Template for Course Proposal for Global Initiative of Academic Networks (GIAN)

<COURSE TITLE>

1.0 Overview

<Sample overview: In today's highly competitive business environment, management of physical assets (their selection, maintenance, inspection and renewal) plays a key role in determining operational performance and profitability of any business unit, manufacturing plant or industry that operate assets as a part of their core business. Asset Management, being the art and science of making right decisions and optimizing these processes, attempts to minimize the total life cost of assets and directly or indirectly influences manufacturing/production/operation/service cost, processes and quality, and throughput or delivery time. There is particular interest in the application of asset management principles to the management of engineering systems in any industrial unit where the cost and performance of the assets are of major significance.
Asset Management for any engineering system needs to focus on maintenance, renewal and enhancement activities, with an integrating mechanism, on delivering sustainable outputs valued by customers and fund-ing providers at the lowest whole-life cost emphasizing on creating knowledge of how assets degrade and fail to optimize maintenance and renewal interventions. It is essential that industries across India, many organizations of which being asset-intensive, promote a consistent asset management approach to their infrastructures and systems in overall manufacturing, production and supply chain domain to develop their own methods, standards and framework for achieving excellence in business performance.>

2.0 Objectives

The primary objectives of the course are as follows:
<i) Exposing participants to the fundamentals of asset management practices,
ii) Building in confidence and capability amongst the participants in the application of asset management tools and techniques and mapping the organizational activities and problems in terms of Asset Man-agement framework,
iii) Providing exposure to practical problems and their solutions, through case studies and live projects in asset management,
iv) Enhancing the capability of the participants to identify, control and remove asset management-related problems in engineering system.>

3.0 Teaching Faculty with allotment of Lectures and Tutorials

1. **Prof. Robert Langer (RL) : 6 hrs lectures and 6hrs tutorials**
2. **Prof. <Host Faculty>(PKR) : 4 hrs lectures and 4hrs tutorials**
3. **Prof. <other speakers>: ___hrs lectures and ___ hrs tutorials**

4.0 Course details

4.1 Tentative Duration: June 23 – June 27, 2017 (5 days) : 10 hrs lectures and 10 hrs Tutorials

4.2 Tentative Lecture Schedule

Day1

Lecture 1: 1 hrs: RL
Process Design Paradigm, Process Synthesis Approaches, Hierarchical Systematic Generation Task Coordination and Integration

Lecture 2: 1 hrs : RL
Residue Curve Theory, Separation Scheme Synthesis and Other Uses for Residue Curves, Opportunistic Separation Scheme Synthesis,
Tutorial 1: 2 hrs: RL
Problem solving session with examples: Heat Exchanger Networks, Heat-Integrated Distillation, Process Flowsheet Intensification

Day 2
Lecture 3 : 1 hrs: PKR
Challenges for Means-Ends Analysis Approaches, Strategic Separation Scheme Synthesis for Nonideal Systems
Lecture 4:1 hrs: RL
Residue Curve Theory, Separation Scheme Synthesis and Other Uses for Residue Curves, Opportunistic Separation Scheme Synthesis,
Tutorial 2: 2 hrs: PKR
Problem solving session with examples: Heat Exchanger Networks, Heat-Integrated Distillation, Process Flowsheet Intensification

Day 3
Lecture 5 : 1 hrs: RL
Process Design Paradigm, Process Synthesis Approaches, Hierarchical Systematic Generation Task Coordination and Integration
Lecture 6: 1 hrs: PKR
Residue Curve Theory, Separation Scheme Synthesis and Other Uses for Residue Curves, Opportunistic Separation Scheme Synthesis,
Tutorial 3.: 2 hrs: RL
Problem solving session with examples: Heat Exchanger Networks, Heat-Integrated Distillation, Process Flowsheet Intensification

Day 4
Lecture 7 : 1 hrs: RL
Challenges for Means-Ends Analysis Approaches, Strategic Separation Scheme Synthesis for Nonideal Systems
Lecture 8: 1 hrs: PKR
Residue Curve Theory, Separation Scheme Synthesis and Other Uses for Residue Curves, Opportunistic Separation Scheme Synthesis,
Tutorial 4: 2 hrs: RL
Problem solving session with examples: Heat Exchanger Networks, Heat-Integrated Distillation, Process Flowsheet Intensification

Day 5
Lecture 9: 1 hrs: RL
Nonlinear Optimization of distillation columns, Formulation of optimization problem, Solution techniques
Lecture 10: 1 hrs: PKR
Nonlinear optimization of Heat Exchanger Networks
Tutorial 5: 2 hrs: PKR
Problem solving on nonlinear optimization of distillation column and heat exchanger networks
Date of Examination: June 28, 2017

5.0 Who can attend

• Executives, engineers and researchers from manufacturing, service and government organi-zations including R&D laboratories.
• Student students at all levels (BTech/MSc/MTech/PhD) or Faculty from reputed academic institutions and technical institutions.

Course Coordinator

(signature)

Professor < Name of Coordinator>
Course Coordinator 1
Department of Industrial Engineering and Management, IIT Kharagpur
Kharagpur .721 302 West Bengal
Tel:
Email: