MODULE AIMS & OBJECTIVES

This course provides a general introduction to operations management of manufacturing systems. It will explore strategies for operating and optimising the production of products in different varieties and volumes with limited resources and in competitive environments. The impacts of design decisions on manufacturing performance and the physical organisation of plants are explored through various DFM and plant layout strategies.

Formal project management methods will be introduced reflecting the growing use of continuous improvement through project management.

SYLLABUS

- Materials Requirements Planning
- Just in Time Manufacturing
- Flexible Manufacturing Systems
- Capacity Planning
- Production Activity Control and the Master Production Schedule
- Management by project
- Project Life Cycle
- Elements of Project Management – cost, time, work
- Project Assessment
- Project Planning
- Project Control
- Risk Management
- Applied project management: factory layouts
- Process based layouts
- Product based layouts
- Case study

ASSOCIATED LABORATORY/PROJECT PROGRAMME

Case study (group)                  Project Management Assignment
LEARNING OUTCOMES

Upon completion of this module, students will (be able to):

Learning outcomes for Operations Management
• describe manufacturing planning and control strategies (e.g. MRP, MRP II, JIT)
• construct a materials requirement plan from a bill of materials and master schedule using finite and infinite capacity
• assess the influence of costs on a plan
• link DFM and layout strategies with production planning and control
• identify the key differences between product and process layouts
• identify and quantify key metrics for creating manufacturing cells
• apply contemporary techniques to layout design
• understand the role of purchasing in a manufacturing company

Learning outcomes for Project Management
• define objectives and deliverables in a project environment
• understand the role of project management in contemporary business practice
• write a project proposal including preliminary budgets and project controls
• apply planning methods including resource, time and cost planning
• understand the importance of risk assessment in developing alternate plans and emergency procedures
• be able to use graphical methods for presenting project schedules and plans
• be able to utilize contemporary techniques and technology for project management.
• apply course material to a project using MS Project software

TEACHING STRATEGIES

The course is taught using a combination of lectures, assignments, and tutorials. The bulk of the course material (notes, tutorials) are provided as handouts. There is a group based tutorial project developing skills in computer-based Project Management.

ASSESSMENT

Written Exam (80%), Practical work (20%)

REQUIRED/RECOMMENDED TEXTS

The core text book for the operation management part of the course is:


Other good general texts are:


The core text is an important base, but most topics will be supplemented with specialist readings which are listed under the headings.