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To: Dr. Mary Jo Goedeke and Dr. Fang Lin  
Undergraduate Curricula Management and Assurance of Learning Committee

From: Dr. Choong Lee, University Professor of Management, and  
Prof. Shipra Paul, Instructional Professor of Management  
Both are instructors of MGT 420 at Kelce Undergraduate School of Business

Re: MGT 420 Quantitative Decision Making – Critical Thinking Assessment

Date: October 19, 2021

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Assessment results from Fall 2020 show that students performed well in translating the verbal statement of a problem into a linear programming statement, interpreting linear programming solution with computer output and making evidence-based decisions, but some deficiencies were recognized in the area of identifying optimal solution by using graphical solution procedure. As Undergraduate Curricula Management and Assurance of Learning Committee suggested, the instructors of MGT 420 (Quantitative Decision Making) have met and discussed how students' knowledge can be improved specifically in graphical solution procedure. The instructors also understand that the teaching and learning environment during the pandemic is unprecedentedly challenging to both instructors and students, especially for online classes. We came up with some elements that can be implemented (some have been implemented since Fall 2021) in MGT 420 and its prerequisite course MGT 320.

**Tutor:** In order to alleviate the deficiency in graphical solution, we requested for having tutors for Quantitative Decision-Making class (MGT 420) class, and this will be beneficial to improve their learning in the area. Here in this environment, a tutor can provide more individual help than that can be offered in a regular classroom setting. Unlike classroom setting, students here will be able to get one-on-one help on homework problems or any other questions they have regarding related topics.

**Pre-requisite class (MGT 320):** Basic Quantitative Business Method class (MGT 320) is a pre-requisite for Quantitative Decision Making class (MGT420). MGT 320 class covers a variety of topics and some of these topics include - algebra review, basic graphical concepts like finding slope, intercept, and drawing linear equation graph. If students have in-depth knowledge on these topics before they take MGT 420 class, their performance will increase significantly in this class. Thus, the instructor of MGT 320 is making plans to put more emphasis specifically on those topics needed for Quantitative Decision- Making class.

**More Student-focused Course Design:** Prior to the Pandemic, the course was structured into seven bi-weekly learning modules. To offer a more effective learning environment, each bi-weekly module has been expanded with more slides and divided into two weekly modules with more detailed explanations of all concepts and procedures for every quantitative method and technique. As a result, the course is currently structured as 15 weekly modules (including a new weekly module about "Review of Algebra" for the discussion of LP graphical solution method added to those 14 weekly modules) used for every class of MGT 420 instead of 7 bi-weekly modules used before the pandemic. We believe this fundamental change would provide students with a more learner-friendly environment.

**More Detailed Instruction Materials:** The total number of PowerPoint slides of all 15 modules is now 482 pages, representing a nearly doubled increase from the original 248 slides before the pandemic. This means we are able to provide more detailed explanations of concepts and procedures for each quantitative method or technique, as well as more examples with well-described step-by-step solutions. All homework problems each week are in similarity to those examples in the modules. In this way, students could check and confirm their understanding of each method or technique through practice. This is a model of “learning through doing by themselves”.

**Carefully Designed Weekly Roadmaps:** Embedded within each weekly module, there are well-described instructions with easy, simple, straightforward languages that contain necessary information including topics, new methods and techniques, their applications in today’s business world, and a list of homework problems. These instructions differ from a short announcement, as they provide a lot more guidance for the week. If students read the weekly instructions thoroughly, they should understand what subjects are covered, what methods and techniques are learned, and how to use them to solve decision making problems in the real world.

**Video Materials:** Another major addition to the course includes carefully selected video materials, such as associated YouTube presentations of topics and subjects discussed in the week. In the field of quantitative methods/techniques for business applications, it is widely recognized that using video materials is critically effective and important to help students understand challenging topics. Given the vast number of video materials on quantitative method/techniques available today, it is not easy (actually very difficult and time-consuming) to find useful and helpful ones for students (especially beginners like our students in MGT 420) suitable for their levels, backgrounds, and needs. Also, since virtually all video materials are made generally based on the author’s style of instructions and intended coverage, it is very challenging and difficult to find right ones for our students in those classes at PSU. During the unprecedented pandemic, it is more important and critical than ever to find and use right video materials especially for those students in our online quantitative classes, and therefore, a huge amount of time was spent to find and choose good relevant video materials for our students. Watching all those video materials are not required. However, students are encouraged to watch the videos as the course supplements.

The instructors are aware of the challenges and difficulties in those online quantitative business classes especially during the pandemic and are diligently working on for continuous improvement in every aspect of their teaching and instructions. Although many changes and modifications have been made in the last two years, more pedagogical changes with updated materials and approaches are expected for “continuous improvement” and “assurance of learning” for students in the classes. We are hopeful that integrating all the above changes in this class will improve our students’ deficiencies in this particular area and they will have better understanding on the topic.