Preview 2018

Registration Preparation Packet

Summer 2018
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I am delighted that you are pursuing your collegiate studies, with us, in the Batten College of Engineering and Technology at Old Dominion University. You will experience one-on-one interactions with our faculty and staff who will get to know you as individuals and take a personal interest in your learning experience. We will prepare you to achieve your goals in an environment where diversity and multiple perspectives are highly valued. We seek to educate the whole student while offering you a transformative experience, rich in practice and theory. I urge you to use today’s event to learn about the vitality of the College and if there is anything I or my staff can do to assist you, please do not hesitate to ask.

Welcome!!

Stephanie G. Adams, Ph.D.
Preview 2018 Registration Preparation Information

Welcome to Old Dominion University and the College of Engineering and Technology!

The information in this packet is designed to help you in preparing for class registration. We have compiled information about your general education requirements and Engineering Fundamental Courses for your review in order for you to be prepared to register for classes during preview.

- Students in MATH 162M or above are able to take the Exploring Engineering and Technology courses, ENGN 110 and XXX 111 (** Students must take ENGN 110 first before being eligible for a major specific 111 course such as CEE 111, MAE 111, ENGT 111, ECE 111, or MSIM 111), and other required science courses. Therefore, the first year schedule has already been determined (see p. 6 for Engineering First Year Program Curriculum).
- Mark off any classes you expect credit for from AP/IB/Dual Enrollment.
- Review the course descriptions for all classes by looking them up in the back of your catalog.
- Keep in mind that some class sections could be closed or may not be offered at the times you would prefer. Use the Alternate Options chart (on p. 11) to list a few backup courses in case this happens. Refer to the General Education Requirements Worksheet (p.7-8) for a list of possible courses.

Engineering First Year Program

Engineering Student Success (ESS) provides a support program for first-year intended engineering students as they transition into the Frank Batten College of Engineering and Technology. All admitted students are in this division until they are prepared to take courses in their major. The Engineering First Year Program prepares first-year engineering students for success in their engineering and technology education by providing a key experience through its fundamentals of engineering course series, by individualized counseling, advising, mentoring and tutoring. Exposure to different engineering disciplines during this period will help in making well-informed decisions when choosing their majors.

Students assigned to the Engineering First Year Program are considered “intended” until eligible to be “declared” their engineering or engineering technology major.

All engineering and engineering technology majors have to meet the following requirements:

- Earn an overall GPA of at least 2.0 or better (refer to departmental requirements)
- Earn at least 30 credit hours applicable to your major
- Complete ENGN 110 and XXX 111**
- Complete ENGL 110C with a "C" or above
- Complete freshman-level math courses with a "C" or above
- Complete any other departmental requirements

** Students must take ENGN 110 first before being eligible to register for a major specific Information Literacy & Research course such as CEE 111, MAE 111, ECE 111, ENGT 111, or MSIM 111.
## Batten College of Engineering and Technology Programs of Study

### Engineering Programs

<table>
<thead>
<tr>
<th></th>
<th>Bachelor’s</th>
<th>Master’s</th>
<th>Doctoral</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aerospace</td>
<td></td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Biomedical</td>
<td></td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>Civil</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Computer</td>
<td>X</td>
<td>X</td>
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</tr>
<tr>
<td>Design &amp; Manufacturing</td>
<td></td>
<td></td>
<td>X</td>
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<tr>
<td>Electrical</td>
<td>X</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Electrical and Computer</td>
<td></td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>Engineering Management</td>
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<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Environmental</td>
<td></td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Experimental Methods</td>
<td></td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>Mechanical</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Modeling &amp; Simulation</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Motorsports</td>
<td></td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>Systems Engineering</td>
<td></td>
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<td>X</td>
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</tbody>
</table>

### Engineering Technology Programs

<table>
<thead>
<tr>
<th></th>
<th>Bachelor’s</th>
<th>Master’s</th>
<th>Doctoral</th>
</tr>
</thead>
<tbody>
<tr>
<td>Civil (CET)</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Electrical (EET)</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mechanical (MET)</td>
<td>X</td>
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</table>
### FIRST YEAR CURRICULUM

#### ENGINEERING FIRST SEMESTER

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
<th>Term</th>
<th>Grade</th>
<th>Pre/Co-Requisites</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENGN 110**</td>
<td>Engineering &amp; Tech I</td>
<td>2</td>
<td></td>
<td>Co-MATH 162M or higher</td>
</tr>
<tr>
<td>CHEM121N</td>
<td>Chemistry I Lecture</td>
<td>3</td>
<td></td>
<td>P-MATH 102M/103M with “C” or better and pass chemistry placement exam</td>
</tr>
<tr>
<td>CHEM122N</td>
<td>Chemistry I Lab</td>
<td>1</td>
<td></td>
<td>Co-CHEM 121N</td>
</tr>
<tr>
<td>MATH 211*</td>
<td>Calculus I</td>
<td>4</td>
<td></td>
<td>P-MATH 163 with “C” or better</td>
</tr>
<tr>
<td>ENGL 110C</td>
<td>English Comp I</td>
<td>3</td>
<td></td>
<td>P-Pass WSPT</td>
</tr>
<tr>
<td>GEN ED REQ</td>
<td>(your choice – see pg. 7-8)</td>
<td>3</td>
<td></td>
<td>(your choice – see pg. 7-8)</td>
</tr>
</tbody>
</table>

#### ENGINEERING SECOND SEMESTER

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
<th>Term</th>
<th>Grade</th>
<th>Pre/Co-Requisites</th>
</tr>
</thead>
<tbody>
<tr>
<td>XXX 111**</td>
<td>INFO LITERACY AND RSRCH</td>
<td>2</td>
<td></td>
<td>P – ENGN 110 P-MATH 162M</td>
</tr>
<tr>
<td>CHEM 123N</td>
<td>Chemistry II (lecture only)</td>
<td>3</td>
<td></td>
<td>P-CHEM 121N with “C” or better</td>
</tr>
<tr>
<td>MATH 212</td>
<td>Calculus II</td>
<td>4</td>
<td></td>
<td>P-MATH 211 with “C” or better</td>
</tr>
<tr>
<td>CS 150</td>
<td>Intro to Programming</td>
<td>4</td>
<td></td>
<td>P-MATH 102M/103M</td>
</tr>
<tr>
<td>PHYS 231N</td>
<td>University Physics I</td>
<td>4</td>
<td></td>
<td>P-MATH 211 with “C” or better</td>
</tr>
</tbody>
</table>

*Math Placement is based on SAT or ACT scores
Any student may challenge his/her placement by participating in the ALEKS-PPL Placement Program.
** Students must take ENGN 110 first before being eligible to register for a major specific information literacy and research course such as CEE 111, MAE 111, ECE 111, ENGT 111, or MSIM 111.

#### ENG. TECHNOLOGY FIRST SEMESTER

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
<th>Term</th>
<th>Grade</th>
<th>Pre/Co-Requisites</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENGN 110**</td>
<td>Engineering &amp; Tech I</td>
<td>2</td>
<td></td>
<td>C-MATH 162M or higher level</td>
</tr>
<tr>
<td>MATH 162</td>
<td>Pre-Calculus I</td>
<td>3</td>
<td></td>
<td>P-MATH 102M/103M</td>
</tr>
<tr>
<td>ENGL 110C</td>
<td>English Comp I</td>
<td>3</td>
<td></td>
<td>P-Pass Writing Sample Placement test</td>
</tr>
</tbody>
</table>

Additional courses for MET or CET
- MET 120 or CET 120 Computer Aided Drw 3 no prerequisites
- CHEM121N Chemistry I Lecture 3 P-MATH 102M/103M with “C” or better and pass chemistry placement exam
- CHEM122N Chemistry I Lab 1 Co-CHEM 121N

Additional courses for EET or CpET
- EET 120 Logic Circuits & Micro 3 C-EET 125
- EET 125 Logic Circuits Lab 2 C-EET 120

#### ENG. TECHNOLOGY SECOND SEMESTER

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
<th>Term</th>
<th>Grade</th>
<th>Pre/Co-Requisites</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENGT 111**</td>
<td>INFO LITERACY AND RSRCH</td>
<td>2</td>
<td></td>
<td>P – ENGN 110 C-MATH 162</td>
</tr>
<tr>
<td>MATH 163</td>
<td>Pre-Calculus II</td>
<td>3</td>
<td></td>
<td>P-MATH 162M</td>
</tr>
<tr>
<td>PHYS 111N</td>
<td>General Physics</td>
<td>4</td>
<td></td>
<td>P-MATH 102M/103M</td>
</tr>
</tbody>
</table>

Additional courses for MET
- MET 240 Computer Solid Mod 3 P-MET 120
- GEN ED REQ (your choice – see pg. 7-8) 3 P-MET 120

Additional courses for CET
- GEN ED REQ (your choice – see pg. 7-8) 6 P-MET 120

Additional courses for EET or CpET
- EET 110 Electrical Circuits I 3 P-MATH 162M
GENERAL EDUCATION REQUIREMENTS WORKSHEET
2018 – 2019
Engineering and Engineering Technology Majors

You can view your full curriculum sheet (HERE)
Detailed course descriptions in the Undergraduate University Catalog (HERE)

WRITTEN COMMUNICATION SKILLS
Select Two (3 credits each):
☐ ENGL 110C – English Composition (pre-req: Score of 3 on Writing Sample Placement Test)

NOTE: UNIV 150 – Writing for College Success **Does not meet General Education requirements.

☐ ENGL 211C or *ENGL 231C – English Composition or Intro to Technical and Scientific Writing (pre-req: complete with a “C” or above ENGL 110C)  * ENGL 231C for CompE, EE, EET, CpET and ME Majors only.

ORAL COMMUNICATION SKILLS
☐ COMM 101R  Public Speaking

MATHEMATICAL SKILLS
Your proctored ALEKS placement test will determine your class placement.
☐ MATH 103M– College Algebra with Supplemental Instruction
☐ MATH 102M– College Algebra
☐ MATH 162M – Pre-calculus I
☐ MATH 163 – Pre-calculus II
☐ MATH 211 – Calculus I

*Engineering Majors up to MATH 307 required / Technology Majors up to MATH 211 with a “C” or above required.

FOREIGN LANGUAGE SKILLS
Select One Language (3-6 credits each):
☐ ARAB 111F – Beginning Arabic (6 credits)
☐ CHIN 111F – Beginning Chinese (6 credits)
☐ FR 101F-102F – Beginning French I and II (3 credits each semester)
☐ GER 101F-102F – Beginning German I and II (3 credits each semester)
☐ ITAL 101F-102F – Beginning Italian I and II (3 credits each semester)
☐ JAPN 111F – Beginning Japanese (6 credits)
☐ FARS 111F – Beginning Farsi (6 credits)
☐ LATN 101F-102F – Beginning Latin I and II (3 credits each semester)
☐ RUS 101F-102F – Beginning Russian I and II (3 credits each semester)
☐ SPAN 101F-102F – Beginning Spanish I and II (3 credits each semester)

*Students with 3 yrs of 1 language or 4 yrs of 2 different languages (i.e. 2 yrs of Spanish and 2 of French) in high school are exempt from this requirement if they are earning a Bachelor of Science (BS) degree; Bachelor of Arts (BA) degree programs require proficiency through the 202 or 212 (“Intermediate”) level.

INFORMATION LITERACY AND RESEARCH*
(You must complete ENGN 110 and be eligible for MATH 163 or higher to register for the following courses)
☐ CEE 111- CEE Information Literacy and Research
☐ ECE 111 - ECE Information Literacy and Research
☐ ENGT111- Engineering Technology Information Literacy and Research
☐ MAE 111- MAE Information Literacy and Research
☐ MSIM 111- MSIM Information Literacy and Research

*Refer to departmental requirements
**LITERATURE**
Select ONLY One (3 credits each):
- ENGL 112L – Introduction to Literature
- ENGL 114L – American Writers, American Experiences
- FLET 100L – Understanding World Literature

**INTERPRETING THE PAST**
Select ONLY One (3 credits each):
- HIST 100H – Interpreting the World Past Since 1500
- HIST 101H – Interpreting the Asian Past
- HIST 102H – Interpreting the European Past
- HIST 103H – Interpreting the Latin American Past
- HIST 104H – Interpreting the American Past
- HIST 105H – Interpreting the African Past

**HUMAN BEHAVIOR**
Select ONLY One (3 credits each):
- AAST 100S- Introduction to African American and African Studies
- ANTR 110S – Introduction to Anthropology
- COMM 200S – Intro to Human Communication
- CRJS 215S – Introduction to Criminology
- ECON 200S – Basic Economics
- ECON 201S – Principles of Macroeconomics
- ECON 202S – Principles of Microeconomics
- FIN 210S – Personal Financial Literacy
- GEOG 100S – Cultural Geography

- GEOG 101S – Environmental Geography
- POLS 100S – Introduction to International Politics
- POLS 101S – Introduction to American Politics
- PSYC 201S – Introduction to Psychology
- PSYC 203S – Lifespan Development
- SOC 201S – Introduction to Sociology
- WMST 201S – Women in a Changing World
- ENTR 201S-Intro to Entrepreneurship

**HUMAN CREATIVITY**
Select ONLY One (3 credits each):
- ARTH 121A – Introduction to the Visual Arts
- ARTS 122A – Visual Communication
- DANC 185A – Dance and Its Audience
- MUSC 264A – Music in History and Culture
- THEA 241A – The Theatre Experience
- COMM/THEA 270A – Film Appreciation

**PHILOSOPHY AND ETHICS**
- ENMA 480 Ethics and Philosophy in Engineering *(not eligible to take until the Junior year of your curriculum).*

**THE IMPACT OF TECHNOLOGY** (only for Civil Engineering Technology (CET) and Modeling & Simulation Engineering majors have to take a “T” course in this category. For all other engineering and engineering technology majors this requirement is absorbed in your curriculum) *(Refer to departmental requirements)*

**NATURE OF SCIENCE**
Met in the major with:
- CHEM 121N – Foundations of Chemistry I Lecture (pre or co-requisite: MATH 162M)
- CHEM 122N – Foundations of Chemistry I Lab (pre or co-requisite: CHEM 121N)
  * CHEM 121N and 122N is recommended for Electrical Engineering Technology (EET) Majors, but not required. They can choose another Nature of Science course.
- PHYS 111N-112N – Introductory General Physics (pre or co-req: MATH 162M)
  *Required for Engineering Technology Majors
- PHYS 231N-232N – University Physics (Prerequisite: MATH 211 with C or higher)
  *Required for Engineering Majors
PLACEMENT TESTING

Some college courses require a placement test to ensure you are in the best-fit class for your current ability level. It is important to represent your honest ability on the following assessments so that you can be successful in your freshman year. You have four required placement tests you should complete over the summer as a freshman engineering student: ALEKS-PPL for math, the Chemistry Placement test, the Visualization test, and the Writing Sample Placement Test (WSPT).

Recommended Placement Test Order

ALEKS-PPL Test
Start ALEKS-PPL as soon as possible. ALEKS-PPL includes a pre- and post-assessment, as well as practice modules. The pre-assessment score does not determine your class placement. The post assessment will be proctored. Recommended completion of pre-assessment: May 20th. Required hours in modules will vary by your module level.

Chemistry Placement Test
The Chemistry placement test is delivered via blackboard. The post assessment will be proctored. The Chemistry placement test includes modules for practice and review if you are dissatisfied with your score, so it is recommended to complete it early in the summer.

Visualization Test
The Visualization test is also delivered via blackboard and includes directions on how to complete the test. Students who do not make a passing score on the visualization assessment will need to take an additional course in their freshman year to develop spatial and abstract reasoning skills.

WSPT
The writing sample placement test requirement can be satisfied with AP, dual enrollment, or transfer credits. You can find more information about the writing sample placement test on the testing center website.

VISUALIZATION TEST AND COURSE

The spatial-visualization test evaluates the students' ability to think in three dimensions. Spatial visualization skills have been strongly suggested to impact engineering education. The results of this test will inform engineering advisors and allow them to recommend students to enroll in the zero-credit ENGN195 Spatial-Visualization course. There is no tuition cost for the student. More details on the class such as meeting times and scheduling will come at a later time.
COURSE LOAD

College courses are measured in credit hours. A three-credit course meets for three hours per week. Balancing your course load each semester is very important to academic success. In addition to time spent in class, some courses (usually science) require additional laboratory and recitation attendance.

- **Laboratories:** practical application of what has been taught in the classroom. Laboratories can carry 0-3 credit hours and are often as time-consuming as a lecture class.
- **Recitations:** extra time for instruction and help session. Recitations are required for some Math and Computer Science courses.

<table>
<thead>
<tr>
<th>“Full-time” Course Load:</th>
<th>Course Load Limit:</th>
</tr>
</thead>
<tbody>
<tr>
<td>12 credit hours is the minimum number of hours required to be a full-time student. Full-time status is often required for students to remain on their parents’ auto and health insurance.</td>
<td>18 credit hours is the maximum number of credit hours a student is allowed to carry without a waiver.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Average Course Load:</th>
<th>College Numbering System:</th>
</tr>
</thead>
<tbody>
<tr>
<td>15 credit hours is the average load carried by most students. To graduate in four years, with no summer attendance, a student must average 15 hours per semester.</td>
<td>100 – Freshman level</td>
</tr>
<tr>
<td></td>
<td>200 – Sophomore level</td>
</tr>
<tr>
<td></td>
<td>300 – Junior level</td>
</tr>
<tr>
<td></td>
<td>400 – Senior level</td>
</tr>
<tr>
<td></td>
<td>500/600/700 – Masters level</td>
</tr>
<tr>
<td></td>
<td>700/800/900 – Doctorate level</td>
</tr>
</tbody>
</table>

WORKING WHILE IN SCHOOL...

Be realistic! Students who plan on working while in school should follow the guidelines below to ensure that they do not overload themselves.

<table>
<thead>
<tr>
<th>A student enrolled for...</th>
<th>Should plan on working no more than...</th>
</tr>
</thead>
<tbody>
<tr>
<td>17-18 credit hours</td>
<td>Student should not be working!</td>
</tr>
<tr>
<td>14-16 credit hours</td>
<td>10-15 hours per week</td>
</tr>
<tr>
<td>12-13 credit hours</td>
<td>15-20 hours per week</td>
</tr>
<tr>
<td>7-11 credit hours</td>
<td>20-30 hours per week</td>
</tr>
<tr>
<td>6 credit hours or less</td>
<td>30-40 hours per week</td>
</tr>
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ACHIEVING ACADEMIC SUCCESS at ODU

ODU offers students many resources to help them achieve academic success – be sure to take advantage of them! Math and Science Resource Center. Learning Commons @ Perry Library Room 1312 for Math tutoring and Oceanography Building Room 146 for Chemistry tutoring: [http://sci.odu.edu/msrc](http://sci.odu.edu/msrc)

Testing Center: 757.683.3697, [http://uc.odu.edu/elt](http://uc.odu.edu/elt)
Offers placement testing including those for Foreign Language and Math (COMPASS).

Coordinates tutoring for many subjects and keeps a listing on their website of current tutoring hours and locations by subject.

Academic Skills Center: 757.683.3699, [http://uc.odu.edu/academicskills/](http://uc.odu.edu/academicskills/)
Coordinates the testing and grading of the **Writing Sample Placement Test** if you need to take this test, contact them!

Writing Center: 757.683.4013, [http://al.odu.edu/writingcenter/](http://al.odu.edu/writingcenter/)
Assists students with all stages of the writing process (for any subject). A GREAT resource!!
Planning Your Ideal Course Load

First, consider your circumstances for the upcoming semester:

- What subjects do you enjoy? With what do you tend to struggle?
  - Consider trying to balance the difficulty levels of your course selections so that you have a good mix of challenging and not-so-challenging classes.

- Will you be commuting?
  - Consider the peak traffic times on various roadways in Hampton Roads!
  - Do you have an alternate means of getting to school if your car breaks down?

- Will you be working? If so, how often?
  - Full-time workers should not attempt to do school full-time coursework as well – see chart on p. 10!

- Are there any courses listed on your curriculum sheet that you are worried about taking?
  - (e.g., you must take 2-6 MATH courses, but tend not to do well in Math)
  - If so, discuss this with your advisor early!

Proposed Schedule:

Engineers need a math course (i.e., MATH 103M/102M, 162M, 163, 211, etc.), a science course (i.e., CHEM, PHYS, and/or CS), an English composition course (i.e., UNIV 150 or ENGL 110C or higher), ENGN 110 (if eligible), and a general education course (your choice) at least. Please refer to page 6 of this packet for reference.

**Remember:** 12 credits is the minimum to be considered a full-time student.

(Example) Class: MATH 162M Pre-calculus I Credit Hours: 3 (Example)

<table>
<thead>
<tr>
<th>Class</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>MATH 162M Pre-calculus I</td>
<td>3</td>
</tr>
<tr>
<td>Class</td>
<td>Credit Hours</td>
</tr>
<tr>
<td>Class</td>
<td>Credit Hours</td>
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<td>Credit Hours</td>
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<td>Class</td>
<td>Credit Hours</td>
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<tr>
<td>Class</td>
<td>Credit Hours</td>
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</table>

Alternate Options:

<table>
<thead>
<tr>
<th>Class</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Class</td>
<td>Credit Hours</td>
</tr>
<tr>
<td>Class</td>
<td>Credit Hours</td>
</tr>
</tbody>
</table>
Departments at the Batten College of Engineering & Technology

Electrical & Computer Engineering
The programs provide broad foundations in electrical and computer engineering through combined lecture and laboratory work. The foundational and elective courses in electrical and computer engineering allow our students to pursue emphasis areas such as cyber-physical systems (communications, computer networks, controls, cyber security, digital systems, power systems, signal and image processing), solid-state & physical electronics (microelectronics, power electronics, photovoltaic, plasma, material science), and medical/biological systems (bioelectrics, brain-computer interfaces, medical imaging).

Civil & Environmental Engineering
The oldest of the engineering disciplines, evidence of civil engineering can be found in the ruins of civilizations from as early as 4000 B.C. Examples of civil engineering projects include buildings, bridges, foundations, retaining walls, dams and levees, roads and highway systems, railways and airports – all of which must be designed in a sustainable and resilient manner. Environmental engineers design and construct water treatment facilities and distribution systems, wastewater collection and treatment plants, solid and hazardous waste treatment and disposal facilities, while water resource engineers develop and protect surface and groundwater supplies and design storm water collection and detention systems.

Mechanical & Aerospace Engineering
Mechanical engineers are perhaps the broadest of all the engineering disciplines in its range of activities and functions. Concerned with design, manufacture and operation of a wide range of components, devices, or systems: microscopic parts to gigantic gears; more efficient heating, ventilation, refrigeration; laser technology; biomedical applications; automotive industry; computer-aided design, automation, robotics; and predictive maintenance and reliability technologies. Aerospace engineers design, analyze, model, simulate, and test aircraft, spacecraft, satellites, missiles, rockets, and drones. Aerospace technology also extends to many other applications of objects moving within gases or liquids. Aerospace engineers are typically specialists in fields with fancy names such as aerodynamics, propulsion, navigation, flight testing, and more.

Modeling, Simulation & Visualization Engineering
Modeling and Simulation Engineering teaches you how to capture your idea in computer-speak and test it out under different real-world conditions using graphs, animations, or virtual reality to view its behavior and then using what-if analytics to make your idea better. We teach you how these techniques can be applied within a variety of jobs in areas such as medical & healthcare, human & autonomous behaviors, cybersecurity, transportation, and serious gaming.

Engineering Technology
Engineering Technology offers baccalaureate programs in Civil, Electrical and Mechanical Engineering Technology with opportunities for specialization in multiple areas. All engineering technology programs rely heavily on hands-on experience and industrial practice. Math and natural science requirements are generally lower than engineering programs. Engineering Technology education focuses primarily on analyzing, applying, implementing and improving existing technologies and is aimed at preparing graduates for practice in the product design, development, improvement, manufacturing, and support.

Engineering Management & Systems Engineering
Engineering Management focuses on improving the management of engineering and the operation of technology-based enterprises. Systems Engineering is the discipline that designs, develops, deploys and manages engineering systems in many cutting edge i. Key areas include Project Management, Innovation & Entrepreneurship, Risks Management, and Operations Research.
Preferred Option

**Precision 5520 Non-touch Screen**

- 7th Gen Intel Core i7-8750H (Quad Core, 3.90GHz Turbo, 8MB 45W, w/Intel HD Graphics 630)
- 15.6 UltraSharp FHD IPS (1920x1080) Wide View Anti-Glare LED-backlit with Premium Panel Guarantee
- NVIDIA Quadro M1200 w/4GB
- 16GB (1x16GB) 2400MHz DDR4 Non-ECC SDRAM
- 256GB 2.5” 7mm SATA Solid State Drive Class 20, MPW
- Dell Wireless 1820 Card (802.11ac+ Bluetooth 4.2) 2x2, MPWS
- Backlight Keyboard
- 56WHr, 3-cell Lithium Ion Battery
- 130w Power Adapter
- Windows 10 Pro 64 English

Total with 1 Year Dell Limited Hardware Warranty: $1,699
Total with 4 Year Safeware for accidental damage: $1,988

**Inspiron 15 5000 Series (5567) with Touch Screen**

- 7th Gen Intel Core i7-7500U Processor (Dual Core, 4M Cache, up to 3.50 GHz)
- 15.6-inch FHD (1920 x 1080) Truelife LED-Backlit On-cell Touch Display (ties to IR Camera)
- AMD Radeon R7 M445 Graphics 4GB GDDR5
- 16GB 2400MHz DDR4 (16GBx1)
- 1TB 5400 RPM SATA Hard Drive
- 802.11ac + Bluetooth, Dual Band 2.4GHz & 5GHz, 1x1
- DVD-RW Drive
- Backlit Keyboard
- 42WHr, 3-Cell Battery (Integrated)
- 65 Watt AC Adapter
- Windows 10 Home Edition 64bit English

Total with 1 Year Dell Limited Hardware Warranty: $899
Total with 4 Year Safeware for accidental damage: $1,118

**Special Order Option**

**Precision 5520 with Touch Screen**

- 7th Gen Intel Core i7-8720HQ (Quad Core 2.90GHz, 3.90GHz Turbo, 8MB 45W, w/Intel HD Graphics 630)
- 15.6 UltraSharp UHD IGZO (3840x2160) Touch Wide View LED-backlit with Premium Panel Guarantee
- NVIDIA Quadro M1200 w/4GB
- 16GB (1x16GB) 2400MHz DDR4 Non-ECC SDRAM
- 256GB M.2 PCIe Solid State Drive Class 40
- Dell Wireless 1820 Card (802.11ac+ Bluetooth 4.2) 2x2, MPWS
- Backlight Keyboard
- 97WHr, 6-cell Lithium Ion Battery (integrated)
- 130w Power Adapter
- Windows 10 Pro 64 English

Total with 1 Year Dell Limited Hardware Warranty: $2,249
Total with 4 Year Safeware for accidental damage: $2,618

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