

MODULE DESCRIPTION FORM

نموذج وصف المادة الدراسية

| Module Information | | | |
|------------------------------------|---------------|-------------------------------|--|
| معلومات المادة الدراسية | | | |
| Module Title | Mathematics I | | Module Delivery |
| Module Type | Basic | | <input checked="" type="checkbox"/> Theory <input checked="" type="checkbox"/> Lecture <input type="checkbox"/> Lab <input type="checkbox"/> Tutorial <input type="checkbox"/> Practical <input type="checkbox"/> Seminar |
| Module Code | ICE113 | | |
| ECTS Credits | 6 | | |
| SWL (hr/sem) | 150 | | |
| Module Level | 1 | Semester of Delivery | |
| Administering Department | ICE | College | KHW |
| Module Leader | Zinah abbas | e-mail | Zinah.a@kecbu.uobaghdad.edu.iq |
| Module Leader's Acad. Title | lecturer | Module Leader's Qualification | Ph.D. |
| Module Tutor | Nil | e-mail | Nil |
| Peer Reviewer Name | Nil | e-mail | Nil |
| Scientific Committee Approval Date | 06/2023 | Version Number | 1.0 |

| Relation with other Modules | | | |
|-----------------------------------|------|----------|--|
| العلاقة مع المواد الدراسية الأخرى | | | |
| Prerequisite module | None | Semester | |
| Co-requisites module | | Semester | |

Module Aims, Learning Outcomes and Indicative Contents

أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية

| | |
|--|---|
| Module Objectives أهداف المادة الدراسية | 1) Learn mathematical concepts. 2) Select appropriate mathematics when solving problems in both familiar and unfamiliar situations. 3) Apply the selected mathematics successfully when solving problems. 4) Solve problems correctly in a variety of contexts. |
| Module Learning Outcomes مخرجات التعلم للمادة الدراسية | 1) Describe several areas of mathematics beyond calculus. 2) Describe several diverse examples of mathematics not in secondary school mathematics. 3) Solve problems using mathematics in unfamiliar settings. 4) Explain why mathematical thinking is valuable in daily life. 5) Solve equations both algebraically and graphically. 6) Solve the model applied problems. |
| Indicative Contents المحتويات الإرشادية | Indicative content includes the following. <u>Part A – Functions and families of functions</u> . [25 hrs] <u>Part B – Limits and continuity</u> [25 hrs] <u>Part C – The derivative</u> [25 hrs] <u>Part D – The derivative in graphing and applications</u> [15 hrs] |

Learning and Teaching Strategies

استراتيجيات التعلم والتعليم

| | |
|-------------------|---|
| Strategies | The main strategy that will be adopted in delivering this module is to encourage students' participation in the exercises, while at the same time refining and expanding their critical thinking skills. This will be achieved through classes, interactive tutorials and by considering types of simple experiments involving some sampling activities that are interesting to the students. |
|-------------------|---|

Student Workload (SWL)

الحمل الدراسي للطالب محسوب لـ ١٥ اسبوعا

| | | | |
|--|------------|---|---|
| Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل | 93 | Structured SWL (h/w) الحمل الدراسي المنتظم للطالب أسبوعيا | 4 |
| Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل | 57 | Unstructured SWL (h/w) الحمل الدراسي غير المنتظم للطالب أسبوعيا | 2 |
| Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل | 150 | | |

| Module Evaluation | | | | | |
|-----------------------|--------------|-------------|------------------|----------|---------------------------|
| تقييم المادة الدراسية | | | | | |
| | | Time/Number | Weight (Marks) | Week Due | Relevant Learning Outcome |
| Formative assessment | Quizzes | 2 | 20% (20) | 5 and 10 | LO #1, #2 and #10, #11 |
| | Assignments | 2 | 10% (10) | 2 and 12 | LO #3, #4 and #6, #7 |
| | Report | 1 | 10% (10) | 13 | LO #5, #8 and #10 |
| Summative assessment | Midterm Exam | 2hr | 10% (10) | 7 | LO #1 - #7 |
| | Final Exam | 3hr | 50% (50) | 16 | All |
| Total assessment | | | 100% (100 Marks) | | |

| Delivery Plan (Weekly Syllabus) | |
|---------------------------------|---|
| المنهاج الاسبوعي النظري | |
| | Material Covered |
| Week 1 | Functions and Their Functions and Trigonometric Functions |
| Week 2 | Limit Laws , One-Sided Limits and Limits at Infinity |
| Week 3 | Infinite Limits and Vertical Asymptotes |
| Week 4 | Continuity |
| Week 5 | Tangents and Derivatives |
| Week 6 | The derivative |
| Week 7 | The Derivative as a Rate of Change |
| Week 8 | Derivatives of Trigonometric Functions |
| Week 9 | The Chain Rule and Parametric Equations |
| Week 10 | Related Rates Linearization and Differentials |
| Week 11 | Derivatives of inverse Functions |
| Week 12 | Implicit Differentiation |
| Week 13 | Application of derivatives |
| Week 14 | Newton's method for approximating solutions of equations |
| Week 15 | Partial derivative |
| Week 16 | Preparatory week before the final Exam |

Delivery Plan (Weekly Lab. Syllabus)

المنهاج الاسبوعي للمختبر

| | Material Covered |
|--------|------------------|
| Week 1 | |
| Week 2 | |
| Week 3 | |
| Week 4 | |
| Week 5 | |
| Week 6 | |
| Week 7 | |

Learning and Teaching Resources

مصادر التعلم والتدريس

| | Text | Available in the Library? |
|-------------------|---|---------------------------|
| Required Texts | Thomas' calculus 11ed | Yes |
| Recommended Texts | Calculus, ANTON BIVENS, DAVIS 10 th ed. | No |
| Websites | https://www.coursera.org/courses?query=mathematics | |

Grading Scheme

مخطط الدرجات

| Group | Grade | التقدير | Marks % | Definition |
|-----------------------------|------------------|---------------------|----------|---------------------------------------|
| Success Group (50 - 100) | A - Excellent | امتياز | 90 - 100 | Outstanding Performance |
| | B - Very Good | جيد جدا | 80 - 89 | Above average with some errors |
| | C - Good | جيد | 70 - 79 | Sound work with notable errors |
| | D - Satisfactory | متوسط | 60 - 69 | Fair but with major shortcomings |
| | E - Sufficient | مقبول | 50 - 59 | Work meets minimum criteria |
| Fail Group (0 - 49) | FX – Fail | راسب (قيد المعالجة) | (45-49) | More work required but credit awarded |
| | F – Fail | راسب | (0-44) | Considerable amount of work required |
| | | | | |

Note: Marks Decimal places above or below 0.5 will be rounded to the higher or lower full mark (for example a mark of 54.5 will be rounded to 55, whereas a mark of 54.4 will be rounded to 54. The University has a policy NOT to condone "near-pass fails" so the only adjustment to marks awarded by the original marker(s) will be the automatic rounding outlined above.