



<b>Module Title</b> Management of Manufacturing Systems	<b>Module Code</b> MSDE 431	<b>Semester (Sem 1 / Sem 2)</b> Sem 1
<b>Credits</b> 10	<b>Level</b> 6	<b>Professor and email</b> Jipyo Kim jpkim@seoultech.ac.kr
<b>Delivery Method</b> Lecture / Project	<b>Delivery Location</b> SeoulTech, Mugung Hall	

### Module Synopsis

This module addresses various production management concepts, skills and their applications aiming to provide the student with a broad introduction to the field of operations in a realistic, practical manner. The student will learn a blend of topics from industrial engineering, management, management science and statistics. Assessment is through 3 quizzes during the semester and one final exam.

### Outline Syllabus

#### Overview of operations management

Organization to produce goods and services, operations in the service sector, the productivity challenge

#### The global environment and operation strategy

Definition of mission and strategy, three strategic approaches to competitive advantage, the significance of key success factors and core competencies, global operations strategy options

#### Managing Supply Chain/ Supply Chain Modelling

Sourcing issues, Supply chain risk, Manageing integrated supply chain, Logistics management, Distribution management, Measuring supply chain performance

#### Managing projects

AOA and AON networks, forward and backward passes for a project, a critical path, PERT/CPM, crash a project

#### Forecasting demand

Strategic importance of forecasting, forecasting approaches, time-series forecasting, associative forecasting methods

#### Product design



Product decision, QFD, issues for product design, time-based competition, defining a product, documents for production

### Managing inventory

Inventory models, probabilistic models and safety stock, single-period model, fixed-period systems

### Aggregate scheduling and MRP

Aggregate planning strategies, methods for aggregate planning, yield management, dependent inventory model requirements, MPR management

### Scheduling for the short term

Scheduling process-focused facilities, loading jogs, sequencing jobs, finite capacity scheduling

### Indicative Reading

- 1) Operations Management, 12th edition, Jay Heizer, Barry Render, and Chuck Munson, Pearson Education, 2017
- 2) Introduction to Materials Management, 8th edition, Stephen N. Chapman, J.R. Tony Arnold, Ann K. Gatewood, Lloyd M. Clive, Pearson Education, 2017

NOTIONAL STUDENT WORKLOAD	Hours
MODE OF DELIVERY (FT / PT / DL)	FT
Lectures	50
Seminars	
Tutorials	10
Laboratories/studios/practical	
Directed learning	20
Independent Learning	20
Work experience/fieldwork	
Other: eg formal presentation	
Total Workload 100 hours for a 10 credit module 200 hours for a 20 credit module	100



Module Learning Outcomes	
KU1,3,4	<p>KU1. Evaluate and apply complex knowledge of the scientific and mathematical principles of engineering to solve Real-World problems.</p> <p>KU3. Introduce and utilise complex methodologies to create solutions to a variety of Real-World engineering problems.</p> <p>KU4. Define and investigate complex problems and constraints that occur in engineering design with the aid of advanced tools.</p>
IPSA2,3	<p>IPSA2. Professionally communicate a broad range of engineering concepts to expert and non-expert audiences using a variety of advanced formats and media.</p> <p>IPSA3. Derive solutions to complex health and safety, sustainability and environmental issues in the engineering sector.</p>
PVA1,2,3	<p>PVA1. Describe, with justification, solutions to benefit society by applying structured engineering practise with a deep awareness of ethical considerations.</p> <p>PVA2. Critically analyse advanced solutions to complex engineering problems.</p> <p>PVA3. Reflect upon interpersonal and learning skills and explain their use in differing situations.</p>

Assessments	Assessment Type	Weighting %	Midterm/interim/final
Coursework			
Project			
Quiz	3 Quizzes /0.5 hours each	30	Midterm/interim
Test			
Laboratory			
Exam	Final formal examination /2 hours	70	Final
Presentation			