MEC7237 : Asset Management

Hours per semester				Weighted Total Mark	Weighted Exam Mark	Weighted Continuous Assessment Mark	Credit Units
LH	PT	TH	CH	WTM	WEM	WCM	CU
45	00	00	45	100	60	40	3

Course Description

The challenge for process improvement and maintenance engineering is to develop the most effective and at the same time efficient strategy for managing the performance, capability and condition of plant & equipment and other organisational assets in order to meet commercial, operational , health safety and environmental requirements. The asset management module provides a comprehensive overview of asset maintenance concepts, analyses and improvement strategies.

Course objectives:

- To give students a comprehensive overview of the field of maintenance and process improvement for various organisational assets both from a management and technical perspective.
- To give students the confidence and capability to conduct further work or research in this important field.
- Enable students to work in groups to improve problem-solving skills using computation, and to apply fact-based analyses to design maintenance and process improvement strategies and plans.

Learning Outcome

At the end of the course the students are required to know the following;

- Understand the steps involved in specifying equipment at the time of purchase and the importance of an ongoing reliability and condition monitoring program to ensure that performance is maintained and both condition and risk are appropriately identified and managed.
- Understand the various methodologies used in industry to estimate the level of reliability and remaining life of a critical component at a certain point in time, using statistical and mathematical techniques where appropriate.
- Understand the principle of Reliability-centered Maintenance (RCM), TPM, CMMS, and FMECA.
- Understand the major mechanisms involved in component and system degradation.
- Be able to conduct a reliability study and to make recommendations with respect to the maintenance plan and ongoing reliability program.

Course delivery method

The teaching of students will be conducted through lectures, tutorials, short classroom exercises, case studies, group discussions among the students and projects aimed at solving real life problems. The lecture material will be availed to the students in advance to enable them have prior reading. Solving real life problems in each theme or a number of topics will enhance the students' understanding of the problem based learning techniques

Assessment Method

Assessment will be done through coursework which will include assignments, class room and take home tests, project work and presentations and a written examination. Course work will carry a total of 40% and written examination carries 60%. Coursework marks will be divided into; Assignments 5%, Tests 10% and Practical Work 25%.

Course Content:

The meaning and value of maintenance (3 hours)
Overview of damage mechanisms and their maintenance burden, evaluation of equipment function reduction loss (6hours)
Failure modes, effects and critical analysis and failure prevention (6 hours)
Maintenance planning Condition based maintenance, condition monitoring techniques (4 hours)
Maintainability and reliability assessment, organizing for maintenance records: equipment record, inspection report check lists (6 hours)
Inspection schedules and maintenance cost records (6 hours)
Machine tools maintenance; general recommendations, insulation maintenance, bearing Maintenance, commutator and brushes maintenance (3 hours)
Maintenance and repair of electronic equipment techniques and procedures (3 hours)
Maintenance logistics (spare parts management) (2 hours)
Maintenance outsourcing (2 hours)
Computerization of the maintenance system (4 hours)

Reading list/references

1. Larry Bush, Maintenance Policy and Procedures Manual 2nd Edition Published by www.BIN95.com 2008 ESBN: E43-851B-1b34-10Q5
2. Carlo Scodanibbio World Class OEE calculation use to meet your Total Productive Maintenance Objectives, World Class OEE - A TPM Tool, Published by www.bin95.com 2008/09
3. Mike Sondalini. From Preventive Maintenance to Root Cause.
4. Mike Sondalini. The Japanese Path to Maintenance Excellence. The e-book that tells you how the Japanese destroy maintenance
5. Mike Sondalini CMMS Secrets,