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| Date:                                  | Examination No.:  | Version:12/2/2023 | Start: 12/2/2023 |
| <b>Module Name - Code</b>              | <b>Water &amp; Wastewater Treatment -6135</b>   |                   |                  |
| <b>Module Language:</b>                | English   |                   |                  |
| <b>Responsible:</b>                    | Dr. Reem Abdul Hakim Alrawi   |                   |                  |
| <b>iLecture (s):</b>                   |   |                   |                  |
| <b>College:</b>                        | College of Engineering – Salahaddin University  |                   |                  |
| <b>Duration:</b>                       | 15 week –2nd semester   |                   |                  |
| <b>Course outcomes:</b>                | At the end of the semester, students would be able to understand the fundamental of many of the existing unit operations and processes used for water and wastewater treatment. The course covers the technologies that are applied to the treatment and purification of water. The methods and technologies discussed are a combination of physical, chemical and biological techniques. |                   |                  |
| <b>Course Content:</b>                 | An overview of Water and Wastewater Treatment, <i>Preliminary Treatment System (Pretreatment), Primary Treatment System, Secondary Treatment System, Tertiary or advance Treatment System</i> , Types of treatment (physical, chemical and Biological), Screening, Grit Chamber, Skimming tank, Principles of Sedimentation, Coagulation, flocculation and Filtration                     |                   |                  |
| <b>Literature:</b>                     | <ul style="list-style-type: none"> <li>- <i>Wastewater Treatment Concepts and Design Approach</i>. By Karia and Christian, 2006.</li> <li>- <i>Handbook For The Operation Of Water Treatment Works by Water Research Commission</i>.Editor: Frik Schutte, 2006.</li> </ul>  |                   |                  |
| <b>Type of Teaching:</b>               | 3 hrs /week Theoretically   |                   |                  |
| <b>Pre-requisites:</b>                 |   |                   |                  |
| <b>Frequency:</b>                      | Yearly in spring semester   |                   |                  |
| <b>Requirements for credit points:</b> | For the award of credit points it is necessary to pass the module exam. Students should attend their class on time. Complete their assigned work in a timely manner with attention to quality of work.Do the exams and quizzes. Identify, develop, and implement a plan to achieve their educational goals  |                   |                  |
| <b>Credit point:</b>                   | 5   |                   |                  |
| <b>Grade Distribution:</b>             | The Grade is generated from the examination result(s) with the following<br>40% activities and exams during the semester<br>60% Final exam  |                   |                  |
| <b>Work load:</b>                      | The workload is 75h. It is the result of 45h attendance and 30h self studies.   |                   |                  |