

MODULE DESCRIPTION FORM

نموذج وصف المادة الدراسية

| Module Information | | | |
|------------------------------------|---------------------|-------------------------------|---|
| معلومات المادة الدراسية | | | |
| Module Title | Discrete Structures | | Module Delivery |
| Module Type | B | | <input checked="" type="checkbox"/> Theory <input checked="" type="checkbox"/> Lecture <input type="checkbox"/> Lab <input checked="" type="checkbox"/> Tutorial <input type="checkbox"/> Practical <input type="checkbox"/> Seminar |
| Module Code | CCIT061 | | |
| ECTS Credits | 6 | | |
| SWL (hr/sem) | 150 | | |
| Module Level | UGI | Semester of Delivery | |
| Administering Department | CSIT | College | Type College Code |
| Module Leader | Name | e-mail | E-mail |
| Module Leader's Acad. Title | Professor | Module Leader's Qualification | Ph.D. |
| Module Tutor | Name (if available) | e-mail | E-mail |
| Peer Reviewer Name | Name | e-mail | E-mail |
| Scientific Committee Approval Date | 01/06/2023 | Version Number | 1.0 |

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

Module Aims, Learning Outcomes and Indicative Contents

أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية

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|--|---|
| Module Objectives أهداف المادة الدراسية | 1- To Describe the aim of study discrete mathematics 2- To Understand what difference between ordinary math and discrete math. 3- To Understand what the relation between computer science and math 4- To Learn the operation between the difference objects of math. 5- To Apply the relation between this objects |
| Module Learning Outcomes مخرجات التعلم للمادة الدراسية | . A- Knowledge and Understanding 1. Understand the concept of ordinary and partial 2. Understand the set theory 3. Understand the logic math 4. Understand the relation of two sets 5. Understand the graph theory |
| Indicative Contents المحتويات الإرشادية | <ul style="list-style-type: none"> • Sets and Graphs Sets and subsets: definitions, examples, Set operations, basic identities, power of a set, Cartesian product of sets, relations on sets, Basic graph terminology. • Recurrence relations (Difference Equations) Definition of a recurrence relation (difference equations), Homogeneous and inhomogeneous difference equations, Nonlinear difference equations: $x_{n+1} = g(x_n)$, Fixed points, linearisation, stability of fixed points. Applications: the Newton and Secant Methods to solve non-linear equations $f(x) = 0$, Programming: Short introduction to Matlab, Numerical algorithms for difference equations: Newton's method, Fibonacci sequences, Recursion. |

Learning and Teaching Strategies

استراتيجيات التعلم والتعليم

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| Strategies | <ul style="list-style-type: none"> - By solving many exercises - Daily and weekly quizzes. - Guiding the student to some electronic websites. |
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| Student Workload (SWL) الحمل الدراسي للطالب محسوب لـ ١٥ أسبوعا | | | |
|--|------------|---|---|
| Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل | 78 | Structured SWL (h/w) الحمل الدراسي المنتظم للطالب أسبوعيا | 5 |
| Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل | 72 | Unstructured SWL (h/w) الحمل الدراسي غير المنتظم للطالب أسبوعيا | 4 |
| Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل | 100 | | |

| Module Evaluation تقييم المادة الدراسية | | | | | |
|---|------------------------|-------------|------------------|------------|---------------------------|
| | | Time/Number | Weight (Marks) | Week Due | Relevant Learning Outcome |
| Formative assessment | Quizzes | 2 | 10% (10) | 5 and 10 | LO #1, #2 and #10, #11 |
| | Assignments | 2 | 10% (10) | 2 and 12 | LO #3, #4 and #6, #7 |
| | Projects / Lab. | 1 | 5% (5) | Continuous | All |
| | Report | 1 | 5% (5) | 13 | LO #5, #8 and #10 |
| Summative assessment | Midterm Exam | 2hr | 20% (20) | 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 | Abstract of discrete mathematics |
| Week 2 | Set theory |
| Week 3 | Solve some example |
| Week 4 | Logic |
| Week 5 | Solve some example |
| Week 6 | Functions |
| Week 7 | Mid-term Exam |
| Week 8 | Relation |
| Week 9 | Some examples |

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|----------------|--|
| Week 10 | Graph theory |
| Week 11 | Some example |
| Week 12 | Tree |
| Week 13 | Solve example |
| Week 14 | Solve example |
| Week 15 | Review |
| Week 16 | Preparatory week before the final Exam |

| Learning and Teaching Resources | | |
|---------------------------------|---|---------------------------|
| مصادر التعلم والتدريس | | |
| | Text | Available in the Library? |
| Required Texts | Concrete Mathematics: A Foundation for Computer Science | No |
| Recommended Texts | | |
| Websites | | |

| 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.