Syllabus

IE 6425

PLM AND SUSTAINABLE DESIGN
(4 credits)

Winter Semester

Instructor: Dr. Kyoung-Yun Joseph Kim
4815 Fourth St
Rm 2067 (Manufacturing Engineering Building)
313-577-4396
kykim@eng.wayne.edu

Class Hours: Tuesday 5:30 PM to 7:20 PM and Thursday 5:30 PM to 7:20 PM
On-line lecture recording (TBD)

Classroom: Rm. 2060, Manufacturing Engineering building

Office hours: Tuesday 1:00 PM to 2:00 PM
Or by appointment

Course Website: http://blackboard.wayne.edu

Course Objectives:

- Familiarize the current principles, practices, and applications of Product Lifecycle Management (PLM).
- Aware that the sustainable design of product and process and the early consideration of the constraints and factors become more important to successfully develop competitive products.
- Learn integrated, information driven approach to all aspects of a product’s life from its design inception, through its manufacture, deployment and maintenance, and culminating in its removal from service and final disposal.
- Aware that PLM technology is playing a critical role in most of the modern industries including aerospace, automobile, medical, etc.
- Experience effective integration of PLM technologies into the product development process that can put the industry at a competitive advantage to deliver innovative products.
- Experience modern PLM strategies, methods, and tools.

Learning Outcomes:

After students complete this course, they will be able to:

- Remember the reasons for adopting PLM strategies and methods.
- Identify PLM’s impacts on corporate strategy, structure and operations.
- Distinguish product development processes.
- Distinguish associated engineering information with the product development process.
- Construct and manage product data using PLM/PDM technologies.
- Construct managed product data during the PD process
- Defend information technology for supporting product development process
- Distinguish the challenges in product data integration in product lifecycle
- Construct general strategies and principles for the successful implementation of PLM

**Text Book:**

Lecture notes and reading material will be provided during the class.

**References:**


**Grading:**

<table>
<thead>
<tr>
<th>Component</th>
<th>Percentage</th>
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<tr>
<td>Mid-term and final Exams</td>
<td>40%</td>
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<tr>
<td>Term Projects</td>
<td>25%</td>
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<tr>
<td>Reading assignment, quiz, &amp; class participation</td>
<td>25%</td>
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<tr>
<td>PLM lab</td>
<td>10%</td>
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- Individual projects, exams, and homework might be curved.
- All exams will be closed book and notes, except for a take-home exam.
- Project reports and special assignment reports have to be typed.
- Homework late by one class will be evaluated at 90% and more than one class at 70%.
- All homework must be submitted during the class in a printed form. On-line students must submit the homework by e-mail. Do NOT use a digital drop box. Please follow the electronic submission policy.

**Reading Assignments:**

Students should review the assigned article carefully and a summary should be submitted. The summary should include a) overview (one-page), b) strength of the article (half-page), and 3) weakness of the article (half-page). You may need to do back-tracking by search and read cited articles to fully understand the contents. The journal back-tracking is very encouraged and will receive bonus points.
# TENTATIVE SCHEDULE

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<thead>
<tr>
<th>Week</th>
<th>Topic</th>
<th>Lab</th>
<th>Assignments</th>
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<tbody>
<tr>
<td>Week 1 (Jan 10)</td>
<td>Course Introduction</td>
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<td>Week 2 (Jan 17 &amp; 19)</td>
<td>PLM Overview</td>
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<td>Reading assignment 1</td>
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<td>Week 3 (Jan 24 &amp; 26)</td>
<td>product data management and PLM</td>
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<td>Reading assignment 2</td>
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<td>Week 4 (Jan 31 &amp; Feb 2)</td>
<td>New product development and product data model</td>
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<td>Reading assignment 3</td>
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<td>Week 5 (Feb 7 &amp; 9)</td>
<td>Conceptual design and planning</td>
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<td>Reading assignment 4</td>
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<td>Week 6 (Feb 14 &amp; 16)</td>
<td>System design and product configuration</td>
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<td>Reading assignment 5</td>
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<td>Week 7 (Feb 21 &amp; 23)</td>
<td>Industrial case study 1 – project 1 (Feb 21)</td>
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<td>Week 8 (Feb 28 &amp; Mar 1)</td>
<td>Detail design</td>
<td>Lab 1</td>
<td>Reading assignment 6</td>
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<td>Week 9 (Mar 6 &amp; 8)</td>
<td>Mid-term exam (Mar 8)</td>
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<td>Project 2</td>
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<td>Week 10 (Mar 20 &amp; 22)</td>
<td>Prototyping &amp; product data exchange and sharing</td>
<td>Lab 2</td>
<td>Reading assignment 7</td>
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<td>Week 11 (Mar 27 &amp; Mar 29)</td>
<td>Product launch &amp; engineering change</td>
<td>Lab 3</td>
<td>Reading assignment 8</td>
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<td>Week 12 (Apr 3 &amp; 5)</td>
<td>Understanding knowledge</td>
<td>Lab 4</td>
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<td>Week 13 (Apr 10 &amp; 12)</td>
<td>Knowledge creation and management</td>
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<td>Reading assignment 9</td>
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<td>Week 14 (Apr 17 &amp; 19)</td>
<td>Sustainable design and PLM implementation</td>
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<td>Week 15 (Apr 24 and 26)</td>
<td>Collaborative PDM practice – project 2 (Apr 26)</td>
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<td>Week 16 (May 1)</td>
<td>Final Exam (May 1)</td>
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General Policy:

Student Conduct:

It is the responsibility of each student to adhere to the principles of academic integrity. Academic integrity means that a student is honest with him/herself, fellow students, instructors, and the University in matters concerning his or her educational endeavors. Thus, a student should not falsely claim the work of another as his/her own, or misrepresent him/herself so that the measures of his/her academic performance do not reflect his/her own work or personal knowledge. In this regard, cheating will not be tolerated. Cheating includes (but is not limited to) any communication (written or oral) during examinations and sharing of work, such as using the same models or computer programs or copying work. All homework and projects must be an individual effort unless specifically noted. STUDENTS WHO CHEAT ON ANY ASSIGNMENT OR DURING ANY EXAMINATION WILL BE ASSIGNED A FAILING GRADE FOR THE COURSE. Therefore, avoid all appearance of improper behavior! Students who witness cheating should report the incident to the instructor as soon as possible. Students are also welcome to discuss any concerns related to cheating with the Chair of Industrial & Manufacturing Engineering.

Educational Accessibility Services:

If you feel that you may need an accommodation based on the impact of a disability, please feel free to contact me privately to discuss your specific needs. Additionally, the Office of Educational Accessibility Services (EAS) coordinates reasonable accommodations for students with documented disabilities. The office is located in the Student Center Building, Room 583, Phone: 313-577-1851 (Voice)/577-3365(TTY).

Policy on Classroom Attendance:

All students are expected to attend all lectures, quizzes, and examinations with enthusiasm. Although classroom attendance does not mathematically contribute to the final course grade, active class participation is expected of all students and may help to boost up the course grade in those “borderline” cases” between failing and passing.