**CIV E 315 SYLLABUS**

COURSE NAME: Transportation Engineering- CIV E 315
DETAILS: 3 hour lectures, 2/1 hour Lab
TERM: Winter

COURSE DESCRIPTION

\*4 (fi 8) (either term, 3-0-2) Transportation systems and their elements. Principles of transportation planning.

Traffic volume, capacity, speed, density, and safety. Fundamentals of traffic control. Principles of highway

planning. Highway and terrain. Vehicular motion. Horizontal and vertical geometric design. Cost/benefit

analysis in highway design. Earthwork and mass diagram. Flexible and rigid pavement design.

REQUIRED MATERIAL

(Mandatory):

Traffic and Highway Engineering by Garber, N.J. and Hoel, L.A. Fifth Edition. SI Edition, Cengage Learning.

(Recommended):

Principles of Highway Engineering and Traffic Analysis by Mannering, Kilareski, and Washburn. Fourth

Edition, Wiley.

LECTURE CONTENT

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| **Week** | **Date** | **Lecture Topic (ETLC 1-003)** | **Readings (GH Book)** | **Reading Sections** | **Tutorials (NREF 2-001)** |
| 1 | Jan. 7 | Characteristics of elements of transportation system | Chapter 1-3 | 1.1, 1.22.1, 2.23.1 – 3.7 | **No Tutorials** |
| Jan. 9 | Characteristics of elements of transportation system | Chapter 3 | 3.1 – 3.7 |
| 2 | Jan. 14 | **No Lectures** | - | - | Tutorial 1 Element characteristics |
| Jan. 16 |
| 3 | Jan. 21 | Traffic engineering studies | Chapter 4 | 4.1,4.2,4.3 | **No Tutorials** |
| Jan. 23 | Traffic engineering studies | Chapter 4 | 4.1,4.2,4.3 |
| 4 | Jan. 28 | Highway traffic safety | Chapter 5 | 5.1,5.2 | Tutorial 2 Traffic studies |
| Jan. 30 | Highway traffic safety | Chapter 5 | 5.1,5.2 |
| 5 | Feb. 4 | Traffic flow characteristics | Chapter 6 | 6.1,6.2,6.3 | Tutorial 3 Traffic safety |
| Feb. 6 | Traffic flow characteristics | Chapter 6 | 6.1,6.2,6.3 |
| 6 | Feb. 11 | Intersection design | Chapter 7 | 7.1,7.2 | Tutorial 4 Traffic flow analysis |
| Feb. 13 | Intersection control | Chapter 8 | 8.1-8.4 |
| 7 | Feb. 18 | **Reading Week** | - | - | **No Tutorial** |
| Feb. 20 |
| 8 | Feb. 25 | Intersection control | Chapter 8 | 8.1-8.4 | Tutorial 5Intersection design |
| Feb. 27 | **Mid-term Exam** | - | - |
| 9 | Mar. 3 | Capacity and level of service (LOS) | Chapter 9, 10 | 9.1,9.2,9.3 | Tutorial 6Intersection control |
| Mar. 5 | Capacity and level of service (LOS) | Chapter 9, 10 | 10.1,10.2 |
| 10 | Mar.10 | Transportation planning | Chapter 11 | 11.1-11.3 | Tutorial 7 LOS analysis |
| Mar. 12 | Transportation planning | Chapter 11 | 11.1-11.3 |
| 11 | Mar. 17 | Travel demand forecasting | Chapter 12 | 12.1-12.6 | Tutorial 8 Planning |
| Mar. 19 | Travel demand forecasting | Chapter 12 | 12.1-12.6 |
| 12 | Mar. 24 | Transportation system evaluation | Chapter 13 | 13.1-13.3 | Tutorial 9Demand forecasting |
| Mar. 26 | Transportation system evaluation | Chapter 13 | 13.1-13.3 |
| 13 | Mar. 31 | Geometric design | Chapter 15 | 15.1,15.2 | Tutorial 10 System evaluation |
| Apr. 2 | Geometric design | Chapter 15 | 15.1,15.2 |
| 14 | Apr. 7 | Course review | - | - | Tutorial 11 Geometric design |
| Apr. 9 | **Term Ends on 8th - No Lecture** | - | - |
| 15 | TBA | **Final Exam** | - | - | - |

LAB CONTENT

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| **Lab Topic** | **Date** |
| Lab 1: Tutorial 1 Element characteristics | 2020-01-13 |
| Lab 2: Tutorial 1 Element characteristics | 2020-01-15 |
| Lab 3: Tutorial 2 Traffic studies | 2020-01-27 |
| Lab 4: Tutorial 2 Traffic studies | 2020-01-29 |
| Lab 5: Tutorial 3 Traffic safety | 2020-02-03 |
| Lab 6: Tutorial 3 Traffic safety | 2020-02-05 |
| Lab 7: Tutorial 4 Traffic flow analysis | 2020-02-10 |
| Lab 8: Tutorial 4 Traffic flow analysis | 2020-02-12 |
| Lab 9: Tutorial 5 Intersection design | 2020-02-24 |
| Lab 10: Tutorial 5 Intersection design | 2020-02-26 |
| Lab 11: Tutorial 6 Intersection control | 2020-03-02 |
| Lab 12: Tutorial 6 Intersection control | 2020-03-04 |
| Lab 13: Tutorial 7 LOS analysis | 2020-03-09 |
| Lab 14: Tutorial 7 LOS analysis | 2020-03-11 |
| Lab 15: Tutorial 8 Planning | 2020-03-16 |
| Lab 16: Tutorial 8 Planning | 2020-03-18 |
| Lab 17: Tutorial 9 Demand forecasting | 2020-03-23 |
| Lab 18: Tutorial 9 Demand forecasting | 2020-03-25 |
| Lab 19: Tutorial 10 System evaluation | 2020-03-30 |
| Lab 20: Tutorial 10 System evaluation | 2020-04-01 |
| Lab 21: Tutorial 11 Geometric design | 2020-04-06 |
| Lab 22: Tutorial 11 Geometric design | 2020-04-08 |