

## IENG 493E - New Product & Service Development

**Semester:** Spring 2019

**Time/location:** TR 9:30-10:45 am, MRB 105, 01/07-04/26

**Number of credit hours:** 3

**Method of Instruction:** Lecture / Project-based Learning

**Course Description:** This course introduces the new product and services development process including tools, methods, and techniques (e.g., design thinking, 6-3-5, morphological box) that are used by companies and innovators. We will discuss the differences between B2B and B2C product development, impact of new technologies such as IoT and social media, as well as the multi-disciplinary nature of NPSD. The topics covered in this class span several disciplines, incl. marketing, engineering, and operations. The course is designed hands-on and the students will apply their new knowledge in a team environment, developing a new product and/or service over the course of the semester.

**Prerequisites:** None

**Co-requisites by topics:** None

**Textbook/Lecture:** All materials will be provided to students via WVU library online content

**Additional Required Resources:** Bound 7 ½ x 9 ¾ composition book (lined or quad-ruled)

**Instructor (Lecture):** Dr. Thorsten Wuest  
Assistant Professor, IMSE Department  
Room ESB 347, Email: [thwuest@mail.wvu.edu](mailto:thwuest@mail.wvu.edu)  
Office hours: Thursday 11:00am -12:00pm

**Twitter handle:** #IENG493E

**Tentative Schedule and Topics Covered in Lecture:**

<b>Week</b>	<b>Topic*</b>	<b>Misc*</b>
<b>1</b>	Introduction to New Product & Services Development	
<b>2</b>	<b>Concept</b> - Understanding the Market (opportunity) and Customer Requirements	Teams announced
<b>3</b>	<b>Concept</b> - Team Building / Project Management	
<b>4</b>	<b>Concept</b> - Concept Generation / Ideation	
<b>5</b>	<b>Concept</b> - Evaluation/Selection of concepts	Presentations Part 1 - CONCEPT Update
<b>6</b>	<b>Design</b> - Product and Service development / Design Process	
<b>7</b>	<b>Design</b> - Design Process / Cost Analysis	
<b>8</b>	<b>Design</b> - Phase gates (Stage gates) / Entrepreneurship mindset / NPSD business models	
<b>9</b>	<b>Design</b> - Product vs. Service / PLM	Guest Lecture – Industry Perspective
-	<i>Spring Recess March 9<sup>th</sup> – March 17<sup>th</sup>, 2019</i>	
<b>10</b>	<b>Design</b> - Technical Product & Service development	Guest Lecture – Industry Perspective
<b>11</b>	<b>Design / Delivery</b> - Prototyping	Presentations Part 2 - DESIGN Update
<b>12</b>	<b>Delivery</b> - Product & Service Launch	
<b>13</b>	<b>Delivery</b> - Product & Service Operation	
<b>14</b>	<b>Delivery</b> - Product & Service Lifecycle Management	Final presentations
<b>15</b>	Final presentations / <i>Demo Day (April 25<sup>th</sup>, 2019)</i>	Final presentations

\*SUBJECT TO CHANGE AT DISCRESSION OF INSTRUCTOR AT ANY TIME

**Contribution of course to meeting the professional component:**

Engineering topics: 100%.

**Student Learning Objectives:**

Students completing this course successfully will:

- Demonstrate knowledge and practical experience of working in a multidisciplinary new product and service development environment by considering the contributions of different disciplines to product innovation.
- Demonstrate competences for new product and service development and comprehend the value of the contributions of different disciplines to product innovation such as marketing, industrial design, production and sales.
- Identify different managerial and engineering tools, methods, and techniques for new product and service development, and apply these methods in the new product and service development process.
- Develop a new product and/or service throughout the semester using the product and service development tools taught in the course.

**Grading:**

Assessment	Ind. / group	% of final grade	sub-assessment	% of final grade
Literature Review	Individual	15%	-	15%
Log-Book	Individual	10%	Part 1 (Mid-Term)	5%
			Part 2 (Final)	5%
Quizzes (9 out of 10)	Individual	15%	-	15%
Project	Group	60%	Final Report	30%
	Group		Presentation 1	7.5%
	Group		Presentation 2	7.5%
	Group		Final Presentation	15%

**Grading Scale:**

- A = 90 – 100%
- B = 80 – <90%
- C = 70 – <80%
- D = 60 – <70%
- F = < 60%

Assignments are due on the due date and time assigned. Assignments due in class (whether hard copy or electronic) are due at the beginning of the class on the due date assigned or by the established deadline. Late assignments will not be accepted or graded. Extenuating circumstances may be considered at the discretion of the instructor.

**In-Class Quizzes (15%):** There will be 10 in-class quizzes throughout the semester. Quizzes will be given at any time during class at the discretion of the instructor and cannot be made up if missed. The lowest quiz-grade will be forgiven, covering all possible absences.

**Statement on Attendance:** This is a highly participative course, and attendance is mandatory. Students will be permitted three unexcused absences. Unexcused absences cover emergencies incl. medical emergencies, personal reasons, etc. Students are responsible for all material covered in class. Course grade will be lowered by one letter grade for the fourth and for each subsequent unexcused absence. Excused absences are at the sole discretion of the instructor and have to be communicated at least 1 week in advance. Excused absences will not be accepted after the absence was recorded. Possible reasons for excused absences include only those that involve university business (conferences, sporting events) and/or military obligations.

**Institutional Policies:** This course abides by all University Policies that can be found using the provided link (<https://tlcommons.wvu.edu/syllabus-policies-and-statements>). These policies include but are not limited to: Academic Integrity Statement; Academic Standards Policy; Accessibility Statement; Adverse Weather Statement; Attendance Policy; Campus Safety Statement; Inclusivity Statement; Incomplete Policy; Sale of Course Material Statement; Sexual Misconduct Statement; Student Evaluation of Instruction Statement

### **Academic Integrity**

The integrity of the classes offered by any academic institution solidifies the foundation of its mission and cannot be sacrificed to expediency, ignorance, or blatant fraud. Therefore, I will enforce rigorous standards of academic integrity in all aspects and assignments of this course. For the detailed policy of West Virginia University regarding the definitions of acts considered to fall under academic dishonesty and possible ensuing sanctions, please see the Student Conduct Code. Should you have any questions about possibly improper research citations or references, or any other activity that may be interpreted as an attempt at academic dishonesty, please see me BEFORE the assignment is due to discuss the matter. All assignments will be checked for plagiarism via Turnitin and the instructor. Anyone caught engaging in academic dishonesty may be assigned an F for the assignment or for the course and/or be recommended for an UF for the course, per the WVU Academic Integrity policy.