Graduate Engineering Programs at Villanova University

PRESENTED BY:

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Why Choose Villanova Engineering Graduate Studies?

- **Personal attention**
  - Typical course size is 5-15 students
  - We respond to on-line questions quickly, within 24 hours
- **Dedicated, engaged faculty**
  - Courses taught by full-time faculty and adjunct faculty that are experts and expert practitioners in their fields
- **Convenient: Full-time or part-time study**
  - Begin either fall or spring semester
  - Programs are **flexible**, with only a few required courses
  - Rolling two-year course schedules posted on web sites
  - Courses meet one day per week, normally in evening. Spring (14 wk), Summer (8 wk), and Fall (14 wk) semesters.

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Why Choose Villanova Engineering Graduate Studies?

- **Nearly all courses available via. distance education (DE)** for additional flexibility
  - Learn on campus or in DE mode; same class, same professor
  - **All** students (DE and on campus) have access to recorded materials

- **High-quality research**
  - Leading-edge research is incorporated into the classroom

- Most courses **grounded in engineering fundamentals**
  - With applications covered each class that you can apply the following day at your job

- More than a dozen **Certificates** are available
  - Including Nonlinear Dynamics and Control, Electric Power Systems, Urban Water Resources Design, and Electro-Mechanical Systems
  - Along with the growing fields of Sustainable Engineering, Cybersecurity, and Biochemical Engineering

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Programs (in addition to PhD in all programs)

- **Master's Degrees (30 credits - thesis and non-thesis options)**
  - Biochemical Engineering
  - Chemical Engineering
  - Civil Engineering
  - Computer Engineering
  - Cybersecurity
  - Electrical Engineering
  - Mechanical Engineering
  - Sustainable Engineering
  - Water Resources and Environmental Engineering

- **Sample of Certificates (12-15 credits each, see website for complete list of 15)**
  - Biochemical Engineering
  - Cybersecurity
  - Urban Water Resources Design
  - High Frequency Systems
  - Wireless and Digital Communications
  - Machinery Dynamics
  - **New! Financial Engineering**
  - Engineering Entrepreneurship
  - Nonlinear Dynamics and Control
  - Sustainable Engineering
  - Electromechanical Systems
  - Thermofluid Systems

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Admission Requirements
Domestic Students

Bachelor's degree in engineering from an ABET-accredited school or established foreign school

- Undergraduate degrees in Physics and other sciences may be considered with some makeup requirements

Completed online application

- Min. undergrad GPA of 3.0/4.0
- Professional resume
- Statement of Purpose
- Two Applicant Rating Forms
- Transcripts
  - Every prior institution of higher education
  - Officially translated if from non-U.S. institution
  - Domestic applicants may submit unofficial transcripts for application review purposes. If admitted, enrollment is contingent upon receipt of official transcripts
- GRE Scores
  - Score requirements vary by program – GRE Score Requirements

DEADLINES

Fall: June 1*

**Domestic only*

Admission Requirements
International Students

- GRE exam scores for international applicants and non-ABET-accredited degrees
- TOEFL or IELTS scores and good communication skills as evidenced through recommendation letters and possible U.S. work experience
- WES Credential Evaluation
  - *Required for International applicants to the Ph.D. program*

DEADLINES FOR INTERNATIONAL APPLICANTS

Enrollment Term
Fall: April 1

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Curricula that Meet Your Needs

Villanova's MS programs provide maximum flexibility, allowing you to customize your course of study

- Pursue courses that match your personal interests and career goals while obtaining your degree
- Complete your degree at your own pace
- Obtain a **certificate** on your way to earning your degree
- Courses are scheduled on a consistent, regular basis ensuring you can complete and customize your degree without interruption. See program web sites.

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Degree Completion Timeline

You could have your master's degree as early as Spring 2020!

10 - 3 CR courses = 30 CREDITS

2 YEAR PLAN		
YEAR	SEMESTER	# CREDITS
Year 1	Fall 18	6
	Spring 19	6
	Summer 19	6
Year 2	Fall 19	6
	Spring 20	6
	TOTAL CREDITS	30

2.5 YEAR PLAN		
YEAR	SEMESTER	# CREDITS
Year 1	Fall 18	3
	Spring 19	6
	Summer 19	3
Year 2	Fall 19	6
	Spring 20	3
	Summer 20	6
Year 3	Fall 20	3
	TOTAL CREDITS	30

3.5 YEAR PLAN		
YEAR	SEMESTER	# CREDITS
Year 1	Fall 18	3
	Spring 19	3
	Summer 19	3
Year 2	Fall 19	3
	Spring 20	3
	Summer 20	3
Year 3	Fall 20	3
	Spring 21	3
	Summer 21	3
Year 4	Fall 21	3
	TOTAL CREDITS	30

76% of students complete their degree within three years.

Department of Civil and Environmental Engineering

- **Degree Options**
  - Master of Science in Civil Engineering
  - Master of Science in Water Resources and Environmental Engineering

- **Specialty areas of concentration include**
  - Environmental
  - Geotechnical
  - Structural
  - Transportation
  - Water Resources Engineering
  - Interdisciplinary options are available

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Department of Chemical Engineering

- **Degree Options**
  - Master of Science in Biochemical Engineering
  - Master of Science in Chemical Engineering

- **Specialty areas of concentration include**
  - Biochemical
  - Biomedical
  - Pharmaceutical
  - Energy
  - Catalysis
  - Environmental Applications

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Department of Electrical and Computer Engineering

Degree Options

- Master of Science in Electrical Engineering
- Master of Science in Computer Engineering
- Master of Science in Cybersecurity

MSEE specialty areas of concentration include

- Signal Processing & Communication
- High Frequency Systems
- Microelectronics & VLSI
- Electric Energy Systems
- System Dynamics & Control
- Interdisciplinary Options are available incl. certificates with ME, ChE, and Sustainability

MSCpE specialty areas of concentration include

- Computing Hardware and Software
- Computer Networks & Security
- 25+ available courses spanning:
  - Advanced Computer Architecture, Multimedia Systems, Communication Networks, Digital Systems and VLSI Design, Software Engineering, Cloud Computing, and Computer Security

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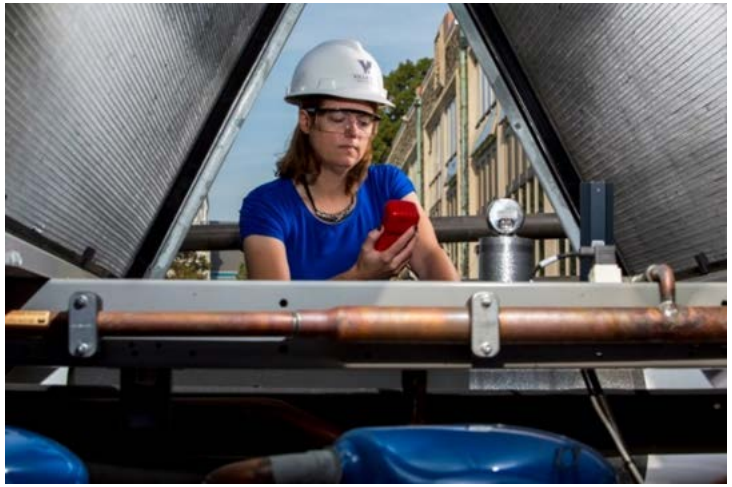
Department of Mechanical Engineering

- **Degree Options**
  - Master of Science in Mechanical Engineering
- **Specialty areas of concentration include**
  - Engineering Analysis
  - Thermal-Fluids
  - Dynamics & Control
  - Solid Mechanics
  - Manufacturing
  - Materials
- **Note two new certificates!**
  - Simulation-based Engineering
  - Financial Engineering



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Sustainable Engineering

- **Degree Options**
  - Master of Science in Sustainable Engineering
- **Multi-disciplinary in nature, the MSSE degree has four core courses**
  - Climate Change and Sustainability
  - Life Cycle and Impact Assessment
  - Economic and Social Equity Integrators
  - Sustainable Materials and Design

- **Then choose from one of the following track options**
  - Alternative and Renewable Energy
  - Watershed Sustainability
  - Environmental Sustainability
  - Sustainable Infrastructure and Built Environment
  - Sustainable Materials
  - International Development

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Sustainable Engineering continued…

- Started in January 2010
  - One of only a few Sustainable Engineering programs in the U.S.
- Unique core course program integrated with existing engineering MS courses
- More than 100 MSSE graduates to date with about 65 currently enrolled students
- Growing interest on full-time and part-time basis; courses available via DE format

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More About E-Learning

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What is E-Learning

- The use of technology and the web to deliver and enhance the learning experience
- Each class is a live broadcast featuring expert instructors
- Enables working professionals to pursue their graduate-level education on their own schedules
- Synchronous model allows students to participate in real time with live class sessions or view the recorded lectures
- Class recordings are available to view at any time throughout the semester
- Course credit and costs are identical for both in-class and distance students

MAXIMUM FLEXIBILITY
Take classes on campus, online (synchronous or asynchronous) or alternate between options, depending on your personal schedule.

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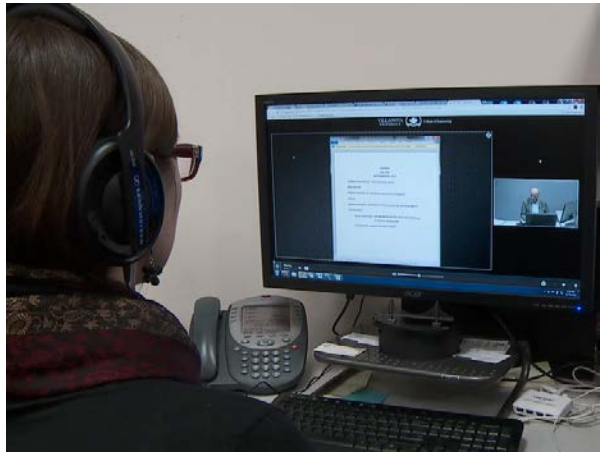
How it Works

- Simply register for the DL section of a full-semester course with the registrar
  - www.registrar.villanova.edu

a) Attend class live via the web, giving you the ability to watch and interact with the classroom at its scheduled course time

OR

b) Watch anytime at your leisure since the class is available on demand 24-7



- Assignments can be emailed to the professor, uploaded to BlackBoard or faxed in. Each professor has their own testing style which may include presentation, open-note, take home, or timed exams.

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Student Support

- Live/on-demand viewing on Windows PC based and Apple platforms

- On-demand viewing using mobile devices including iPhones, iPads, Androids and Surface tablets

- Access to the VDesktop system which houses many powerful engineering software suites to aid in assignment completion

VDesktop

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Proven Methodology

- Successful e-learning program operation since 2004
- 9 Online Graduate Engineering Degree Programs
- 13 out of 15 Graduate Certificates can be completed entirely online

- Content Statistics Over the Past Year:
  - 2,696 hours of content created
  - 67,120 individual viewings

- 100+ unique classes last year

- Current Student Body Located in 28 States and 6 Countries

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Student Feedback

- **96%** of students would recommend the program to a friend or colleague
- **98%** of students feel it is beneficial for them to be able to access the online recorded content
- **75%** of students agree that the e-learning program helped maintain a balance between career, personal life and school

Career Outcomes

70% of graduates received a raise or promotion within 6 months of graduating

(based on Fall 2016 survey data)

Air Products and Chemicals Inc.
ARUP
Bechtel
CACI International
Capital One
CH2M
Cigna
Dow
Environmental Resources Management
Glaxo Smith Kline
Jacobs Engineering
Janssen
Johnson Matthey
Lockheed Martin
Merck
Michael Baker International
Naval Surface Warfare Center
Northrop Grumman
PECO
Price Waterhouse Coopers
Prudential Financial
The Boeing Company
The Dow Chemical Company
Traffic Planning & Design
Urban Engineers, Inc.
World Resources Institute

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Summary

- Engineering E-Learning provides you with the option to complete your graduate education in either the distance or in-class delivery method or a blend of both
- Identical course offerings, content, outstanding faculty and support for all graduate engineering programs
- Flexibility and convenience for working professionals who can achieve their Villanova Master's in Engineering from any location
- For more information go to:
  - http://www1.villanova.edu/villanova/engineering/grad/elearning.html

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