100-2 Preliminary Syllabus, Da-Yeh Univ

Information			
Title	決策分析方法	Serial No. / ID	1259 / NGR3078
Dept.	工業工程與科技管理學系碩士	School System / Class	研究所碩士班1年1班
Lecturer	陳郁文	Full or Part-time	專任
Required / Credit	Optinal / 3	Graduate Class	No
Time / Place	(五)567 / H503	Language	Chinese

Introduction

n engineering, it is often a problem to formulate a design in which there are several criteria or design objectives. If the objectives are opposing, then the problem becomes finding the best possible design which still satisfies the opposing objectives. An optimum design problem must then be solved, with multiple objectives and constraints taken into consideration. This type of problem is known as either a multiobjective, multicriteria, or a vector optimization problem.
As an example, in the design of an automobile an engineer may wish to maximize crash resistance for safety and minimize weight for fuel economy. This is a multiobjective problem with two opposing objectives, that is, a step towards improving one of the objectives, increasing crash resistance, is a step away from improving the other, increasing weight. As a second example, an engineer is given the task to design a beam with minimum deformation and weight. This is a multiobjective problem, again with two opposing objectives. That is, an increase in weight would cause a reduction in deformation. A third example is the design of a lathe for maximum metal removal rate and also maximum tool life. In order to increase the tool life, it is necessary to decrease the metal removal rate.

Therefore, this course is helping student understanding MCDM and developing models for their uses of practices.

Outline

Introduction
Review of Linear Programming Models
AHP, TOPSIS, MADM game
Computer Modeling Technique
case study and discussions
Fuzzy, Rough and Affinity Set
Software introduction for fuzzy, rough and affinity modeling
Network models
Queuing Models
Data Mining
Evolutionnary Algorithms
Modeling Art: Dr Chen`s selected paper reading
case study and discusisons
IT and Optimization

Prerequisite
Operational Research