Educational Program Planning Using Project Management Techniques

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Abstract

Universities increasingly are facing budgetary pressures along with stringent accreditation requirements. Students too have expectations of educational programs such as time to graduation, cost, quality, flexibility, and variety of course offerings. Researchers have addressed program planning using techniques such as optimization, simulation, Markov analysis, material requirements planning, and flow analysis (Little's Law). In this paper, we invoke project management methodology to address this problem by envisioning a program from the student's perspective as a project requiring completion of tasks (courses). Each "task" has a specific duration (semester) and precedence requirements (prerequisites). From the institution's standpoint, program management can therefore be viewed as one of managing multiple projects with the objective of minimizing average duration while meeting various student-facing criteria. However this poses a significant challenge to the institution beginning with the need to define appropriate performance measures that capture the subtleties in the education sector. Moreover, educational projects as defined here vary from conventional projects in that the client's participation goes beyond mere financial commitment and includes active value co-creation. Completing courses and navigating a path to degree completion requires collaboration of student and institution through the advising process. Our approach takes into account both strategic concerns and operational nuances.

Keywords
Project Management, Multi-Project Scheduling, Educational Program Planning, Higher Education, Value Co-creation

Biographies

Kingsley Gnanendran is a professor of operations management and director of the online MBA program at the University of Scranton, Pennsylvania, USA. He earned a B.S. in mechanical engineering from the University of Sri Lanka, an M. Eng. in industrial engineering and management from the Asian Institute of Technology, Bangkok, and a PhD in management science from the University of Tennessee-Knoxville. His research interests involve the application of optimization modeling to supply chains, and his publications have appeared in: *Decision Support Systems*, *International Journal of Production Research*, *European Journal of Operational Research*, and *International Journal of Production Economics*, among others. Dr. Gnanendran has been a Visiting Professor at the University of Waterloo (Ontario, Canada), Capital University of Economics and Business (Beijing), and Dayeh University (Taiwan). He is a member of INFORMS and APICS.

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