MET-2500: FUNDAMENTALS OF PRODUCTS DEVELOPMENT AND MANUFACTURE

Cuyahoga Community College

Viewing: MET-2500 : Fundamentals of Products Development and Manufacture

Board of Trustees:
2017-06-29

Academic Term:
Fall 2019

Subject Code
MET - Mech Eng/Manuf Ind Eng Tech

Course Number:
2500

Title:
Fundamentals of Products Development and Manufacture

Catalog Description:
Capstone Course. This course examines the fundamentals of new product development (NPD) including: preparing for product innovation, success factors of product innovation, ideation and concept creation, customers input, market analysis, use of social media, strategies for developing products, product launches and supply chain, post launch product management, and intellectual property implications.

Credit Hour(s):
3

Lecture Hour(s):
3

Lab Hour(s):
0

Requisites

Prerequisite and Corequisite
MET-1240 Machine Tools and Manufacturing Process; or MET-2060 Product Ideation & Design II or concurrent enrollment.

Outcomes

Course Outcome(s):
Design a solution to address relevant problem/need following the key elements of product development from cradle to grave.

Essential Learning Outcome Mapping:
Civic Responsibility: Analyze the results of actions and inactions with the likely effects on the larger local and/or global communities.

Objective(s):
1. Identify and utilize methodologies available in analyzing market trends.
2. Choose tools and methodologies appropriate for specific design and manufacturing needs.
3. Recognize resources available in analyzing new product design (NPD).
4. Determine if adequate resources are available to complete a project or design.
5. Understand time constraints related to product ideation to implementation.
6. Understand the cradle to grave concept in product creation.
7. Experiment and re-design for proper operation.

Methods of Evaluation:
1. Quizzes and Exams

2. Final Exam

3. Homework Problems

4. Course Project

Course Content Outline:

A. Preparation for New Product Launches

    1. New Products – What Separates the Winners from the Losers and What Drives Success

    2. Service Development

    3. Open Innovation and Successful Venturing

    4. Success Factors of New Product Development for Emerging Markets

B. Starting New Product Launches

    1. Effective Practices in the Front End of Innovation

    2. Getting Lightning to Strike: Ideation and Concept Creation

    3. Portfolio Management for Product Innovation

    4. Identifying Significant New Business Opportunities: The Magellan Process

C. Progressing with New Product Development

    1. Obtaining Customer Needs for Product Development

    2. User Research for Product Innovation: Qualitative Methods

    3. Market Analytics

    4. Social Media and New Product Development

D. Achieving Results

    1. Managing the Supply Chain Implications of Launch

    2. Post-Launch Product Management

    3. Understanding the Most Common Types of Intellectual Property Rights and Applying to Product Development Process

Resources

Foston, Arthur; Smith, Carolena; Au, Tony. *Fundamentals of Computer Integrated Manufacturing.* Upper Saddle River, Nj.:Prentice Hall, 1991.

Fuller, James L. *Robotics: Introduction, Programming, and Projects.* 2nd Ed. Upper Saddle River, Nj.:Prentice Hall, 1999.

Rehg, James A.; Kraebber, Henry W. *Computer Integrated Manufacturing.* 3rd Ed. Upper Saddle River, Nj.:Prentice Hall, 2005.

Wright, Kenneth. *21st Century Manufacturing.* Upper Saddle River, Nj.:Prentice Hall, 2001.

Mcmahon, Chris; Browne, Jimmy. *CAD/CAM Principles, Practice and Manufacturing Management.* 2nd Ed. Upper Saddle River, Nj.:Prentice Hall, 1998.

Besterfield, Dale H. *Quality Control.* 9 ed. Upper Saddle River, NJ.:Prentice Hall, 2013.

Valentino, James V. Goldenberg, Joseph. *Introduction to Computer Numerical Control.* 5th ED. Upper Saddle River, Nj: Prentice Hall, 2013.

Kahn, Kenneth B. et al. *The PDMA Handbook of New Product Development.* 3rd. Hoboken, New Jersey: John Wiley Sons, Inc., 2013.

Resources Other

  1. Computer hardware, QC Computer Software Program, and/or Microsoft Office

Top of page
Key: 2925