Engineering & Biomedical - Curriculum
PLTW Engineering Courses- S.T.E.M.

- Students engage in open-ended problem solving
- Learn and apply the engineering design process (Use the same leading technology and software as used in Industry and Manufacturing)

Students Investigate –

- Bio-Medical Engineering
- Intro to Engineering Design
- Digital Electronics
- Principles of Engineering

Opportunity to learn different engineering disciplines prior to College
Foundational Courses

Introduction to Engineering Design

- Engineering Design Process
- Apply math, science, and engineering to hands-on projects.
- Work both individually and in teams to design solutions to a variety of problems using 3D modeling software, and use an engineering notebook to document their work.

Principles Of Engineering

- Engage and challenge
- Engineering- mechanisms, the strength of structures and materials
- Students develop skills in problem solving, research, and design Learn strategies for design process documentation
- Collaboration, and presentation
Special Courses

- Civil Engineering and Architecture
- Computer Integrated Manufacturing
- Digital Electronics
Biomedical Engineering

Principles of Biomedical Sciences
- Overview of the human body and engineering as it pertains
- Broad topics to provide students with an image of what is to come

Human Body Systems
- Anatomy & Physiology
- Focus is on specific systems; structures and functions

Medical Interventions
- Topics cover interventions that may occur when body systems are out of homeostasis

Biomedical Innovations* Capstone
- Students apply knowledge from prior three courses to various real live issues
Capstone Courses

Engineering Design and Development

• The knowledge and skills students acquire throughout PLTW Engineering come together in EDD as they identify an issue and then research, design, and test a solution, ultimately presenting their solution to a panel of engineers.

• Completing EDD, students are empowered to take on any post-secondary program or career.
Capstone Courses

Biomedical Sciences

• Students apply their knowledge and skills acquire throughout the first three courses of Biomedical Sciences in **Biomedical Innovations**

• Students will complete an individual project utilizing the skills learned, ultimately presenting their project to a panel of medical professionals.
Course Assessment

- Decision Making using Valid and Reliable Scores

- End of Course assessments are available for all of the PLTW Engineering courses except the capstone courses, Engineering Design and Development (EDD.) and Biomedical Innovations (BI)

- EDD, uses a portfolio assessment hosted through the Innovation Portal.
College Credit

• Maintain a 85% GPA throughout the semester in the course
• Maintain a Portfolio Binder and/or Engineering Notebook
• Successfully Pass the PLTW Final Exam Assessment
• Apply* for credit with affiliate partners
  – Application fee and other criteria TBD by individual partners.
College Credit

Visit the PLTW Website for specific listing of all participating College’s and Universities

University Partners

- [https://www.pltw.org/university-partners](https://www.pltw.org/university-partners)
- [http://lakeview.kusd.edu/](http://lakeview.kusd.edu/)
M.S.O.E. University Partner

• Patricia J. Deibert | Associate Director – Wisconsin | PLTW Biomedical Science and PLTW Launch | www.pltwwi.org

• Milwaukee School of Engineering | 1025 North Broadway | Milwaukee, WI 53202

• 414-277-7214 – office | 414-581-4453 – mobile | deibertp@msoe.edu
PLTW Lab Activities
Some Activities

- Urine analysis
- Dissecting

Group Presentations

- Heart Rate
- Blood Pressure
- EKG
Summary

The purpose of the presentation was to review and cover a basic overview of the PLTW courses:

- Foundational
- Special
- Capstone
- PLTW Assessment

College Credit [https://www.pltw.org/university-partners](https://www.pltw.org/university-partners)

QUESTIONS concerning the PLTW Curriculum?
On the Web Visit: [www.pltw.org](http://www.pltw.org)