**CIV E 381 SYLLABUS**

COURSE NAME: Soil Mechanics- CIV E 381
DETAILS: 3 hour lectures, 3/1 hour Lab
TERM: Winter

COURSE DESCRIPTION

\*4.5 (fi 8) (either term or Spring/Summer, 3-0-3) Compaction; site investigation; theories of water seepage;

effective stress principles; settlement; strength and mechanical properties; introduction to retaining

structures, foundation, and slope stability.

REQUIRED MATERIAL

1. Lecture Notes (Softcopy on eClass. A hardcopy will not be provided)

2. Fundamentals of Geotechnical Engineering, 5th Edition, B.M. Das and N. Sivakugan, 2016 (UofA Bookstore)

LECTURE/ LAB CONTENT

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| **Date** | **Lecture Topic** | **Sections in Book** | **Lab/Tutorial Topic** | **Due Dates\*** |
| **WEEK 1** |  |  |  |  |
| Mon, Sep. 2 | Labour Day |  | No Tutorial or Lab |  |
| Wed, Sep. 4 | Introduction | Chapter 1 |  |
| Fri, Sep. 6 | Soil Classification/PSD | Chapter 2,3,4 |  |
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| **WEEK 2** |  |  |  |  |
| Mon, Sep. 9 | Phase relationships | Chapter 2,3 | Soil Properties (Tutorial #1) |  |
| Wed, Sep. 11 | Phase relationships | Chapter 4 |  |
| Fri, Sep. 13 | Index properties | Chapter 5 |  |
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| **WEEK 3** |  |  |  |  |
| Mon, Sep. 16 | Compaction | Chapter 5 | Compaction (Tutorial #2) | Assignment # 1 Due |
| Wed, Sep. 18 | Compaction | Chapter 5 |
| Fri, Sep. 20 | Seepage (1D flow) | Chapter 6,7 |
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| **WEEK 4** |  |  |  |  |
| Mon, Sep. 23 | Seepage (1D flow) | Chapter 6,7 | Compaction (**Lab #1**) | Assignment # 2 Due |
| Wed, Sep. 25 | Seepage (1D flow) | Chapter 6,7 |
| Fri, Sep. 27 | Seepage (2D flow) | Chapter 6,7 |
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| **WEEK 5** |  |  |  |  |
| Mon, Sep 30 | Seepage (2D flow) | Chapter 6,7 | Seepage (Tutorial #3) | Compaction Lab report Due Assignment # 3Due |
| Wed, Oct. 2 | Effective Stress | Chapter 8 |
| Fri, Oct. 4 | Effective Stress | Chapter 8 |
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| **WEEK 6** |  |  |  |  |
| Mon, Oct. 7 | **Mid Term 1** |  | Permeability (**Lab #2**) |  |
| Wed, Oct. 9 | Stress Distribution | Chapter 8 |
| Fri, Oct. 11 | Settlement | Chapter 9 |
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| **WEEK 7** |  |  |  |  |
| Mon, Oct. 14 | Thanksgiving |  | Effective Stress Stress distribution lecture?(Tutorial #4) | Assignment # 4 Due Permeability Lab report Due |
| Wed, Oct. 16 | Settlement | Chapter 9 |
| Fri, Oct. 18 | Settlement | Chapter 9 |
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| **WEEK 8** |  |  |  |  |
| Mon, Oct. 21 | Settlement | Chapter 9 | No Tutorial or Lab | Assignment # 5 Due |
| Wed, Oct. 23 | Consolidation | Chapter 9 |
| Fri, Oct. 25 | Consolidation | Chapter 9 |

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| **WEEK 9** |  |  |  |  |
| Mon, Oct. 28 | Consolidation | Chapter 9 | Consolidation (**Lab #3**) | Assignment # 6 Due |
| Wed, Oct. 30 | Consolidation | Chapter 9 |
| Fri, Nov. 1 | Consolidation | Chapter 9 |
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| **WEEK 10** |  |  |  |  |
| Mon, Nov. 4 | Consolidation | Chapter 9 | Consolidation (Tutorial #5) |  |
| Wed, Nov. 6 | Shear Strength | Chapter 10 |
| Fri, Nov. 8 | **Mid Term 2** |  |
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| **WEEK 11** |  |  |  |  |
| Mon, Nov. 11 | Reading Week |  | No Tutorial or Lab |  |
| Wed, Nov. 13 | Reading Week |  |  |
| Fri, Nov. 15 | Reading Week |  |  |
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| **WEEK 12** |  |  |  |  |
| Mon, Nov. 18 | Shear Strength | Chapter 10 | Direct Shear (**Lab #4**) | Consolidation Lab Report Due Assignment # 7 Due |
| Wed, Nov. 20 | Shear Strength | Chapter 10 |
| Fri, Nov. 22 | Shear Strength | Chapter 10 |
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| **WEEK 13** |  |  |  |  |
| Mon, Nov. 25 | Shear Strength | Chapter 10 | Shear Strength (Tutorial #6) | Direct Shear Lab Report Due |
| Wed, Nov. 27 | Shear Strength | Chapter 10 |
| Fri, Nov. 29 | Earth Pressure | Chapter 14 |
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| **WEEK 14** |  |  |  |  |
| Mon, Dec. 2 | Earth Pressure | Chapter 14 | Earth pressure (Tutorial #7, #8) | Assignment # 8 Due December 7 |
| Wed, Dec. 4 | Wall Design | Chapter 15 |  |
| Fri, Dec. 6 | Final review |  |  |
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