR)					
Topics	Mission objectives, allocation, Mission of		•	sis,	Function	requ	iireme	ents,	Func	tion	tree and

Code	Course Title Prerequisite		С	ontact hou	urs			N	/larks		
Code	Course rille	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			С	ompu	Isory (MR)					
	Analysis and design	of machine	elem	ents,	including	theo	ries o	f failı	ire, fa	atigue	strength,
	and endurance limit										
Topics	torsional and combin	ned stresses.	Desi	ign of	bolted co	onnec	tions,	faste	ners,	welds,	, springs,
	ball and roller bearin										

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Code	Course Title	Prerequisite		С	ontact hou			Marks					
Code	Course Title	rierequisite	Cr	Lec	Tutorial	Lab	Total	CW	O/P	FE	Total		
DDE202	Modern Production Systems	DPE001	3	2	2	1	_	30	20	50	100		
DPE202	Systems	DPEUUI	3	4	4	1	5	30%	20%	50%	100%		
Catogary		Compulsory (MR)											
	Principle of CNC	machines, C	AD-	CAM	system,	toler	ances	fitti	ngs,	function	onal and		
-	production-oriented		_				-						
	requirements to the r	nanufacturing	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	Total	tal CW O/P FE 30 20 50 30% 20% 50% actor circuits and basic circuits with circuits and Bode	FE	Total				
ECE201	Floatronia Circuita	EDE101	2	2	2	1	_	30	20	50	100			
ECE201	Electronic Circuits	EFEIUI	3	4	4	1	5	30%	20%	50%	100%			
Catogary		Compulsory (MR)												
	Controlled sources, graphical network analysis, semiconductor circuits and operation													
Topics	points, low level sig	nal description	ons a	nd eq	uivalent o	circui	ts, bas	sic cir	cuits	with F	FETs and			
Topics	Electronic Circuits	diagram,												
		sinks.												

Code	Course Title	Prerequisite		С	ontact hor	urs			N	Marks	
Code	Course Title	rielequisite	Cr	Lec	Tutorial	Lab	Total	CW	O/P	FE	Total
MPE201	Aerodynamics	MPE101	3	2	2	1	_	30	20	50	100
MIPE201	Aerodynamics	MIPEIUI	3	4	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 e-dimensional	teo odyi flov	chnolo namic w wit	ogies, hy s and o h friction	drost comp and	atics, ressib	cons le fl	servat ow,o	tion 6 ne-din	equations nensional

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Faculty elective (1)

Junior LE	Junior LEVEL 200 COURSES												
Code	Course Title	Duomoguisito		(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			•	-	2	50%	-	50%	100%		
Catogary			Fa	culty 1	Elective (Fl	R)							
Objective	Competence to plan	, lead and su	cces	sfully	close pro	jects							
Topics	Project managemen models, human reson	*		1 3	ects, time	etable	e, cos	t plai	nning	, man	agement		

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							50%	-	50%	100%
Catogary			Fa	culty]	Elective (Fl	R)					
Objective	 To understand defiresearch. To understand diffe assignment model, models & inventory Formulate simple representations and interest and interest are simple. 	rent applicati sequencing models. reasoning, methods prese	on armode	reas o ls, dy ing a	f operation rnamic pro	ns resogram	earch laming,	like tr game oblems	anspo theo	rtation ry, rep terms	problem, placement
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 F CPM and P	Deg Qualition a	genera ty. Th and a	acy and cone dual single	yclin mplez t pro	g. Ar k metl blems	tificia nod. . Gan	l var Sensi ne th	iables. tivity eory.	. Further analysis. Network

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Junior I E	Junior LEVEL 200 COURSES													
	/ V I				(Contact hou	ırs			I	Marks			
Code		Course Title	Prerequisite	Cr	Lec	Tutorial		Total	CW	O/P	FE	Total		
		Environmental							50	•	50	100		
ENE202	_	Evaluation of	None	2	2	-	-	2	50%	_	50%	100%		
	E	ngineering Projects							2070		2070	10070		
Catogary				Fa	culty 1	Elective (Fl	R)							
	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.												
	•	Understand a br	oad range of	pro	ject t	ypes of re	elevar	ice to	Civil	and	Enviro	onmental		
		Engineering and	related field	s.										
	•	Understand some	e ways in wh	ich p	rojec	t perform	ance	can be	e meas	sured	and ir	nproved.		
	•	Understand the r	ole of uncert	ainty	in pi	oject eval	luatio	n.				•		
	•	Do an end-to-end		•	-	J								
	Tł					aluating e	ngine	ering	proje	cts, v	which	typically		
	This course covers methodologies for evaluating engineering projects, which typically are large-scale, long-lived projects involving many economic, financial, social, and													
Topics		vironmental facto				_	-							
		cluding net preser					-		_		_			
		proaches to projec		-		•	رن				•			

Elective (2) Humanities

	Junior LEVEL 200 COURSES												
Codo	Course Title	Droroguioito		С	ontact hou	urs			N	Marks			
Code	Course Title	Prerequisite	Cr	Lec	Tutorial	Lab	Total	CW	O/P	FE	Total		
HUM 201	Introductory Mass	None	2	2			2	50	-	50	100		
HOW ZOT	Communication	Communication None 2 2 - - 2 50% - 50% 10											
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 LEV	VEL	200	COURSE	S							
Code	Course Title	Prerequisite		С	ontact ho	urs			N	Marks			
Code	Course ritte	Frerequisite	Cr	Lec	Tutorial	Lab	Total	CW	O/P	FE	Total		
HUM 202	Introductory	None	2	2	_	_	2	50	-	50	100		
HOW 202	Sociology	Sociology											
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	topics in		
	Community - Social relations - primary and secondary groups - Models .of topics in Sociology - the sociologist - Social control - Planning and development - Research												
	curricula and tools in	arricula and tools in Sociology - Surveys in Sociology.											

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	Junior LEVEL 200 COURSES													
Codo	Course Title	Droroguioito		С	ontact ho	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	Γο learn bases and nature of the Ancient Egyptian history.												
	Earth: natural resourc	es and wealth	1 - b	ases a	nd nature	of th	e Egy	ptian	histo	ry - St	one ages			
Topics	(ancient, medieval an	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	medieval age - the second medieval age - modern state - the third medieval age - the late periods of independence.													

	Junior LEVEL 200 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		
HUM 204	Introductory	None	2	2	_		2	50	-	50	100		
HUW 204	Psychology None 2 2 2							50%	-	50%	100%		
Catogary	University elective (2) (UR)												
Objective	To learn the basic cor	ncepts of psyc	cholo	ogy.									
Topics	Nature of psychology - motives - emotions - attitudes depression, and personal stress - conscientiousness and psychotherapy - recall and forgetfulness.												

LEVEL (200) Semester 6

Code	Course Title	Prerequisite		С	ontact hou	urs			N	/larks								
Code	Course Title	Frerequisite	Cr	Lec	Tutorial	Lab	Total	CW	O/P	FE	Total							
DDF 211	Aero-Spacecraft Structure Design 1	MPE 101	3	2	•	1	_	30	20	50	100							
DFE 211	Structure Design 1	MIFE 101	3	4	4	1	3	30%	20%	50%	100%							
Catogary		Compulsory (MR)																
	Concepts of displacement, strain, stress, compatibility, equilibrium, and constitut																	
Tonico	equations as used in solid mechanics. Emphasis is on h										equations as used in solid mechanics. Emphasis is on boundary-value problen							problem
	formulation via sim																	
	solving problems in	•																

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 209	Space Environment	None	2	2	2	1	_	30	20	50	100		
DPE 209	Space Environment	None	3	<u> </u>	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	planetary magnetosphere, ionospheres and upper atmospheres. Atmospheric processes,											
	densities, temperatures, and wind.												

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Faculty of Engineering

Code	Course Title	Droroguicito		С	ontact ho	urs			N	/larks			
Code	Course Title	Prerequisite	Cr	Lec	Tutorial	Lab	Total	CW	O/P	FE	Total		
DPE 212	Orbits and Flight	MPE 101	2	2	1	1	4	30	20	50	100		
DFE 212	Trajectory	WIFE IOI	4	2	1	1	4	30%	20%	50%	100%		
Catogary	Compulsory (MR) ntroduction to space flight mechanics. The two-body problem. Orbital transfers,												
Topics	Introduction to spa maneuvers and orb assist trajectories. S equations. Stability thrusters and react Spacecraft orbit a equations for near control problems.	ital analysis. Spacecraft at analysis. Op tion wheels. nd attitude	Greatitud en le Int rep	ound le and oop a trodud resent	tracks and rotation titude continuous to attion to attions, k	d rel al dy ntrol space sinem	ative ynami mome ecraft atics,	motices. Eventum entum dyna dyna	on in uler's man amics amics	orbit. and l ageme and . Per	Gravity Poisson's ent using control. turbation		

Code	Course Title	Prerequisite		С	ontact hou	urs			N	/larks			
Code	Course ritte	Frerequisite	Cr	Lec	Tutorial	Lab	Total	CW	O/P	FE	Total		
	Mechanical	EMP101	3	2	2 2 1 5 30 20 50								
DPE203	Vibrations	ENIFIUI	3	<u> </u>	4	1	5	30%	20%	50%	100%		
Catogary	Compulsory (MR)												
Topics	Vibration motion - F vibrations — Vibrati degree of freedom Properties of vibratin 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 nanica	appli otion	cation – Ti	ns – ransie	two a nt vit	nd Multi oration –		

Code	Course Title	Prerequisite		С	ontact hou	urs			I	/larks		
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				30%	20%	50%	100%					
Catogary	Compulsory (MR)											
	ntroductory level. Finite element solutions for structural dynamics and nonlinear											
Tonico	problems. Normal	modes, for	ced	vibra	itions, Ei	uler	buckli	ing (bifur	cations	s), large	
Topics	deflections, nonlinea	r elasticity, t	rans	ient h	eat condu	ction	. Com	puter	labor	atory	based on	
	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	rierequisite	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		Compulsory (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	ne the	ory, pane	el me	nethod/interacting boundary						
	methods supersonic	and hyper	son	ic ai	rfoil theo	ory. S	Super	sonic	effe	cts. I	Linearized		
	compressible flow. V	Ving-body co	ombi	inatio	ns. Comp	utatio	nal m	ethod	s.				

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Engineering Elective (1)

				С	ontact hou	urs			N	Marks			
Code	Course Title	Prerequisite	Cr	Lec	Tutorial	Lab	Total	CW	O/P	FE	Total		
	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	tes. I	Nonlir	near theory of generally					
Topics													
	moderately large de	moderately large deflections. Post-buckling and nonlinear vibration of laminated 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	30 20 50 30% 20% 50% e phase) solids e laws based nethods, homog	Total			
	Mechanics of							30	20	50	100		
DPE206	Composite and Micro structured Media	DPE102	٣	2	1	2	5	30%	20%	50%	100%		
Catogary		Engineering Elective (1) (MR)											
	An introduction to	the mechanic	es of	com	posite (m	ore t	han o	ne pł	nase)	solids	with an		
	emphasis on the	derivation of	of n	nacros	scopically	con	stituti	ve la	aws	based	on the		
Topics	microstructure. Eshe	nicrostructure. Eshelby transformation theory, self consistent methods, homogenization											
	theory for periodic	riodic media, bounding properties for effective modules of composites.											
	Applications of aero	space interes	t.										

Code	Course Title	Prerequisite		С	ontact hou	urs			ľ	/larks	
Code	Course Title	Frerequisite	Cr	Lec	Tutorial	Lab	Total	CW	O/P	FE	Total
DPE207	Analysis of Plates	DPE102	۲	2	1	•	5	30	20	50	100
DPE207	and Shells	DPE102	1	2	1	2	3	30%	20%	50%	100%
Catogary		En	gine	ering	Elective (1) (MF	?)				
Topics	This course explored relations for plate a nonlinear geometric and typical stiffened and axisymmetric slawith application to cound explosive and interm.	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 for eory of of cy orthin	angula ormed of elas lindric ess of	r plates; sections tic shells cal shells vehicles

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Code	Course Title Pro	Prerequisite		С	ontact hou	urs			N	/larks	
Code	Course Title	Frerequisite	Cr	Lec	Tutorial	Lab	Total	CW	O/P	FE	Total
DDE208	Failure Analysis	DPE102	ł	2	1	2	_	30	20	50	100
DFE206	i allule Allalysis		,	_	1		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 a and mechanisms inv	ned to cover s such as f approaches s in overload aim of this co	the fatiguing in the fa	followne, we failure gue, to is to	ving subjector, correct analysis impact an provide §	ects: u osion s; me	inders , cree etallog ep fai	p and raphic lures	d oth c and will b	er me l fract pe disc	echanical cographic cussed in

LEVEL (300) Semester 7

Senior 1 LEVEL 300 COURSES

Code	Course Title	Prerequisite		С	ontact hou	urs			ľ	Marks				
Code	Course Title	Frerequisite	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			
MIFE 301	Propulsion systems	DF E 203	4	<u> </u>	1	-	3	50%	-	50%	100%			
Catogary		Compulsory (MR)												
	Airbreathing propulsion, rocket propulsion and an introduction to modern advanced propulsion concepts. Includes thermodynamic cycles as related to propulsion and the													
lopics	chemistry and therm other air-breathing p	odynamics o	f co	mbust	•									

]	Course Title	Prerequisite		С	ontact hou	urs			N	/larks				
Code	Course Title	rierequisite	Cr	Lec	Tutorial	Lab	Total	tal CW O/P FE 30 20 50 30% 20% 50% Internal forces and internal f	FE	Total				
DDE 202	Aero-Spacecraft	DDE 202	3	2	•	1	7	30	20	50	100			
DPE 302	Structure Design 2	DPE 203	3	4	2	$ \begin{array}{c c c c c c c c c c c c c c c c c c c $	50%	100%						
Catogary		Compulsory (MR)												
	Modeling of one d	ninin	g inte	rnal	forces	and	stresses.							
Topics	Modeling of two d	imensional e	Compulsory (MR) nensional element, for determining internal forces and streamsional elements, for determining internal forces and streamsional elements.	stresses.										
Topics	Modeling of two dimensional elements, for determining internal forces and some Modeling of three dimensional elements, for determining internal forces and some Modeling of three dimensional elements, for determining internal forces and some Modeling of three dimensional elements, for determining internal forces and some Modeling of three dimensional elements, for determining internal forces and some Modeling of three dimensional elements, for determining internal forces and some Modeling of three dimensional elements, for determining internal forces and some Modeling of three dimensional elements, for determining internal forces and some Modeling of three dimensional elements, for determining internal forces and some Modeling of three dimensional elements, for determining internal forces and some Modeling of three dimensional elements, for determining internal forces and some Modeling of three dimensional elements, for determining internal forces and some Modeling of three dimensional elements, for determining internal forces and some Modeling of three dimensional elements, for determining internal forces and some Modeling of three dimensional elements, for determining internal forces and some Modeling of three dimensional elements, for determining internal forces and some Modeling of three dimensional elements.	stresses.												
	With applications on	Structural M	Iecha	anics,	Fluid Me	chani	ics and	l The	rmal A	Applic	ations.			

Catogary I	Course Title	Prerequisite		С	ontact hou	urs			N	/larks	
Code	Course Title	rierequisite	Cr	Lec	Tutorial	Lab	Total	CW	O/P	FE	Total
DDF201	Stability and Control	DPE203	3	2	2	1	_	30	20	50	100
DFESUI	Stability and Control	DF E203	3	4	4	1	3	30%	20%	50%	100%
Catogary			С	ompu	Isory (MR)					
Topics	Introduction to the Spacecraft orbit an equations for near ciproblems - equation control systems by stability test) - root l	d attitude in a triude in a tr	repre - Spa adina an	esenta acecra al and d trar	tions: kin aft maneuv l 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 s control discrete (Routh

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Code	Course Title	Prerequisite		С	ontact hou	urs			ľ	Marks		
Code	Course Title	Frerequisite	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	<i>_</i>	1	4	-	3	50%	-	50%	100%	
Catogary		Compulsory (FR)										
	Elementary econom	y analysis, I	Linea	ır pro	gramming	g, Ra	te of	returi	n, Re	placen	nent and	
Topics	maintenance analysi	•		-	-					-		
_	decision, Project man		ŕ			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	3	2	2	1	5	50	-	50	100		
DPE 303	Space Mission Design	DPE 203	3	<u> </u>	2 1 2 1 g Elective (2) (MR)	5	50%	-	50%	100%			
Catogary		Engineering Elective (2) (MR)											
	Mission characteriz requirements, Mission									y, Sul	bsystems		

Code	Course Title Prerequis	Droroguisito		С	ontact hou	ırs			N	/larks			
Code	Course Title	Frerequisite	Cr	Lec	Tutorial	Lab	Total	CW	O/P	FE	Total		
MDE 204	Helicopter Dynamics	MPE202	2	•	2	1	1	30	20	50	100		
MPE 304	Hencopter Dynamics	MPE202	3	2	L	I	3	30%	20%	50%	100%		
Catogary		Engineering Elective (2) (MR)											
	Space Dynamics, Dynamics of Rigid Bodies, Two Body Problem, Orbit Determination,												
								CW O/P FE 30 20 50 30% 20% 50% em, Orbit Determnation in Space, Stabilization with					
Topics	and Gyroscopes, At	titude Contro	ol, T	hrust	er Contro	ol, At	titude	Stab	CW O/P FE 30 20 50 30% 20% 50% m, Orbit Determation in Space, Stabilization wit	ith Spin,			
	Control with Momer	tum Wheel,	Cont	trol of	Translati	onal	5 30 20 50 30% 20% 50% PR) y Problem, Orbit Determination in Space, Sattitude Stabilization with	•					

Code	Course Title Pr	Prerequisite		С	ontact hou	urs			N	/larks				
Code	Course Title	Frerequisite	Cr	Lec	Tutorial	Lab	Total	CW	O/P	FE	Total			
MDE 205	Helicopter Aerodynamics	MPE202	3	2	•	1	_	30	20	50	100			
MIFE 303	Aerodynamics	WIF E2U2	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					eory and								
Topics	vertical flight perform	mance analys	sis. A	uto-r	otation, pl	hysic	al con	cepts	of bla	ade mo	otion and			
Topics	control, aerodynami	cs and perf	orma	ance	of forwar	rd fli	ght. I	Blade	stall	, stab	ility and			
	vibration problems. 1	Design proble	ems				Total CW O/P FE 5 30 20 50 30% 20% 50% 50% 50%							

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Code	Course Title	Prerequisite		С	ontact hou	urs		Marks						
Code	Course Title	Frerequisite	Cr	Lec	Tutorial	Lab	Total	CW	CW O/P FE 30 20 50 30% 20% 50% emphasizing the course will include	FE	Total			
MDE 206	Unmanned Air Vehicles	MDE202	3	2	2	1	5	30	20	50	100			
MIPE 300	Vehicles	MPE202	3	2	<u> </u>	1	5	30%	20%	50%	100%			
Catogary		Engineering Elective (2) (MR)												
	This course is a sur	ns (U	JAS), emphasizing the military											
	and commercial hist	ory, growth,	and	applie	cation of	UAS	s. The	cours	se wil	ll inclu	ide basic			
Topics and commercial history, growth, and application of UASs. The course will include acquisition, use, and operation of UASs with an emphasis on operations. Proof.														
	citizenshin is required													

Engineering Elective (3)

Code	Course Title	Prerequisite		С		ntact hours Tutorial Lab			N	/larks	
Code	Course Title	Frerequisite	Cr	Lec	Tutorial	Lab	Total	CW	O/P	FE	Total
DDE 207	Satellite Technology	DPE 203	3	2	2	1	_	30	20	50	100
DPE 307	Satemite Technology	DPE 203	3	<u> </u>	4	1	5	30%	20%	50%	100%
Catogary		En	gine	ering	Elective (3	3) (MF	₹)				
	Spacecraft payload,	spacecraft	pay	load	design a	nd s	sizing,	Spa	cecra	ft sub	systems,
_	Spacecraft manufact	turing and re	eliab	ility,	Spacecraf	t tes	ting n	nethoo	dolog	ies, S	pacecraft
	cost modeling,										

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 200	Aerodynamics of V/STOL	MPE202	3	2	2	1	5	30	20	50	100	
MIPE 308	V/STOL	WIPE2U2	3	<u> </u>	4	1	5	30%	20%	50%	100%	
Catogary		En	gine	ering	Elective (3	3) (MF	₹)					
	Two- and three-dim	nensional pot	enti	al flo	w about v	wings	and	bodie	s; co	mplex	-variable	
	methods; singularity distributions; numerical solution using panel methods. Unsteady											
Topics	aerodynamics; slene	der-body the	eory.	Viso	cous effec	cts: a	airfoil	pil stall, high-lift system				
	boundary-layer cont	•	•						_		•	
	methods.	C					1		1	,		

Codo	Course Title	Droroguioito		С	ontact ho	urs			N	/larks			
Code	Course Title	Prerequisite	Cr	Lec	Tutorial	Lab	Total	CW	O/P	FE	Total		
MDF 200	Instruments of	MPE202	3	2	2	1	5	30	20	50	100		
WIFE 309	Instruments of Helicopters	NIFE2U2	3	<u> </u>	4	1	3	30%	20%	50%	100%		
Catogary		En	gine	ering	Elective (3	3) (MF	₹)						
	This course will examine helicopter instrument flying in the National Airspace System												
	pelow 18,000 feet. Topics to be covered include Federal Aviation Regulations,												
	helicopter performance for instrument flight, instrument approach procedures, weather												
Topics	related to instrume	ent flying,	en 1	oute	navigatio	on, a	nd th	e ele	ment	s of	resource		
	management. By th	ne end of th	e co	ourse,	the stud	ent v	vill ha	ave n	net th	e aero	onautical		
	knowledge requirer	nents to tak	e th	e FA	A Instru	ment,	Rote	orcraf	t-Heli	copte	r written		
	knowledge test.												

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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	2	1	5	30	20	50	100		
MIPE 310	Engines	WIPE2U2	3	2	2	1	5	30%	20%	50%	100%		
Catogary		Engineering Elective (3) (MR)											
	Reciprocating ICEs: Theoretical Air and Gas Cycles, Fuels for ICE, Admission and												
	Compression, Combustion Process in ICE, Combustion Knock and Knock Rating,												
Topics	Expansion and Exha	ust, Power O	utpu	ıt, Suj	perchargin	ig. He	eat Lo	ss Th	rough	Cylin	ders 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 ho	urs			M	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	None	2	2	-	-	_	50%	-	50%	100%	
Catogary		University elective (3) (UR)										
Objective	To learn about Scienti	ific Research	Me	thods								
	Setting up, developme	ent and meth	ods	of sci	entific thi	nking	- Sci	entific	c Res	earch	curricula	
Topics	and tools - Selecting	tools - Selecting and developing topics - deducing results - Methods of gathering and										
	presenting data - meth	-	_	-		_				C	J	

		Senior 1 LE	VE	L 300	COURS	ES							
Code	Course Title	Prerequisite		С	ontact ho	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	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 p	orogram.		
Tonico	The guest speaker sho	ne guest speaker should discuss the organization, management, and recent technologies											
Topics	implemented in his/he	er industrial	estal	olishn	nent. Stud	lents	exerci	se wr	iting	brief t	technical		
	reports on the guest pr								_				

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		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		
HUM 304	Introductory	None	2	2			2	50	•	50	100		
HOW 304	Industrial Psychology	None	4	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	n pra	ctical	life -	Bases of		
	human behaviour and	motives - c	onsc	ientic	usness, le	arnir	ng. and	d reca	ıll - iı	ntellige	ence and		
	thinking - harmony i	n personality	7 - A	Apply	ing princi	ples	of Ps	vchol	ogy i	n the	fields of		
Topics	Industrial Psychology												
	Analyzing work - Sel	_											
	- Group interaction wi	_					<i>3</i> ···						

		Senior 1 LE	VE	L 300	COURS	ES							
Code	Course Title	Proroquisito		С	ontact ho	urs			N	Marks			
Code	Course Title	Title Prerequisite Cr Lec Story None 2 2 University el Introduction of Industrial Sociole the social structure - levels of the social structure - levels of the social systems of industrialization in the design to face the industrialization of ganizations and its suitability e relation 'between industrialization'	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	lective (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 industry	rialization i	n th	e de	veloping	cour	ntries	- th	e ne	cessar	y social		
Topics	requirements to face	the industria	aliza	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	ie dev	elopi	ng co	untries -		
	analyzing the relation	'between in	idust	rializ	ation and	the s	social	syste	ms -	Analy	zing the		
	relation between indu	strialization a	and t	he url	ban devel	opme	nt in I	Egypt.					

LEVEL (300) Semester 8

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

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Code	Course Title	ourse Title Prerequisite		Co	ntact ho	urs		Marks				
Code	Course ritte	Frerequisite	Cr	Lec	Tutorial	Lab	Total	CW	O/P	FE	Total	
	Computer Aided	DPE 203&			_		_	30	20	50	100	
DPE 312	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	erfor	ming Mo	odal .	Analy	sis an	d De	termin	ation of	
Topics	Vibration Modes of	f: one dimen	siona	al ele	ment, tw	o di	mensi	onal	eleme	ents a	nd three	
	dimensional element	ts.										

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

Code	Course Title	Prerequisite		С	ontact ho	urs			N	/larks	
Code	Course Title	rierequisite	Cr	Lec	Tutorial	Lab	Total	CW	O/P	FE	Total
MDE201	Heat Tuenefor	MDE101	2	2	1	1	4	30	20	50	100
MIPESUI	Heat Transfer	MPE101	2	<u> </u>	1	1	4	30%	20%	50%	100%
Catogary					Isory (MR		-				
Topics	Introduction and fur conduction – Unste conduction eat trans transfer with change and diffusion mass to Lab: Determination radiation heat transfer	ady heat cor fer and appli of phase. Me ansfer and application	nduc catio Iulti oplic	tion - ons. F mode ation	- Radiation Free and free heat transfer Free heat transfer	on he orced ansfei	eat tra l conv r. Hea	nsfer ectior t excl	– Tv n heat nange	vo-dim trans rs. Co	nensional fer. Heat onvection

Engineering Elective (4)

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 314	Theory of Control	DPE301	3	2	2	1	5	30	20	50	100
DFE 314	Theory of Control	DPESUI	ว	4	4	1	3	30%	20%	50%	100%
Catogary		En	gine	ering	Elective (4	4) (MF	₹)				
	Concepts of linear s	•	-						•		
	frequency response.	Fundamenta	ls of	feed	back conti	rol, ir	ıcludi	ng roo	ot loc	us and	l Nyquist
	analysis applied to	flight contro	l. Re	eview	of single	vari	able s	ystem	is and	l exte	nsions to
Topics	multivariable syster	ns. Purpose	of fe	eedba	ck. Sensit	tivity	, robu	stness	s, and	desig	gn trade-
	offs. Design formu	lations using	bot	h fre	quency do	omaiı	n and	state	spac	e desc	criptions.
	Pole placement/obs	erver design	ı. L	inear	quadratic	Gar	ussian	base	ed de	sign	methods.
	Design problems un	ique to multi	varia	able s	ystems.						

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Code	Course Title	Prerequisite		С	ontact hou	ırs			N	/larks				
Code	Course Title	Frerequisite	Cr	Lec	Tutorial	Lab	Total	CW	O/P	FE	Total			
MDE 215	High Speed Aerodynamics	MDE 201	3	2 2		1	5	30	20	50	100			
MIPE 315		5	30%	20%	50%	100%								
Catogary		Engineering Elective (4) (MR)												
	Contemporary aerodynamic analysis and design of aerospace vehicles and other systems.													
Tanica	Topics include: review of theoretical concepts and methods, computer-based CFD tools,													
Topics	experimental methods and wind tunnel testing. Case studies are discussed to illustrate the													
	combined use of advanced aerodynamic design methods. A team project is required.													

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 216	Basic Navigation Systems	DPE301	2	2	2	1	5	30	20	50	100			
MIPE 310	Systems	DPESUI	3	<u> </u>	4	1	5	30%	20%	50%	100%			
Catogary		Engineering Elective (4) (MR) roduction to navigation for Aeronautical Science. The course content includes aircraft												
Topics	Introduction to navi instruments and sy methods, application navigation information	gation for Ac stems theory n of electroni tion sources	erona , air ic na and	autica craft vigati d pla	l Science. performation system nning pro-	The nce, as, pr	course naviga ecision	ation n fligl	theor	y and itrol p	solution inciples,			

Code	Course Title	Prerequisite		С	ontact ho	urs			N	Marks	
Code	Course Title	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
MIFE 317	Solar Ellergy	DIE (13	3	4	4	1	3	30%	20%	50%	100%
Catogary		En	gine	ering	Elective (4	4) (MI	₹)				
Topics	Primary alternative energy storage. A thermodynamics of gasses, wind energy solar cells and direc stationary or a vehicle stationary or vehicle	availability compressible conversion ct energy concert.des	and flow sol	the w, the ar phicon. I	evaluation rmodynar otovoltaic Design and	on conic post and dopt	of the owers solar imizat	ermod systen therr tion a	ynam ns, mi nal e powe	nic priixtures nergy er syst	roperties, s of ideal systems, tem for a

Engineering Elective (5)

Code	Course Title	Prerequisite		С	ontact ho	urs			N	/larks		
Code	Course rille	rierequisite	Cr	Lec	Tutorial	Lab	Total	CW	O/P FE 20 50 20% 50%	Total		
DDE 210	Structure Testing	DPE ٣٠٧	2	2	2	1	_	30	20	50	100	
DPE 318	Structure resumg	DPE	3	<u> </u>	4	1	5	30%	20%	50%	100%	
Catogary		Engineering Elective (5) (MR)										
	Engineering Data -	Manufacture	of I	High-l	Reliability	/ Har	dware	- Ins	pection	on and	Quality	
Engineering Data - Manufacture of High-Reliability Hardware - Inspection and Cartesian Assurance - The Qualification Program - Spacecraft Qualification Test Flow - Inspection and Cartesian - Topics										Launch		
	Site Operations.											

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Codo	Course Title	Prerequisite		С	ontact hou	urs			N	/larks				
	Course Title	Frerequisite	Cr	Lec	Tutorial	Lab	Total	CW	O/P	FE	Total			
MDE 210	Aironaft Instruments	DPE301	3	2	2	1	5	30	20	50	100			
MIPE 319	Afferant mistruments	DPESUI	3	<u> </u>	<u> </u>	1	5	30%	20%	50%	100%			
Catogary		Engineering Elective (5) (MR)												
	O	easuring Instruments: Pressure, Temperature, Airspeed, Altitude. Control Systems and												
Topics	Instruments of Control Surfaces, Fuel Control System, Hydraulic Control System,													
	Electric Power Syste	m, Safety Sy	stem	ıs: Ap	proach W	'arnir	ıg, Wi	nd-Sh	iear V	Varnin	g.			

Codo	Course Title	Prerequisite		С	ontact hou	urs			N	/larks			
Topics I	Course Title	Frerequisite	Cr	Lec	Tutorial	Lab	Total	CW	O/P	FE	Total		
MDE 220	Boundary Layer	DPE 316	3	2	2	1	5	30	20	50	100		
NIFE 320	Theory	DPE 310	3	4	4	1	3	30%	20%	50%	100%		
Catogary		Engineering Elective (5) (MR)											
	Laminar and Turbulent Boundary Layers, Governing Differential and Integral Equations.												
	Exact and Approximate Solutions of Boundary-Layer Equations without and with												
Topics	Pressure Gradients.	Boundary La	yers	with	Heat/Mas	s Tra	nsfer.	Wak	es an	d Jets.	Friction		
	Drag Calculation. (Compressible	Bo	undar	y-Layer F	Flow.	Shoc	k Wa	ave-B	ounda	ry Layer		
	Drag Calculation. Compressible Boundary-Layer Flow. Shock Wave-Boundary Layer Interaction. Boundary Layer Control.												

Code	Course Title	Prerequisite		С	ontact ho	urs			N	/larks		
Code	Course Title	rierequisite	Cr	Lec	Tutorial	Lab	Total	CW	O/P	FE	Total	
MDE 221	Aircraft Systems and Components	DPE301	3	2	2	1	_	30	20	50	100	
WIF E 321	Components	DFESUI	3	4	4	1	3	30%	20%	50%	100%	
Catogary		Engineering Elective (5) (MR)										
	Navigational Syste	ms, Integra	ited	Nav	igation	Syste	m, A	Appro	ach	and	Landing	
Topics	Systems, Control Sy	Systems, Control Systems, Fuel Control System, Hydraulic Control System, Electric										
	Power System, Safet	ower System, Safety Systems: Approach Warning, Wind-Shear Warning.										

LEVEL (400) Semester 9

Senior 2 LEVEL 400 COURSES

Code	Course Title	Prerequisite		С	ontact ho	urs			N	larks	
Code	Course Title	Prerequisite	Cr	Lec	Tutorial	Lab	t 50 50 - 50% 50% - repeatable for credit project in a faculty guidance of a facult ased learning opportunity.	FE	Total		
	Graduation Project	CSE001+						50	50	-	100
MPE 401	(1)	Completed 1 ⁷ 0 CH	۲	١	I	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 men	ulty research ct independe ovides stude ve 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 l	ect in ice of earnii	a fac a fa ng op	culty r culty oportu	nember's member. nity and

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Code	Course Title	Prerequisite		С	ontact hou	urs			N	/larks				
Code	Course rille	Frerequisite	Cr	Lec	Tutorial	Lab	Total	CW	O/P	FE	Total			
MDE 402	Flight Mechanics and Control	DPE 212	3	2	2	1	5	30	20	50	100			
MIPE 402	Control	DPE 212	12 3		<u> </u>	1	5	30%	20%	50%	100%			
Catogary		Compulsory (MR)												
	The analysis, characterization and determination of space trajectories from a dynamical													
	systems viewpoint. The general formulation and solution of the spacecraft trajectory													
Topics	design and navigation problems. Computation of periodic orbits and their stability.													
	Estimation of model parameters from spacecraft tracking data (e.g., gravity field													
	estimation). Element	s of precision	n mo	delin	g and prec	cision	orbit	deter	minat	ion.	-			

Code	Course Title	Prerequisite		С	ontact hou	urs			N	/larks				
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	4	1	4	<u> </u>	5	30%	20%	50%	100%			
Catogary		Compulsory (MR)												
	Introduction to matrix operations using MATLAB/MAT_SAP - Modeling and analysis of													
	lumped physical systems - static and dynamic response of electrical, mechanical, thermal													
Topics	and hydraulic elements, systems and transducers - Laplace transforms, transfer functions,													
	frequency response - mixed systems - use of state space and matrix methods in systems													
	modeling and analysis.													

Code	Course Title	Prerequisite		C	ontact hou	urs			ľ	Marks			
Code	Course Title	rierequisite	Cr	Lec	Tutorial	Lab	Total	CW	O/P	FE	Total		
MPE40 ٤	Design of Turbo	MPE202	Ų	2	1		w	50	-	50	100		
WII E-402	machines	NIF E2U2	/IF E2U2	4	1	-	,	50%	-	50%	100%		
Catogary		Compulsory (FR)											
	Characteristics of Wind Energy Resources. Aerodynamics of Horizontal-Axis Wind												
Topics	Turbines: Blade Element-Momentum Theory, Vortex-Wake Analysis. Aerodynamics of												
Topics	High Speed Vertic	High Speed Vertical-Axis Wind Turbines. Engineering Design of Wind Energy											
	Conversion Systems: Wind Generators, Wind Pumps.												

Engineering Elective (6)

Code	Course Title Prerequ	Proroquisito		С	ontact hou	urs			N	/larks			
Code	Course Title	rierequisite	Cr	Lec	Tutorial	Lab	Total	CW	O/P	FE	Total		
DPE 40 7	Nonlinear Systems and	DPE 314	2	2	2	1	_	30	20	50	100		
DI E 40 (Control		3	2	<u> </u>	1	5	30%	20%	50%	100%		
Catogary		Engineering Elective (6) (MR)											
	Introduction to the analysis and design of nonlinear systems and nonlinear control												
Topics	systems. Stability analysis using Liapunov, input-output and asymptotic methods. Design												
Topics	of stabilizing controllers using a variety of methods: linearization, absolute stability												
	theory, vibrational co	heory, vibrational control, sliding modes and feedback linearization.											

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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	
DDE 40	Analysis and	DDE 444	2		•		_	30	20	50	100	
DPE 40 Y	Optimization of Airplane Performance	DPE 312	3	2	2	1	5	30%	20%	50%	100%	
Catogary		Engineering Elective (6) (MR)										
	Review of Aerodyna	Review of Aerodynamic Foundations. Basic Flight Theory. Drag Equations. Climbing										
Tanica	Performance. Review of Power-Plant Characteristics. Take-off and Landing Performance										ormance.	
Topics	Fuel Consumption, Transonic and Super	_	En	duran	ce. Turni	ng F	Perfori	nance	e. Ve	ctored	Thrust.	

Code	Course Title	Prerequisite		С	ontact hou					/larks			
Code	Course Title	Frerequisite	Cr	Lec	Tutorial	Lab	Total	CW	O/P	FE	Total		
DPE 40 A	Aeroelasticity	DPE 316	3	2	2	1	5	30	20	50	100		
DI E 40A	Aeroeiasucity	DFE 310	3	4	4	1	5	30%	20%	50%	100%		
Catogary	Engineering Elective (6) (MR)												
		atroduction to aeroelasticity. Vibration and flutter of elastic bodies exposed to fluid flow.											
Topics	Static divergence an	nd flutter of	airp	lane	wings. Fl	utter	of fla	ıt pla	tes a	nd thi	n walled		
	cylinders at supersor	nic speeds. O	scilla	tions	of structu	ires d	ue to	vortex	shed	lding.			

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 40	Design of Rocket	NADE 311	•		•	1	_	30	20	50	100	
MPE 409	Engine	MPE 311	3	2	2	1	5	30%	20%	50%	100%	
Catogary		Engineering Elective (6) (MR)										
Topics	heat transfer, system	Analysis of liquid and solid propellant rocket power plants; propellant thermo chemistry, eat transfer, system considerations. Low-thrust rockets, multi-stage rockets, trajectories in powered flight, electric propulsion.										

Engineering Elective (7)

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 4\ \ \	Spacecraft Control	DPE 314	3	2	2	1	5	30	20	50	100
DIETI	Spacecraft Control	DFE 314	3	<i>_</i>	4	1	3	30%	20%	50%	100%
Catogary		En	gine	ering	Elective (7	') (MF	₹)				
	Formulation and sol	lution of opti	imiz	ation	problems	for a	atmos	pheric	fligh	nt vehi	icles and
	space flight vehicle	es. Optimalit	ty c	riteria	, constrai	ints,	vehic	le dy	nami	cs. Fl	ight and
	trajectory optimizati										
	optimal control. Alg	-				-	_				
	problems.										

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Code	Course Title	Prerequisite		С	ontact hou	urs			N	Marks			
Code	Course ritte	Prerequisite	Cr	Lec	Tutorial	Lab	Total	CW	O/P	FE	Total		
MPE 4\0	Computational	DPE 316	3	2	2	1	5	30	20	50	100		
WII IL 4 18	Aerodynamics	DFE 310	3	2	2	1	5	30%	20%	50%	100%		
Catogary	Engineering Elective (7) (MR)												
	Computational methods used in Aerospace engineering, including time integration												
	techniques for ordin	nary differen	tial	equati	ions, finit	e dif	ferenc	es, fi	nite v	volum	es, finite		
	elements, and proba												
	of the underlying n	umerical me	thod	s. Čo	mputer p	rogra	mmin	g in i	Matla	b or a	a similar		
	language is required					-		-					

Code	Course Title	Prerequisite		С	ontact hou	urs			N	/larks		
Code	Course Title	Frerequisite	Cr	Lec	Tutorial	Lab	Total	CW	O/P	FE	Total	
DDF4.5	Missile Control Systems	DPE 31 £	2	2	2	1	5	30	20	50	100	
DIETI	Wissie Control Systems	DPE 313	3	2	4	1	5	30%	20%	50%	100%	
Catogary		Engineering Elective (7) (MR)										
Topics	Transfer Functions fo Stabilization, Rigid M Bank-to-Turn Missile	Missile Cont	rol	Syste	m, Flexib	oility		•			,	

Code	Course Title	Prerequisite		С	ontact hou	urs			N	/larks			
		•	Cr	Lec	Tutorial	Lab	Total	CW	O/P	FE	Total		
MPF 41 _V	Flight Test Techniques	MPE 319	3	2	2	1	_	30	20	50	100		
WILL TO 41 V	Laboratory	MIFE 319	3	<i>_</i>	4	1	5	30%	20%	50%	100%		
Catogary		Engineering Elective (7) (MR)											
	Theory and practice of obtaining flight-test data on performance and stability of airplanes												
T:	from actual flight tests. Modern electronic flight test instrumentation, collection of flight										of flight		
test data, calibration procedures for air data sensors, estimation of stability derivation						erivatives							
	test data, calibration procedures for air data sensors, estimation of stability derivatives from flight test data. Lectures and laboratory.												

LEVEL (400) Semester 10

Code	Course Title P	Prerequisite		С	ontact hou	urs			N	/larks		
Code	Course Title	Frerequisite	Cr	Lec	Tutorial	Lab	Total	CW	O/P	FE	Total	
DPE 4\0	Graduation Project	MPE 401	Ų	١,		ų.	4	50	•	50	100	
	(2)		,	1	_	,	2	50%	•	50%	100%	
Catogary	Compulsory (MR)											
Topics	Continuation of project activities started by MPE 401.											

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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	
DPE 411	Planning and Testing	DPE 31:	2	1	1	2	1	30	20	50	100	
DI E 411	of Space vehicles	DIESI	2 '	•		7	30%	20%	50%	100%		
Catogary		Compulsory (MR)										
	Mechanical testing: static – vibration – shock and acoustic tests, Environmental Effect esting: Thermal cycle test - heat balance test											

Code	Course Title	Prerequisite		С	ontact hou	urs		Marks				
Code	Course ritte	Frerequisite	Cr	Lec	Tutorial	Lab	Total	CW	O/P	FE	Total	
DPE 412	Guidance and	DPE301	2	1	1	2	4	50	-	50	100	
DPE 412	Control	DPESUI	<u> </u>	1	1	4	4	50%	-	50%	100%	
Catogary			С	ompu	Isory (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 the experimental	ers, o o the s pri	estima navi maril	ation theory gation, gu y analytic	ry, ar idanc al anc	nd stoc ce, con d num	chastic trol, a erical	c cont and fl in na	trol the ight mature. I	eory, and echanics Excellent	

Code	Course Title	Prerequisite		С	ontact hou	urs			N	/larks	
Code	Course Title	Frerequisite	Cr	Lec	Tutorial	Lab	Total	CW	O/P	FE	Total
MPE 413	Navigation Systems	DPE301	2	1	1	2	4	30	20	50	100
WIFE 413		DPESUI	2	1	1	4	4	30%	20%	50%	100%
Catogary			С	ompu	Ilsory (MR)					
Topics	Principles of avioning perturbation theory measurements. Recunavigation, ballistimechanization.	Position rsive navigat	on a fixi	ind g ing and K	guidance. and cele (alman filt	Deternation	navi . Purs	gation uit gu	n w	ith r e, pro	edundant portional

Code	Course Title	Prerequisite		С	ontact hou	urs			N	/larks			
Code	Course Title	rierequisite	Cr	Lec	Tutorial	Lab	Total	CW	O/P	FE	Total		
DPE405	Data Analysis and	DPE307&	3	2	1	2	5	30	20	50	100		
212.00	System Identification	DPE308		_	_	_		30%	20%	50%	100%		
Catogary		Compulsory (MR)											
	Methods of data analysis and empirical modeling. Sensors and measureme									ment (concepts.		
	Time and frequency	data analysis	s; sta	tistica	al and spe	ctral	conce	pts. L	inear	regres	ssion and		
Topics	identifications of time	ne-series mo	dels	. Par	ameter es	timat	ion u	sing (optim	izatio	n. Basis-		
	function expansions	and non-lin	ear	time-s	series idei	ntific	ation.	Eiger	n syst	tem re	ealization		
	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 hou			urs		Marks				
		Frerequisite	Cr	Lec	Tutorial	Lab	Total	CW	O/P	FE	Total		
DPE 41 A	Thermal Analysis of	DPE307+	2	2	2	1	5	30	20	50	100		
	Spacecrafts	MPE 308	3	<u> </u>	<u> </u>	1	5	30%	20%	50%	100%		
Catogary	Engineering Elective (8) (MR)												
	Power Sources - Energy Storage - Power Distribution - Power Regulation and Control -												
Tanias	Spacecraft Thermal Environment - Thermal Control Components - The Thermal Design									l Design			
	and Development Process - Thermal Control Challenges - Heat Balance Estimation,												
	Mass, Power, Telemetry Estimates												

Code	Course Title	Prerequisite		С	ontact hou		Marks				
	Course Title	Cr.	Cr	Lec	Tutorial	Lab	Total	CW	O/P	FE	Total
MPE 419	Missile and Projectile	DPE 316	2	2	2	1	5	30	20	50	100
	Aerodynamics		3	4				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.										
•	Effects of Aerody	namic Inter	ferer	nce t	etween	Miss	ile C	ompo	nents	. Tota	al Drag
	Determination and Drag Reduction Techniques. Aerodynamic-Heating Problems.										

Code	Course Title	Prerequisite		С	ontact hou	urs	Marks				
		Frerequisite	Cr	Lec	Tutorial	Lab	Total	CW	O/P	FE	Total
DPE 47.	Spacecraft design	DPE 314	3	2	2	1	5	30	20	50	100
	and analysis	DFE 314	3					30%	20%	50%	100%
Catogary	Engineering Elective (8) (MR))										
	Introduction. Mission Definition and Purposes, Preliminarily Estimation for Mission										
Tonico	Requirement and Restriction. Mission Description and Evaluation. Requirement										
	Definition. Space Mission Engineering. Mission Operation. Restriction on Mission										
	Design. Space Mission Analysis and Design. Execution of Mission.										

Code	Course Title	Prerequisite		С	ontact hou	urs	Marks				
	Course ritte	rierequisite	Cr	Lec	Tutorial	Lab	Total	CW	O/P	FE	Total
DPE 4Y1	Space Systems Engineering	MPE 402	3	2	2	1	5	30	20	50	100
		11112 102						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 -									ystems –	
	communications - budgeting - reliability. Subsequently, students experience the latest									the latest	
Topics	practices in space-systems engineering by forming intomission-component teams 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 public presentation.										

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