<table>
<tr><td colspan="2">Academic Year: 2023-2024</td><td>Semester: Fall</td><td>Starting Date: 15-10-2023</td></tr>
<tr><td>Course Name</td><td colspan="3">Advanced Concrete Technology / 1</td></tr>
<tr><td>Module Language</td><td colspan="3">English</td></tr>
<tr><td>Instructor</td><td colspan="3">Ass. Prof. Dr. Dilshad K. Jaf</td></tr>
<tr><td>Teaching Assistance(s)</td><td colspan="3">None</td></tr>
<tr><td>College/University</td><td colspan="3">College of Engineering – Salahaddin University-Erbil</td></tr>
<tr><td>Department</td><td colspan="3">Civil Engineering</td></tr>
<tr><td>Semester Duration</td><td colspan="3">15 weeks</td></tr>
<tr><td>Course Overview</td><td colspan="3"><ul><li>This course explores the materials science of concrete, and attempts to bring about the understanding of concrete behavior from a fundamental perspective.</li><li>The course discusses the structure and properties of concrete making materials.</li><li>The course teaches the engineering thought process to give Post graduate students a better understanding of advanced concrete technology</li></ul></td></tr>
<tr><td>Course Objectives</td><td colspan="3">The objective of this course is :<ul><li>The course aims to develop the next generation of senior construction professionals working in design of concrete mixes, concrete production and construction.</li><li>It’s designed to provide students with advanced, in-depth knowledge of both the theory and practical application of concrete technology engineering concepts which are applied in field of Civil Engineering.</li></ul></td></tr>
<tr><td>Course Contents</td><td colspan="3">Week Lecture<table>
<tr><td>1st</td><td>Introduction – Course book</td></tr>
<tr><td>2nd</td><td>Portland Cement production</td></tr>
<tr><td>3rd</td><td>Types of cement</td></tr>
<tr><td>4th</td><td>Chemical Composition Of Cement</td></tr>
<tr><td>5th</td><td>Hydration of cement, Microstructure of the hydrated cement paste</td></tr>
<tr><td>6th</td><td>Aggregates, Deleterious Substances in Aggregate</td></tr>
<tr><td>7th</td><td>Aggregate Sources, Classification, and Uses</td></tr>
<tr><td>8th</td><td>Midterm Exam</td></tr>
<tr><td>9th</td><td>Fresh concrete</td></tr>
<tr><td>10th</td><td>Concrete production and processing</td></tr>
<tr><td>11th</td><td>Hardened Concrete</td></tr>
<tr><td>12th</td><td>Theories of Concrete strength</td></tr>
<tr><td>13th</td><td>Concrete Mix Design</td></tr>
<tr><td>14th</td><td>Seminar Presentations</td></tr>
<tr><td>15th</td><td>Final Exam</td></tr>
</table></td></tr>
</table>

| | |
|---|---|
| | |
| **Textbooks and References** | 1. Advanced Concrete Technology - Constituent Materials, John Newman and Ban Seng Choo<br>2. Advanced Concrete Technology - Concrete Properties, John Newman and Ban Seng Choo<br>3. Advanced Concrete Technology – Processes, John Newman and Ban Seng Choo<br>4. Advanced Concrete Technology - Testing & Quality, John Newman and Ban Seng Choo |
| **Teaching Style** | 3 hrs. in Class |
| **Requirements for credit points** | For the award of credit points, it is necessary to pass the module exam. It contains:<br>An examination during the academic semester, Quizzes, Assignments, Article review, and Final examination.<br>**Student's attendance is required in all classes**. |
| **Credit ECTS** | 6 |
| **Grade Distribution** | The following grade system is used for the evaluation of the module exam:<br>The module exam is based on the summation of two categories of evaluations:<br>**First: (50%)** of the mark is based on the academic semester effort which includes<br>1. without Article Review<br>- Midterm Exam = 20%.<br>- Quiz = 15%<br>- Seminar = 15%<br>2. with Article Review<br>- Midterm Exam = 20%.<br>- Quiz = 5%<br>- Seminar = 10%<br>- Review Article = 15%<br>**Second: (50%)** of the mark is based on the final examination that is comprehensive for the whole of the study materials reviewed during the academic semester. |
| **Workload** | Workload 10hrs/w (150hrs/s): Contact face-to-face 3hrs/w (45hrs/s) and Non-Contact Self learning 7hrs/w (105hrs/s) |