# MODULE DESCRIPTION FORM

# نموذج وصف المادة الدراسية

| Module Information<br>معلومات المادة الدراسية | | | | | |
|---|---|---|---|---|---|
| **Module Title** | **Reinforced Concrete Design-2** | | | **Module Delivery** | |
| **Module Type** | **Core** | | | ☒ **Theory**<br>☒ **Lecture**<br>☐ **Lab**<br>☐ **Tutorial**<br>☐ **Practical**<br>☐ **Seminar** | |
| **Module Code** | **CIV017** | | | | |
| **ECTS Credits** | **5** | | | | |
| **SWL (hr/sem)** | **125** | | | | |
| **Module Level** | | UGIV | **Semester of Delivery** | | 6 |
| **Administering Department** | | CV101 | **College** | Civil Engineering College | |
| **Module Leader** | Dr.Jamal A. Khalaf | | **e-mail** | Jamal.khalaf@uoanabr.edu.iq | |
| **Module Leader's Acad. Title** | | senior lecturer | **Module Leader's Qualification** | | Ph.D. |
| **Module Tutor** | Dr. Ahmed Anees | | **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<br>العلاقة مع المواد الدراسية الأخرى | | | |
|---|---|---|---|
| **Prerequisite module** | Reinforced Concrete Design-1 | **Semester** | 5 |
| **Co-requisites module** | None | **Semester** | |

| Module Aims, Learning Outcomes and Indicative Contents<br>أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية | |
|---|---|
| **Module Aims**<br>أهداف المادة الدراسية | The goals of this course are to enable students to understand:<br>Short column analysis and design, analysis and design of two way slabs, Direct design method of two way slabs, Equivalent frame method of two way slabs, Yield line analysis and design. |
| **Module Learning Outcomes**<br>مخرجات التعلم للمادة الدراسية | By the end of successful completion of this course, the student will be able to:<br>1. analyze and design short column.<br>2. Design two way slabs using the direct design and Equivalent Frame method,<br>**3.** learn the yield line theory<br>**4.** understand Development Length of Deformed Bars in Compression |
| **Indicative Contents**<br>المحتويات الإرشادية | Indicative content includes the following.<br><br>**Chapter one**<br>Introduction to reinforced concrete analysis and design, Short Reinforced Concrete Compression Members , Short Concrete Columns, Design of Spiral Reinforcement,), - [20 hrs]<br><br>**Chapter Two**<br>Analysis and design of Reinforced Concrete Columns ( Uniaxial Bending Design), Reinforced Concrete Columns ( interaction diagrams, analysis and design of Reinforced Concrete Columns ( Biaxial Bending ) [10 hrs]<br><br>**Chapter Three**<br>Design of TWO-WAY SLABS, Design of two way slab using code coefficient method (simplified method) [15 hrs]<br><br>**Chapter Four**<br>Design of TWO-WAY SLABS, Design of two way slab using Moment Distribution |

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| | by direct design method (DDM) : [15 hrs]<br><br>**Chapter Five**<br>Design of TWO-WAY SLABS , The yield line theory [20 hrs]<br>**Chapter Six**<br>Development Length of Deformed Bars in Compression, [10 hrs] |
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## Learning and Teaching Strategies
استراتيجيات التعلم والتعليم

| | |
|---|---|
| **Strategies** | Reinforced concrete engineering courses require effective learning and teaching strategies to ensure students develop a strong understanding of complex concepts and their practical applications. The range of strategies that can enhance the learning experience for students in concrete engineering courses. These strategies include lecture-based teaching, practical applications, problem-solving assignments, group work and discussions, technology integration, assessments and feedback, continuous learning, and encouraging self-directed learning. By incorporating these strategies, educators can create an engaging and comprehensive learning environment that equips students with the knowledge, skills, and critical thinking abilities necessary for success. |

## Student Workload (SWL)
الحمل الدراسي للطالب

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|---|---|---|---|
| **Structured SWL (h/sem)**<br>الحمل الدراسي المنتظم للطالب خلال الفصل | 63 | **Structured SWL (h/w)**<br>الحمل الدراسي المنتظم للطالب أسبوعيا | 4.2 |
| **Unstructured SWL (h/sem)**<br>الحمل الدراسي غير المنتظم للطالب خلال الفصل | 62 | **Unstructured SWL (h/w)**<br>الحمل الدراسي غير المنتظم للطالب أسبوعيا | 4.13 |
| **Total SWL (h/sem)**<br>الحمل الدراسي الكلي للطالب خلال الفصل | 125 | | |

## Module Evaluation
تقييم المادة الدراسية

| | | Time/Number | Weight (Marks) | Week Due | Relevant Learning Outcome |
|---|---|---|---|---|---|
| **Formative assessment** | **Quizzes** | 4 | 10% (10) | 3, 6,10,14 | LO #1, 3,5, and 7 |
| | **Assignments** | 2 | 5% (5) | 2, 12 | LO # 4 and 7 |
| | **Projects / Lab.** | 1 | | | |
| | **Report** | 1 | 5% (5) | 13 | LO # 2,6 and 7 |
| **Summative assessment** | **Midterm Exam** | 2 hr | 20% (20) | 7 | LO # 1-7 |
| | **Final Exam** | 3hr | 60% (60) | 16 | All |

| | | | |
|---|---|---|---|
| **Total assessment** | 100% (100 Marks) | | |

| **Delivery Plan (Weekly Syllabus)**<br>المنهاج الاسبوعي النظري | |
|---|---|
| | **Material Covered** |
| **Week 1** | Short Reinforced Concrete Compression Members |
| **Week 2** | Short Concrete Columns |
| **Week 3** | Design of Spiral Reinforcement |
| **Week 4** | Reinforced Concrete Columns ( Uniaxial Bending Design) |
| **Week 5** | Reinforced Concrete Columns ( interaction diagrams) |
| **Week 6** | Reinforced Concrete Columns ( Biaxial Bending ) |
| **Week 7** | Reinforced Concrete Columns ( Biaxial Bending ) |
| **Week 8** | Mid-term Exam |
| **Week 9** | Design of TWO-WAY SLABS |
| **Week 10** | Learn the analysis and design of Two –way slabs |
| **Week 11** | Design of TWO-WAY SLABS slab using code coefficient method (simplified method |
| **Week 12** | Lateral Moment Distribution by DDM |
| **Week 13** | Learn the Equivalent Frame method |
| **Week 14** | The yield line theory |
| **Week 15** | Development Length of Deformed Bars |
| **Week 16** | **Preparatory week before the final Exam** |

| **Delivery Plan (Weekly Lab. Syllabus)**<br>المنهاج الاسبوعي للمختبر | |
|---|---|
| | **Material Covered** |
| **Week 1** | Lab 1: |
| **Week 2** | Lab 2: |
| **Week 3** | Lab 3: |
| **Week 4** | Lab 4: |
| **Week 5** | Lab 5: |
| **Week 6** | Lab 6: |

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| **Week 7** | Lab 7: |

| **Learning and Teaching Resources**<br>مصادر التعلم والتدريس | | |
|---|---|---|
| | **Text** | **Available in the Library?** |
| **Required Texts** | Arthur H. Nilson, David Darwin, Charles W. Dolan, Design of Concrete Structures, McGraw-Hill, 14th ed., 2004. | Yes |
| **Recommended Texts** | | |
| **Websites** | https://www.uoanbar.edu.iq/Bank-Section.php | |

| **Grading Scheme**<br>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 |
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**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.