Discover Viterbi: Civil & Environmental Engineering with Prof. Lucio Soibelman

Viterbi School of Engineering
University of Southern California
Fall 2017
WebEx Quick Facts

Will I be able to get a copy of the slides after the presentation?

YES!

How can I ask a question during the information session?

1. Using the Q&A Panel, type a question in the box below the Ask drop-down menu.
2. Select a recipient from the Ask drop-down menu.
3. Click Send. We will respond as soon as we are able.
Today’s Program

▪ University of Southern California

▪ USC Viterbi School of Engineering

▪ Graduate Programs in Civil & Environmental Engineering
  - Program Overview
  - Application Criteria

▪ DEN@Viterbi

▪ Tuition & Fees

▪ Q&A
The University of Southern California

- Oldest Private University in the western U.S.
  - Founded in 1880

- 44,000 Students
  - 19,000 Undergraduates  |  25,000 Graduates

- 4,190 Full-time Faculty

- Diverse Student Population

- Located in Los Angeles
Viterbi School at a Glance

Academic Departments
- 8 Academic Departments

Faculty
- 185 tenure-track faculty
- 20+ NAE
- 60+ NSF CAREER, National & Presidential Young Investigator

Alumni
- More than 65,000+

Student Populations
- 2,700 Undergraduate
- 5,600 Graduate students

Research
- Leader in funded research
- 45+ Research Centers
- More than $185M in research expenditures
U.S. News & World Report, 2017

Best Engineering Graduate Schools

- Top Ranked Graduate Engineering Program

Best Online Graduate Engineering Programs

- Ranked #1 Online Graduate Engineering Programs
- Ranked #1 Online Computer Information Technology Program (Computer Science)

Best Online Graduate Engineering Programs for Veterans

- Ranked #1 Online Graduate Engineering for Veterans
- Ranked #1 Online Computer Information Technology for Veterans

USC Viterbi School of Engineering
USC Engineering: Points of Distinction

- International Reputation for Excellence
- The Trojan Family Network: 65,000+ engineers strong
- Unique engineering programs available: *Online, on site & on campus*
- Complete range of programs
  - PhD, Masters and Bachelors
  - Graduate Certificates
  - Short Courses
  - Custom Programs
The Viterbi School of Engineering: A Leader in Research

Viterbi School is a consistent leader in funded research in the U.S.

- Highly interdisciplinary research environment
- Diverse research areas such as robotics, software engineering, sensor networks, vision sciences, automated construction and photonics
- Over 45 research centers
- Industrial partnerships and collaboration
Meet Professor Lucio Soibelman

- Lucio Soibelman
  - Viterbi Dean’s Professor and Department Chair
  - Ph.D., Massachusetts Institute of Technology
  - Research Areas: Artificial Intelligence, Data Mining, Knowledge Discovery, Image Reasoning, Text Mining, Machine Learning, Multi-reasoning Mechanisms, sensors, sensor networks, and advanced infrastructure systems
Civil & Environmental Engineering: Program Offerings

- MS in Civil Engineering
- MS in Civil Engineering (Construction Engineering)
- MS in Civil Engineering (Structural Engineering)
- MS in Civil Engineering (Transportation Engineering)
- MS in Civil Engineering (Transportation Systems)
- MS in Civil Engineering (Water & Waste Management)
- MS in Environmental Engineering
- Masters in Construction Management
- Graduate Certificate in Transportation Systems

Available online via DEN@Viterbi
M.S. in Civil Engineering– Program Details

Program Requirements: 27 units selected under the direction of the student’s adviser

Specialty Areas
Students must complete a minimum of 18 units from the following four areas with a minimum of 3 units and a maximum of 6 units from each area

- Environmental Engineering & Water Resources
- Construction and Transportation
- Geotechnical Engineering
- Structural Engineering

Special Concentrations
- Geographic Information Science
- Public Works
M.S. in Civil Engineering (Construction Engineering & Management) – Program Details

Program Requirements: 27 units

Required Courses (18 units)

- CE 501 | Functions of the Constructor
- CE 502 | Construction Accounting & Finance
- CE 556 | Project Controls – Budgeting & Estimating
- CE 566 | Project Controls – Planning & Scheduling

- One of the following two courses:
  - CE 506 | Heavy Construction Estimating
  - CE 557 | Advanced Building Estimating

- One of the following two courses:
  - CE 462 | Construction Methods & Equipment
  - CE 469 | Sustainability
  - CE 470 | Building Information Modeling & Integrated Practice

Elective Courses (9 units)
M.S. in Civil Engineering (Structural Engineering) – Program Details

Program Requirements: 27 units

Required Courses (15 units)

- CE 507 | Mechanics of Solids
- CE 529a | Finite Element Analysis
- One of the following courses in structural design:
  - CE 537 | Advanced Reinforced Concrete or
  - CE 539 | Advanced Steel Structures
- CE 541a | Dynamics of Structures
- CE 526 | Engineering Mathematical Methods

Elective Courses (12 units)
M.S. in Civil Engineering (Transportation Engineering) – Program Details

Program Requirements: 27 units selected under the direction of the student’s adviser

Program Structure

- 18 units must be at the 500-level or higher in the Sonny Astani Department of Civil & Environmental Engineering or in related departments
- At least 15 units must consist of courses offered by or cross-listed in the Viterbi School of Engineering

Each student’s program is worked out in consultation with faculty and staff advisors. Many program alternatives are feasible, subject to academic advice. Some options and combinations may require more than 27 units to complete.
M.S. in Civil Engineering (Transportation Systems) – Program Details

Program Requirements: 27 units

Required Courses (16 units)
- CE 471 | Principles of Transportation Engineering
- CE 501 | Functions of the Constructor
- CE 515 | Sustainable Infrastructure Systems
- CE 579 | Introduction to Transportation Planning Law
- PPD 633 | Urban Transportation Planning and Management

Elective Courses (12 units)

Graduate Certificate in Transportation Systems also available.
M.S. in Civil Engineering (Water & Waste Management) – Program Details

Program Requirements: 27 units

Required Courses (15 units)
- CE 451 | Water Resources Engineering
- CE 453 | Water Quality Control
- CE 476 | Design of Pressurized Hydraulic Systems
- CE 501 | Functions of the Constructor
- SAE 515 | Sustainable Infrastructure Systems

Elective Courses (12 units)
Masters of Construction Management – Program Details

Program Requirements: A minimum of 33 units

Core Courses (16-17 units)

- CE 501 | Functions of the Constructor
- ARCH 511L | Seminar: Building Systems
- CE 556 | Project Controls – Budgeting & Estimating
- CE 566 | Project Controls – Planning & Scheduling
- CE 502 | Construction Accounting & Finance or ACCT 509 | Concepts of Financial Management Accounting or ISE 566 | Financial Accounting Analysis for Engineers

Track Requirement and Elective Courses (18 units)
M.S. in Environmental Engineering – Program Details

Program Requirements: 27 units

Core Courses (9 units)
- ENE 512 | Environmental Fluid Mechanics (Spring only)
- ENE 505 | Energy and Environment (Fall only)
- CE 505 | Data Management (Fall Only)

Air or Water Concentration (4 courses)

Suggested Electives (2 courses)
Application Criteria for Masters Programs

Each program has unique application requirements – please be sure to review specific information for your program(s) of interest: https://viterbigradadmission.usc.edu/programs/masters/msprograms/civil-environmental-engineering/

General Application Criteria

- Undergraduate degree (Bachelor of Science) in engineering, math, or hard science from a regionally-accredited university
  - The Masters in Construction Management requires an undergraduate degree from a regionally-accredited university with some training in capital management and statistics. Applicants with an undergraduate background that does not satisfy the course prerequisites will be counseled to correct the deficiency.

- A cumulative undergraduate GPA of at least 3.0 on a 4.0 scale is recommended

- Satisfactory scores on the general portion of the Graduate Record Examination (GRE) that are less than five years old

- Resume/CV and Supplemental Materials (Letters of Recommendation/Statement of Purpose)

- TOEFL (International Applicants)
Application Deadlines

Application Deadlines for 2018

Fall 2018
- Deadline to submit all required materials: January 17, 2018*
- Deadline for Scholarship Consideration (on-campus only): December 15, 2017

Spring 2019
- Deadline to submit all required materials: September 15, 2018*
- Deadline for Scholarship Consideration (on-campus only): August 31, 2018

* A deadline extension for DEN@Viterbi applicants may be available. Please email DEN@Viterbi.usc.edu for more information.

Helpful Links:
- List of DEN@Viterbi Programs http://viterbi.usc.edu/DENDegrees
- USC Graduate Application: https://usc.liaisoncas.com
Where Our Alumni Are Working

- What do our students do?
- What do our graduates do?
Course Delivery Methods

Methods of Course Delivery

• On-campus, full time
  3 classes per semester
  1.5 – 2 years to complete

• Online delivery via DEN@Viterbi
  1-2 classes per semester
  2.5 – 3 years to complete degree
How DEN@Viterbi Works

The Viterbi School of Engineering uses a state-of-the-art, proprietary web-based delivery system that enables students from around the world to access classes live or on-demand.

DEN@Viterbi Students:
- View the same lectures as on-campus students, with fresh content every semester
- Participate in highly interactive discussions with professors and peers
- Submit homework electronically
- Take exams at proctored testing centers near their home or work (or at USC if in the Los Angeles area)
# DEN@Viterbi Overview

<table>
<thead>
<tr>
<th></th>
<th>DEN@Viterbi Student</th>
<th>On-Campus Student</th>
</tr>
</thead>
<tbody>
<tr>
<td>Program Admission</td>
<td>USC Graduate Application &amp; required materials</td>
<td>USC Graduate Application &amp; required materials</td>
</tr>
<tr>
<td>Weekly Course Lectures</td>
<td>Online with Interactivity</td>
<td>On USC’s Campus</td>
</tr>
<tr>
<td>Online Course Archives (Lectures &amp; Course Documents)</td>
<td>✓</td>
<td>✓ *</td>
</tr>
<tr>
<td>Assignments</td>
<td>Submit electronically according to course deadlines</td>
<td>Submit during lecture or lab according to course deadlines</td>
</tr>
<tr>
<td>Exams</td>
<td>Proctored location</td>
<td>USC’s campus</td>
</tr>
<tr>
<td>Courses per Semester (Average)</td>
<td>1-2</td>
<td>3-4</td>
</tr>
<tr>
<td>Degree Completion Requirements</td>
<td>27-37 units with a 3.0 GPA or above</td>
<td>27-37 units with a 3.0 GPA or above</td>
</tr>
<tr>
<td>USC Diploma (No Distinction)</td>
<td>✓</td>
<td>✓</td>
</tr>
</tbody>
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*DEN@Viterbi Sections Only*
DEN@Viterbi’s E-Learning System

DEN@Viterbi Classroom
DEN@Viterbi’s E-Learning System

- Table of Contents
- Week 4
- Lecture Video 09/13/2017

- Breadcrumbs for easy navigation
- Bookmark needed content areas
- Navigate to the next item or previous

- Pull-out tab for easy weekly content access
- Player controls include play/pause, and forward/rewind 30 seconds

- Stream in HD, SD, or on your mobile device

USC Viterbi
School of Engineering
DEN@Viterbi’s E-Learning System

Helium Porosity vs. Air Permeability

- Used to select porosity cut-offs, for reservoir rocks.
- Based on permeability values.
Student Interactivity & Group Meetings

- All DEN@Viterbi students are provided access to their own meeting rooms which can be used for several purposes:
  - Enable video communication (web and mobile)
  - Integrate phone conferencing
  - Integrate fixed room IP video systems
  - Desktop sharing
  - Set up meetings with faculty, teaching assistants and peers

- Call in during live lectures
- Participate in live chats and threaded discussion boards
DEN@Viterbi

Question: Is there any difference between earning a Master’s degree on campus vs. via DEN@Viterbi?

Answer: NO. DEN@Viterbi is a delivery method. Students adhere to the:

- Same Admission Criteria
- Same Curriculum
- Same Exams and Homework
- Same Academic Standards and Graduation Requirements

Therefore...

You earn the same diploma whether you earn the degree on-campus or online through DEN@Viterbi.
DEN@Viterbi Additional Info

- **Limited Status**
  - Allows strong candidates to begin coursework before formal admission.
  - Courses *(maximum of 12 units)* can be applied toward degree program once admitted but *limited status does not guarantee admission*.
  - Get Started this **Spring 2018**: https://viterbigradadmission.usc.edu/denviterbi/getting-started/

- **Tuition Deferment Program**
  - Students supported by company can defer “up front” payment of tuition until after the semester is over.
  - Company must pay 75-100% of tuition to be eligible for program.
  - For additional information: https://viterbigrad.usc.edu/tuition-and-funding/employer-supported
## Tuition & Fees (2017-2018)

<table>
<thead>
<tr>
<th>PER-COURSE FEES</th>
<th>Unit Cost</th>
<th>Tuition for 3-Unit Course</th>
<th>Tuition for 4-Unit Course</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tuition for 500/600 level course</td>
<td>$1,937</td>
<td>$5,811</td>
<td>$7,748</td>
</tr>
</tbody>
</table>

Degree Programs are 27-36 units (9-11 courses)

For an overview of additional fees, please visit: [https://viterbigradadmission.usc.edu/programs/masters/tuition-funding/tuition-funding-masters/](https://viterbigradadmission.usc.edu/programs/masters/tuition-funding/tuition-funding-masters/)
Getting Started

For those interested in taking classes on campus:

- Visit USC campus
- Start your application:
  http://www.usc.edu/admission/graduate/apply

For those interested in taking classes online via DEN@Viterbi:

- Start as a Limited Status Student in Spring 2018 -or-
- Start your application:
  http://www.usc.edu/admission/graduate/apply
Contact Us

USC Viterbi School of Engineering
Graduate & Professional Programs

On Campus: viterbi.gradprograms@usc.edu
DEN@Viterbi: DEN@Viterbi.usc.edu

213.740.4488

http://viterbi.usc.edu/gradprograms