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| Date: | Examination No.: 15367 | Version:11/2/2023 | Start: 12/2/2023 |
| **Module Name - Code** | Ground Improvement Techniques - 1144 |
| **Module Language:** | English |
| **Responsible:** | Professor Dr. Yousif Ismail Mawlood  |
| **Lecture (s):** | Professor Dr. Yousif Ismail Mawlood |
| **College:** | College of Engineering – Salahaddin University |
| **Duration:** | 15 weeks – 1 semester |
| **Course outcomes:** | Upon completion of this course, students should be able to: 1. Understand principles, applications, and design procedures for various ground improvement techniques. 2. Use analytical/theoretical/numerical calculations to assess the effectiveness of a ground improvement technique. 3. Gain competence in properly evaluating alternative solutions, and their effectiveness before, during, and after using ground improvement. 4. Application of physical and chemical ground improvement techniques using grouting, shotcrete technology |
| **Course Content:** | Introduction, Shallow and Deep Compaction, Cement/Lime Mixing Ground Improvement for Road Construction on Soft Ground, Drainage and Dewatering, Preloading, Deep Mixing, and grouting, Fill Reinforcement |
| **Literature:** | 1. Jie Han, Principles and Practice of Ground Improv, John Wiley & Sons, 2015. 2. Peter G Nicholson “Soil improvement and ground modification methods” 2015. |
| **Type of Teaching:** |

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| 3 hrs. of theory +1 hr. tutorial lectures in class   |

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| **Pre-requisites:** | Soil Mechanics |
| **Frequency:** | Yearly in the spring semester |
| **Requirements for  credit points:** |

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| To award credit points, it is necessary to pass the module exam.Classroom activities +quizzes + home worksThe module (Mid-term and final) exams:(Written 120 min for the theoretical exam) |

**Student attendance is required in all classes**. |
| **Credit point:** | 5 |
| **Grade Distribution:** | The Grade is generated from the examination result(s) with the following20% quizzes, workloads, and activity20% mid-term exam60% final theoretical Exam |
| **Workload:** |

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| The workload is 135 hrs. It is the result of 60 hrs. attendance and 75 hrs. self-studies. |

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