# MODULE DESCRIPTION FORM

# نموذج وصف المادة الدراسية

| Module Information<br>معلومات المادة الدراسية | | | | | |
|---|---|---|---|---|---|
| **Module Title** | PROPERTIES OF CONCRETE | | | **Module Delivery** | |
| **Module Type** | Core | | | ☒ **Theory**<br>☒ **Lecture**<br>☒ **Lab**<br>☒ **Tutorial**<br>☐ **Practical**<br>☐ **Seminar** | |
| **Module Code** | CIV005 | | | | |
| **ECTS Credits** | 7 | | | | |
| **SWL (hr/sem)** | 175 | | | | |
| **Module Level** | | UGII | **Semester of Delivery** | | 3 |
| **Administering Department** | | CV101 | **College** | College of Engineering | |
| **Module Leader** | Dr. Mahmoud Khashaa Mohammed | | **e-mail** | mahmoud.mohammed@uoanabr.edu.iq | |
| **Module Leader's Acad. Title** | | Professor Assistant | **Module Leader's Qualification** | | Ph.D. |
| **Module Tutor** | Dr. Ahmed Anees Ahmed<br>Mr Mohammed Hmood | | **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<br>العلاقة مع المواد الدراسية الأخرى | | | |
|---|---|---|---|
| **Prerequisite module** | None | **Semester** | |
| **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 main aim of this course is to enable the student to identify the basic and fundamental, theoretical and experimental, principles of concrete science with high quality of knowledge. |
| **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. Deeply understand the fundamentals properties of concrete and its raw materials.<br>2. Introduce or propose critical thoughts in how to develop the characterizations of the concrete and its raw materials based on point number 1.<br>3. Prepare and conduct most of the important tests for the concrete and its raw materials. (This is from theoretical background and Concrete Lab. works)<br>4. Deal with the problems of the concrete and its raw materials. This includes the concrete problems in fresh and hardening stages.<br>5. Develop different research skills in the course topics at BSc level.<br>6. Introduce critical thoughts in how to develop/invent new types of concrete or cement. |
| **Indicative Contents**<br>المحتويات الإرشادية | Indicative content includes the following.<br>• Introduction and general backgrounds<br>• Cement, production and types<br>• Cement, chemical and physical properties<br>• Aggregate of concrete, classification and mechanical properties<br>• Aggregate of concrete, physical properties and sieve analysis<br>• Water in concrete works and mixing of concrete<br>• Admixtures of concrete<br>• Mid-term Exam<br>• Properties of fresh concrete<br>• Design of concrete mixes<br>• Strength of concrete<br>• Elasticity of concrete<br>• Volume changes in concrete (swelling and shrinkage)<br>• Durability of Concrete and Special types of concrete<br>• Project presentations/Exams |
| | |

| Learning and Teaching Strategies<br>استراتيجيات التعلم والتعليم | |
|---|---|
| **Strategies** | Properties of concrete course require effective learning and teaching strategies to ensure students develop a deep understanding of principle concepts and their practical applications. The range of strategies that can enhance the learning experience for students in Properties of concrete course. These strategies include lecture-based teaching, assignments, group work and discussions (project), technology integration, field trips and site visits, guest speakers, 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 in the field of concrete.<br>Students are expected to do their own work. You are allowed to work on assignments in teams only if specified by the instructor. In other words, students are encouraged to communicate about general principles of the course, but all assigned homework must be done on an individual basis. The instructor is available to provide any assistance that you may need. Cheating is considered a serious offense by the university. You should be aware of the severe penalty for cheating. |

| Student Workload (SWL)<br>الحمل الدراسي للطالب | | | |
|---|---|---|---|
| **Structured SWL (h/sem)**<br>الحمل الدراسي المنتظم للطالب خلال الفصل | 108 | **Structured SWL (h/w)**<br>الحمل الدراسي المنتظم للطالب أسبوعيا | 7.2 |
| **Unstructured SWL (h/sem)**<br>الحمل الدراسي غير المنتظم للطالب خلال الفصل | 67 | **Unstructured SWL (h/w)**<br>الحمل الدراسي غير المنتظم للطالب أسبوعيا | 4.47 |
| **Total SWL (h/sem)**<br>الحمل الدراسي الكلي للطالب خلال الفصل | 175 | | |

| Module Evaluation<br>تقييم المادة الدراسية | | | | | |
|---|---|---|---|---|---|
| | | **Time/Number** | **Weight (Marks)** | **Week Due** | **Relevant Learning Outcome** |
| **Formative assessment** | **Quizzes** | 2 | 2.5% (2.5) | 5 and 13 | LO #1, 2 and 4 |
| | **Assignments** | 2 | 2.5% (2.5) | 2, 12 | LO # 1,2 and 4 |
| | **Projects / Lab.** | 1 | 10% (10) | 1-13 | LO # 3 |
| | **Report** | 1 | 10% (10) | 13 | LO # 3,5and 6 |
| **Summative assessment** | **Midterm Exams** | 2 hr | 25% (25) | 7 | LO # 1-6 |
| | **Final Exam** | 3hr | 50% (50) | 16 | All |

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

| **Delivery Plan (Weekly Syllabus)**<br>المنهاج الاسبوعي النظري | |
|---|---|
| | **Material Covered** |
| **Week 1** | Introduction and general backgrounds |
| **Week 2** | Cement, production and types |
| **Week 3** | Cement, chemical and physical properties |
| **Week 4** | Aggregate of concrete, classification and mechanical properties |
| **Week 5** | Aggregate of concrete, physical properties and sieve analysis |
| **Week 6** | Water in concrete works and mixing of concrete |
| **Week 7** | Admixtures of concrete |
| **Week 8** | **Mid-term Exam** |
| **Week 9** | Properties of fresh concrete |
| **Week 10** | Design of concrete mixes |
| **Week 11** | Strength of concrete |
| **Week 12** | Elasticity of concrete |
| **Week 13** | Volume changes in concrete (swelling and shrinkage) |
| **Week 14** | Durability of Concrete and Special types of concrete |
| **Week 15** | Project presentations/Exams |
| **Week 16** | **Final Exam** |

| **Delivery Plan (Weekly Lab. Syllabus)**<br>المنهاج الاسبوعي للمختبر | |
|---|---|
| | **Material Covered** |
| **Week 1** | Cement, standard consistency test |
| **Week 2** | Cement, initial and final setting test |
| **Week 3** | Cement, compressive strength test |
| **Week 4** | Aggregate, sampling of aggregate |

| | |
|---|---|
| **Week 5** | Aggregate, some physical and mechanical properties |
| **Week 6** | Aggregate, sieve analysis |
| **Week 7** | Fresh concrete, preparation of fresh concrete mix |
| **Week 8** | **Mid-term Exam** |
| **Week 9** | Fresh concrete, mix design trial mix |
| **Week 10** | Fresh Concrete, Flow, slump and compacting factor test |
| **Week 11** | Hardened concrete, compressive strength test |
| **Week 12** | Hardened concrete, tensile strength test |
| **Week 13** | Hardened concrete, flexural strength test |
| **Week 14** | Hardened concrete, modulus of elasticity |
| **Week 15** | Exam |
| **Week 16** | **Final Exam** |

## Learning and Teaching Resources
مصادر التعلم والتدريس

| | Text | Available in the Library? |
|---|---|---|
| **Required Texts** | 1- Neville, A. M. 2011. Properties of Concrete, London, Pearson Education Limited. or any Edition.<br>2- Mehta, P. K. & Monteiro, P. J. M. 2006. Concrete: Microstructure, properties and materials, McGraw-Hill. | Yes/ E-books |
| **Recommended Texts** | 3- John Newman and B S Choo, Advanced Concrete Technology Set: Advanced Concrete Technology 2: Concrete Properties, ELSEVIER, 2003 | Yes/ E-book |
| **Websites** | https://www.uoanbar.edu.iq/staff-page.php?ID=634 | |

## 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.