ME351 Management of Manufacturing and Logistics Systems

Credit: 3-0-0-3 Approval: Approved in 2nd Senate

Students intended for: ME and EE students (B.Tech. 2nd and 3rd year students)

Elective or Core: Elective Semester: Odd/Even

Prerequisite: There is no prerequisite. However, knowledge of basic mathematics and some understanding of manufacturing systems is an asset.

Course objective: In today's global economy, manufacturing and service companies no longer function in isolation, but have to interact closely with various stakeholders along their supply chains such as suppliers, business partners, outsourced companies, subcontractors, intermediary and final customers. Companies spend billions of dollars in procurement, transportation, manufacturing, inventory, distribution and finally meeting customers' product and service needs. These functions are extensive and span across companies and continents around the globe. The main objective of the course is to introduce and examine the role of coordination and integration of various functions along the supply chains via a system-wide thinking. Students will be exposed to ideas from business strategy, project management, risk management, trade-off analysis and economics, as well as tools from probability/statistics, and optimization.

Course content: This course deals with the application of management science models to manufacturing and logistics systems in order to achieve efficient and effective utilization of scarce resources. Among the topics covered are aggregate planning, scheduling, materials management, inventory control and project management. Recent developments in the area are introduced within the context of manufacturing and logistics systems. Modeling and implementation aspects of operations management are emphasized throughout the course.

TOPICS TO BE COVERED: Introduction to Manufacturing and Supply Chain Management, Project Management, Logistics Network Design, Aggregate Production Planning, Material Requirement Planning, Production Scheduling and Assembly Line Balancing, Inventory Management, Special Topics (Environmentally Conscious Manufacturing, Case Study of Logistics Network Design)

TEXTBOOK:

Introduction to Operations and Supply Chain Management , Cecil Bozarth, Pearson, ISBN

978-81-317-0320-5

SUGGESTED REFERENCES:

Factory Physics, 3rd Edition, W.J. Hopp and M.L. Spearman, McGraw-Hill, 3rd Edition, ISBN: 978-0-07-282403-2.

Business Logistics/Supply Chain Management, 5th Edition, R.H. Ballou, Prentice Hall, ISBN: 10-0130661848.