A Framework on the Administrative Decision Model for Resource Loading

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Abstract

Decision-making activities in an educational institution involve dynamic actions and complex problems. One decision-making activity is the scheduling of classes every term. The varying goals of stakeholders comprising of students, faculty and administrators manifest the complexity of this activity.

This paper presents a framework on the administrative decision model for resource loading that will serve as a guide for the administrator in establishing teaching schedules. The administrative decision model utilizes goal programming in the assignment of faculty schedule to allow for consideration of multiple conflicting objectives inherent in the scheduling of classes. The model used nine systems constraints and three goal constraints. These goal constraints comprised of: maximize the teaching load of faculty members, minimize number of teaching preparations, and provide shortest possible teaching day (least possible time elapse between earliest and latest classes). These priority goals were subjected to a pair wise comparison to determine the ranking and corresponding weights of the priority goals of faculty members. Results of the model were generated using XPRESS MP optimization software.

The findings of the study revealed that administrators might find options in dealing with scheduling of faculty members of an educational institution and can provide administrators rationality in decision-making.

Keywords
Faculty scheduling, goal programming, multiple conflicting objectives, decision-making process

Biography
Rene D. Estember is a Professor in the School of Industrial Engineering and Engineering Management at the Mapua Institute of Technology in Manila City, Philippines. He earned his B.S. in Management and Industrial Engineering from Mapua Institute of Technology, Master in Business Administration from Ateneo de Manila University, Master of Science in Industrial Engineering from the University of the Philippines, and finishing his Doctorate in Business Administration from the Pamanatasan ng Lungsod ng Maynila (PLM), all located in the Philippines. He is presently undertaking consultancy work on quality management systems documentation and also involved as a regular resource speaker of a training company conducting technical trainings. His research interests include human factor and ergonomics, manufacturing, risk management and optimization.