

THREE RIVERS COMMUNITY COLLEGE
COURSE OUTLINE

Course Number/Title: MFG K230 Statistical Process Control

Lecture 3 hrs Laboratory 0 hrs Credit 3 hrs Contact 3 hrs

Course Description: This course is cross registered with **BMG K218 – OPERATIONS MANAGEMENT**. **OPERATIONS MANAGEMENT** is a study of basic language, terminology, applications, tools and theory of business operations. Particular emphasis is placed on their application to structured problems comparable to those found in the global marketplace. This is both an introductory and intermediate course in applying various mathematical concepts, many with an emphasis on statistics and probability, to monitor, control and evaluate manufacturing processes. The course integrates the mathematics with many of the concepts of manufacturing process control, quality assurance, quality audits and acceptance sampling.

INSTRUCTIONAL METHODOLOGY:

- CLASSROOM LECTURE
- CLASSROOM DISCUSSION
- PROBLEM ANALYSIS & SOLUTION:
 - CLASSROOM DEMONSTRATION OF SAMPLE PROBLEMS
 - GRADED IN CLASS QUIZES USING COMPARABLE SAMPLE PROBLEMS
 - GRADED SOLUTIONS TO SELECTED “TEST” PROBLEMS
- HOMEWORK

Text: Operations Management by Heizer & Render, latest edition

Prerequisites: None Co-Requisites: MAT K167

COURSE TOPICS/CONTENT	HOURS
The following topics are covered in approximately the order presented:	
Review the capabilities and characteristics of Microsoft’s Excel spreadsheet and basic introduction to POM and Excel OM software programs	6
Measuring productivity using Excel and POM	6
Using Microsoft’s Excel solver	3
Linear Programming problem definition, set-up and solution using Solver and POM	6
Project Management using POM	6
Time series forecasting and Regression analysis using POM and Excel OM	6
Statistical process control problem definition and solution using POM, including the development, application, evaluation and interpretation of Control Charts for attributes; P Chart for number of non-conformities and C Chart for number of non-conformities and their relationship to the Normal Curve	6
Decision making tools and applications	3
Queing system problems and solutions	3
	TOTAL HOURS 45

Date: February 13, 2008

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Measurable Objectives

EDUCATIONAL OBJECTIVES - Develop a basic understanding of :

- Selected issues and types of problems relevant to providing goods & services in a global marketplace;
- How to solve operational problems & interpret the solutions;
- The use and application of selected software programs (tools) applicable to these issues;
 - The selection of the appropriate tool for the problem;
 - The translation of the problem information for input to the tool(s);
 - The generation, interpretation and application of solutions to the problems;
 - Solution optimization by changing inputs;
 - Effects of “what if” changes on the original solution(s);
- How to formulate an issue or problem for solution

The student should demonstrate:

- A. A basic knowledge of:
 - ◆ the use and application of Microsoft’s Excel spreadsheet program
 - ◆ the use and application of POM and Excel OM programs
- B. Problem definition, set-up and entry in the above software
- C. Interpretation of the problem solutions

All objectives will be measured by a combination of:

- A. Various tests emphasizing problem solving and computation with equal emphasis on theory and application.
- B. Weekly homework assignments comprising problem solving, data analysis and computation.