APPLYING OPERATIONS RESEARCH TECHNIQUES IN COURSE SCHEDULING IN THE HIGHER EDUCATION SYSTEM

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Abstract - Nationwide, on average only 34 percent of bachelor's degree seeking students graduate within four years. In some of California's large public universities, the 4-year graduation rate has lingered below 20% in the past decade. We found that there are two central reasons that students don't complete college, and they typically operate in tandem: inadequate preparation (non-completion of courses) and not getting correct courses at the right time. Our research apply process analysis techniques to examine curricular structure and assess the resulting capacity of students' probability of graduating in four years given the historical levels of academic preparation. We then use line balancing and critical path techniques to inform course scheduling, and establish key performance milestones for each degree roadmap investigated. Our research findings can assist university administrators to better understand the problem and thus make better decisions accordingly.