# Master's Degree Plan of Study

## Transportation Systems

### Course Information

<table>
<thead>
<tr>
<th>Course Title</th>
<th>Course Number</th>
<th>Units</th>
<th>Grade</th>
<th>QTR/YR</th>
<th>Non-Thesis Option: 48 Units Total</th>
<th>Thesis Option: 48 Units Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Travel Demand Analysis I</td>
<td>CEE 220A</td>
<td>4</td>
<td></td>
<td></td>
<td>Core Courses: 28 units Students must fulfill a minimum of 28 units made up of the core courses listed to the left and below:</td>
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</tr>
<tr>
<td>Transportation Systems Analysis I</td>
<td>CEE 221A</td>
<td>4</td>
<td></td>
<td></td>
<td>CEE 223</td>
<td>CEE 223</td>
</tr>
<tr>
<td>Urban Transportation Networks I</td>
<td>CEE 228A</td>
<td>4</td>
<td></td>
<td></td>
<td>CEE 224A</td>
<td>CEE 224A</td>
</tr>
<tr>
<td>Mathematical Methods in Engineering Analysis</td>
<td>CEE 283</td>
<td>4</td>
<td></td>
<td></td>
<td>CEE 226A or 226B</td>
<td>CEE 226A or 226B</td>
</tr>
<tr>
<td></td>
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<td></td>
<td></td>
<td></td>
<td>CEE 229A or 229B</td>
<td>CEE 229A or 229B</td>
</tr>
</tbody>
</table>

**Total Units for this Section:**

### Electives: 12 out of 48 Units

- Students must fulfill a minimum of **12** elective units from graduate courses listed on page 2.

### Seminars/Other (8 out of 48 Units)

- **Required**: 3 units of CEE 295: Seminars in CEE (Max. of 3 units apply to degree requirements).
- **Options for the remaining 5 units**:
  1. Approved graduate-level courses (see page 2)
  2. CEE 299 Individual Research units
  3. Approved upper-division undergraduate units (max. 10 units)

### Seminars/Other (10 out of 48 Units)

- **Required**: 3 units of CEE 295: Seminars in CEE (Max. of 3 units apply to degree requirements).
- **Options for the remaining 7 units**:
  1. Approved graduate-level courses (see page 2)
  2. CEE 299 Individual Research units
  3. Approved upper-division undergraduate units (max. 10 units)

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**Signatures:**

**Candidate:**

**Date:**

**Chair:**

**Focus Area Faculty Advisor:**

**Date:**

**Member:**

**CEE Graduate Advisor:**

**Date:**

**Member:**

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**Revised 5.24.22**
**Note:** This form must be submitted to the Grad. Coordinator by the end of the FIRST quarter of enrollment. Changes to this form must be approved by the Faculty Graduate Advisor, Professor R. (Jay) Jayakrishnan: rjayakri@uci.edu.

### CEE Courses:
- ENGRCEE 214 GIS for CEE (F)<sup>1</sup>
- ENGRCEE 220A Travel Demand Analysis I (F)
- ENGRCEE 220B Travel Demand Analysis II (*)
- ENGRCEE 220C Travel Demand Analysis III (*)
- ENGRCEE 221A Transportation Systems Analysis I (F)
- ENGRCEE 221B Transportation Systems Analysis II (S)
- ENGRCEE 222 Transit Systems Planning (*)
- ENGRCEE 223 Transportation Systems Planning (S)
- ENGRCEE 224A Transportation Data Analysis I (S)
- ENGRCEE 225A Transportation Planning Models I (F)
- ENGRCEE 225B Transportation Planning Models II (*)
- ENGRCEE 226A Traffic Flow Theory I (*)
- ENGRCEE 226B Traffic Flow Theory II (*)
- ENGRCEE 228A Urban Transportation Networks I (W)
- ENGRCEE 228B Urban Transportation Networks II (*)
- ENGRCEE 229A Traffic Systems Operations & Control I (W)
- ENGRCEE 229B Traffic Systems Operations & Control II (S)
- ENGRCEE 283 Mathematical Methods in Eng. Analysis (F)
- ENGRCEE 290 Merging Models and Data (S)
- ENGRCEE 296 MS Thesis Research (F,W,S)
- ENGRCEE 298 Smart Cities (*)
- ENGRCEE 299 Individual Research (F,W,S)

### Non-CEE Courses (Electives Cont.):
- ECON 243A Game Theory
- ECON 243B Advanced Game Theory
- ECON 281A Urban Economics
- ECON 281B Urban Economics II
- ECON 282A Transportation Economics I
- ECON 282B Transportation Economics II (S18)
- EECS 215 Design and Analysis of Algorithms
- EECS 227 Cyber-Physical System Design
- EECS 240 Random Processes
- EECS 242 Information Theory
- EECS 260A Linear Systems I
- ENGR 280 Entrepreneurship for Scientists and Engineers
- ENGRMAE 206 Nonlinear Optimization Methods
- ENGRMAE 214A Fuel Cell Fundamentals and Technologies
- MGMT MBA 208 Operations Management
- MGMT MBA 285 Supply Chain Management
- MGTPHD 297Q Game-Theoretic Models for Mgmt Research
- MGTPHD 297T Decision Theory
- MATH 225B Intro to Numerical Anal. & Scientific Computing
- PUBHLTH 260 Human Exposure Modeling
- SOCECOL 272A Structural Equation Modeling I
- STATS 245 Time Series Analysis
- STATS 260 Inference with Missing Data
- STATS 262 Theory and Practice of Sample Surveys
- STATS 270 Stochastic Processes

### Non-CEE Courses (Electives): Please check individual Department schedules to confirm course offerings.
- CRM/LAW C207 Land Use Law
- BANA 212 Data and Programming for Analytics
- BANA 295 Big Data Management Systems
- COMPSCI 206 Principles of Scientific Computing
- COMPSCI 244P Introduction to the Internet of Things
- COMPSCI 261 Data Structures
- COMPSCI 268 Introduction to Optimization Modeling
- COMPSCI 273A Machine Learning
- COMPSCI 274C Neural Networks and Deep Learning
- EARTHSS 212 Geoscience Modeling and Data Analysis

### Key:
- (F): Fall Quarter; (W): Winter Quarter; (S): Spring Quarter; (*): Not offered in 2022/2023

1: Students can count either CEE 214 (GIS) or PPD 235 (GIS) toward degree requirement, **BUT NOT BOTH.**

### NOTE:
The following can ONLY be included with prior approval of the Graduate Advisors/Director.

1) Upper-division undergraduate courses and/or Non-CEE graduate courses (outside of those listed above). Include a description of the course in your email request to Professor R. (Jay) Jayakrishnan: rjayakri@uci.edu.

2) MS Thesis Research units can be extended to 16 units. Include email approval from Thesis Advisor in request to Professor Russell Detwiler: detwiler@uci.edu.