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|----------------------|----------------------------------------|---------------------|-----------------------------|
| Full Title | Operations Management (Apprenticeship) | | |
| Status | Uploaded to Banner | Start Term | 2017 |
| NFQ Level | 07 | ECTS Credits | 05 |
| Module Code | MGMT07064 | Duration | Stage - (26 Weeks) |
| Grading Mode | | Department | Mechanical & Industrial Eng |
| Module Author | Paul ODowd | | |

Module Description

This module provide an introduction to key principles, strategies, models and techniques used by organisations in the management of their operations.

Learning Outcomes

On completion of this module the learner will/should be able to:

1. Identify the role, tools and impact of Operations Management in the organization.
2. Compare and contrast appropriate strategies and competitive behavior for organizations.
3. Apply the stage gate process and engineering tools to Product, Process and Facility design.
4. Use an Enterprise Resource Planning system to perform capacity planning, inventory management and materials requirements planning.
5. Solve basic operations improvement problems.
6. Apply the Kaizen improvement phylosophy and methology for processes and systems improvement.

Indicative Syllabus

Operations and Strategy:

Nature of organizations: Inputs and Outputs, Mission statement, Objectives, Legal Framework

Overview of the functions and structures of organizations.

Management and control. Competitive practices.

Design:

Product and Service Design: Stage gate process: from idea to business need to feasibility/proof of concept to prototype to process, validation and shipping

Process design. Set-up, Qualification and Validation, Process Characterization and Risk Analysis, Equipment installation qualification, operation and performance

Plant decisions: Location and Layout. Equipment: selection and justification.

Types of production systems: job, batch, flow, group.

Planning and Control:

Capacity management: aggregate planning, measuring capacity, changing capacity, finite and infinite capacity planning, scheduling and loading.

Production Scheduling and planning: batch processing, minimum cost batch size, sequencing and scheduling, line of balance. Flow production, line balancing, Pull system, Kanban.

Inventory management: types of inventory, ABC analysis, cycle counting,

Inventory models: independent versus dependent demand, EOQ models

Materials Requirements Planning: Bills of Materials, Inventory Control,
Master Production Scheduling, Purchasing Control. Use an MRP package.

Operations Improvement

Performance measurement, benchmarking, continuous improvement, mapping.

Kaizen Methodology

Kaizen improvement philosophy

Kaizen Improvement methodology

Teaching and Learning Strategy

During GMIT block, this module will be delivered through 2 hours lectures and 1 hour practicals per week. In addition during the industry block, the student will also receive support from the lecturer to consolidate his experiential learning and deliver a small project.

Assessment Strategy

Operations Management is a "Type 3" apprenticeship module. It is 25% assessed during the Academic Block. Another 25% of the marks are for work done in the Industry Block. This Industry Block assessment may be integrated with the Engineering Software Systems Industry Block assessment, or with the Technical Project, if appropriate. A further 50% of the marks are for an "exam-format" assessment that takes place towards the end of the Industry Block.

This "exam-format" assessment, includes questions which are based on learning gained in the workplace. Students are asked to refer to examples of theory, tools and techniques used in their own company.

The assessment strategy of this module will be a combination of:

- exam type assessments.
- Industry project

A mid term assessments will represent 30% of the module. They will then have an industry project for 20% to recognise the transfer of acquisition of competences to the workplace. Finally, they will have an exam at the end of the industry module worth 50%. This assessment will be at the end of the industry module (end of term) to encompass the experiential learning acquired in the workplace.

Repeat Assessment Strategies

Students will be given the opportunity to take a repeat examination.

| Indicative Coursework and Continuous Assessment: | | 50 % | | |
|--------------------------------------------------|---------------------|---------|-------------------|-------------------|
| Form | Title | Percent | Week (Indicative) | Learning Outcomes |
| Assessment | Mid-term assessment | 30 % | Week 7 | 3,4,5,6 |
| Project | Industry project | 20 % | OnGoing | 1,2,3,6 |

| End of Semester / Year Formal Exam: | | 50 % | | |
|-------------------------------------|-------|---------|-------------------|-------------------|
| Form | Title | Percent | Week (Indicative) | Learning Outcomes |
| Closed Book Exam | Exam | 50 % | End of Term | 1,2,3,5,6 |

| Full Time Delivery Mode Average Weekly Workload: | | | 3.05 Hours | | |
|--------------------------------------------------|------------------|---------------------|------------|-----------|------------|
| Type | Description | Location | Hours | Frequency | Weekly Avg |
| Lecture | lecture | Flat Classroom | 1 | Weekly | 1.00 |
| Practical | Lab | Computer Laboratory | 2 | Weekly | 2.00 |
| Supervision | Industry project | Not Specified | 0.05 | Weekly | 0.05 |

| Part Time Delivery Mode Average Weekly Workload: | | | 1.50 Hours | | |
|--------------------------------------------------|-------------|----------|------------|-----------|------------|
| Type | Description | Location | Hours | Frequency | Weekly Avg |
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|-----------|-----------|---------------------|-----|--------|------|
| Lecture | Lecture | Not Specified | 0.5 | Weekly | 0.50 |
| Practical | Practical | Computer Laboratory | 1 | Weekly | 1.00 |

Recommended Reading Book List

Heizer, J., (2016). *Principles of Operations Management: Sustainability and Supply Chain Management, Student Value Edition (10th Edition)*. Pearson.
ISBN 0134183959 ISBN-13 9780134183954

Freeman-Bell, G., *Management in Engineering (2nd Edition)*. Prentice Hall.
ISBN 0132339331 ISBN-13 9780132339339

And, N., (2016). *Operations Management*. Pearson.

Literary Resources

Operations Management , Nigel Slack et al, Pearson, 7th Edition ISBN-13: 978-0273776208

Other Resources

Learnonline.gmit.ie materials - powerpoint.

DVDs of case studies.

Microsoft Excel

Syspro ERP Academic Edition – Manufacturing Management Software - Academic Alliance Program (or equivalent)

Additional Information

None

Programme Membership

GA_EMAJG_B07 201900 Bachelor of Engineering in Manufacturing Engineering (Apprenticeship)

GA_EMAPG_B07 201900 Bachelor of Engineering in Manufacturing Engineering (Apprenticeship)

GA_EMEDG_B07 201900 Bachelor of Engineering in Manufacturing Engineering Design