YEAR III SEMESTER II

MEC3201: Maintenance Engineering

Hours per semester				Weighted total mark	Weighted exam mark	Weighted continuous assessment mark	Credit unit
LH	PH	TH	CH				CU
60	00	60	60	100	60	40	4

Course Description

This course presents the principles of maintenance, maintenance cost analysis and the application of computers in maintenance management. It is taught within 15 weeks of a given semester.

Course Objectives

At the end of this course, a student should be able to:

- Explain the purpose and principles of maintenance
- Describe the main organisational setups for maintenance

Describe the different strategies used in carrying out the maintenance activity Carry out maintenance cost analysis and effectiveness Explain the role of computers in maintenance management

Course Content

Introduction (8 Hrs)

- Meaning and Value of Maintenance,
- Historical Evolution
- Failure Patterns
- Challenges of the maintenance discipline
- Maintenance levels
- Types of maintenance and strategies

Maintenance Strategies and Planning (10 Hrs)

- Maintenance Programmes
- Planning and Scheduling

- Budgeting
- Human resource planning
- Outsourcing

Maintenance Costing (6 Hrs)

- Maintenance costs
- Cost analysis
- Replacement analysis and justification

Computerized Maintenance Management Systems (CMMS) (6 Hrs)

- Introduction
- Overview of CMMS
- CMMS Moduling
- Benefits of CMMS

Introduction to advances in maintenance (6 Hrs)

- Reliability-Centred Maintenance (RCM)
- Total Productive Maintenance (TPM)
- Design for Maintainability

Measurement of Maintenance Productivity (4 Hrs)

- Input measures
- Output measures
- Measures within the system

NB: 20 Hours are reserved for tutorials and tests

Mode of Delivery

Lectures and tutorials

Assessment

Course work (assignments and tests) and final examination Course work 40%

Final examination 60%

Total 100%

Suggested Reading:

1. UNIDO/ILO, "Maintenance Management Manual, With Special Reference to Developing Countries", ISBN92-1-106292-6, 1994.

2. Salif O. Duffuaa, Raouf A., John Dixon Campbell, "Planning and Control of Maintenance Systems, Modelling and Analysis", John Wiley & Sons, 1999.

3. "Maintenance of Instruments and Systems", 2nd Edtn, Edited by Lawrence D. Goettsche, ISA Research Triangle Park, NC 27709, USA, 2005.