**SYLLABUS MGT 6772 (Wed 6:00-8:45pm in COB 102)**
**Fall 2017**

# MANAGEMENT OF TECHNOLOGY

**Professor Bob Myers (RM 4259 <460A>, 404-385-4474)**
**OFFICE HOURS: Mon/Wed. 11:00-12:00 pm (may be re-scheduled due to faculty meeting conflict or guest speaker conflict) and by appointment**
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## General Course Overview: Learning Objectives

We focus on the multidisciplinary problem of managing a firm's dynamic resource capabilities (technology, work force, materials, information, processes, knowledge) for long-term competitive advantage. Particular emphasis is placed on planning under conditions including rapid technological innovation, international competition, and changing markets. Specific topics include positioning strategies, innovation and diffusion, technology strategy, knowledge transfer, performance measurement, process management, and implementation of new technology. The course reflects issues relevant to operations, information technology, marketing, organizational behavior and strategy.

Students are exposed to *cases* in actual manufacturing and service industry settings, articles from publications including the Harvard Business Review (focuses on management practice), and leading research in academic journals. The course requirements include a mid term, final exam and case analyses (cases are completed by interdisciplinary teams). A set of lecture notes is available to provide an integrative perspective on the material throughout the semester.

## Serve-Learn-Sustain

This course is part of Georgia Tech's Serve-Learn-Sustain (SLS) initiative, which provides students with opportunities to combine their academic and career interests with their desire to make worthwhile contributions to the world and build sustainable communities where people and nature thrive, in Georgia, the United States, and around the globe. More information about SLS can be found at www.serve-learn-sustain.gatech.edu. Visit the website to sign up for the SLS Email List, view the full list of affiliated courses and projects, and find links to Facebook, Instagram and Twitter.

## Course Materials

The materials used in the course include articles, cases, book chapters, and lecture notes. Lists of the materials are posted on T-Square under "Course Tools" then "Resources" then "Course Materials" https://t-square.gatech.edu. Additional materials will be handed out in class.

## Class Policy and Preparation

To encourage class participation **no electronic devices** (including laptops) may be used in class. No exceptions.

The due dates for *all* assignments (including cases) are posted on T-Square under "Course Tools" then "Resources" https://t-square.gatech.edu. T-square contains other useful information. *Assignments posted on T-Square are subject to change with at least one week advance notice so please check frequently.*

- READING SUMMARIES: YOU MAY NOT OBTAIN HELP FROM CLASSMATES OR STUDENTS WHO HAVE COMPLETED THE COURSE IN THE PAST.
- GROUP CASES: YOU MAY ONLY DISCUSS GROUP CASES WITH STUDENTS IN YOUR OWN GROUP – NOT WITH OTHER CLASSMATES OR STUDENTS WHO HAVE COMPLETED THE CLASS IN THE PAST.
- DO NOT ACCESS INTERNET INFORMATION ON ANY CLASS READINGS OR CASES.
- IF YOU HAVE COMPLETED A CASE IN ANOTHER CLASS, YOU MAY NOT HAND IT IN FOR A GRADE IN THIS CLASS.
- VIOLATIONS OF ANY OF THESE POLICIES WILL RESULT IN A GRADE OF "0" FOR THAT ASSIGNMENT.
- IF YOU TAKE TEXT DIRECTLY FROM A SOURCE (SUCH AS A READING), YOU MUST USE QUOTATION MARKS AND CLEARLY INDICATE THE SOURCE.
- PLEASE SEE ME IF YOU HAVE ANY QUESTIONS.

**COURSE OUTLINE** (See "Assignments" for list of readings)

I. POSITIONING STRATEGIES IN MANUF AND SERVICES

II. PRODUCT/PROCESS DESIGN AND DEVELOPMENT
- A. Product and Process Design Integration
- B. Managing New Product Development (NPD) Projects

III. INNOVATION, DIFFUSION AND TRANSFER
- A. Basic Concepts (Revolutionary-Evolutionary; Product-Process Innovation)
- B. Focus on NPD

IV. TECHNOLOGY VERSUS BUSINESS MODEL STRATEGY
- A. Terminology and Management Implications
- B. Component and Knowledge Outsourcing
- C. Corporate Entrepreneurship

V. PROCESS MANAGEMENT
- A. New Process Technologies in Manufacturing and Services
- B. Technology Implementation and Performance Measurement
- C. Mature Firms Staying Competitive

## GRADING

**Case Analyses and Class Participation: 40%**

This portion of the grade is to be completed in *groups.* A written analysis is due for 2 of the 4 cases (only those numbered and bolded in the syllabus are candidates). All groups must complete *at least one of the following*: Case 3 and/or Case 4. *To properly analyze these cases you will need to conduct both conceptual and mathematical analyses.* Please note that *not all cases are candidates for group analysis*.

Questions to guide each case analysis are given below. Each write-up should be no more than *three typed pages* (single-space, 12 point times font, 1 inch margins). Tables and graphs may be included in addition to the three pages of text. Case write-ups are due on the date indicated on the Assignment Schedule. Late write-ups are not accepted.

*Regular attendance and the quality of participation are also assessed in this portion of the grade. Attendance will be taken at random.*

Peer assessments will be collected at the end of the semester: each team member rates the relative participation of others.

Formation of Groups. Each group consists of 4-5 students (proportionately more work is expected of 5-member teams). I will form teams.

**Mid-Term Exam: 30%**

The format is essay and short answer. A study guide will be posted on T-Square about 1 week prior to the exam.

**Final Exam: 30%**

The format is essay and short answer. A study guide will be posted on T-Square about 1 week before the exam.

## QUESTIONS TO GUIDE CASE ANALYSES

### 1- Campbell Soup Case

1. How do you explain the current status of Plastigon after four years of effort?
2. What should Elsner do about Plastigon?
3. What can the firm learn from its experience with Plastigon?

### 2- Rise and Fall of Iridium

1. Who was to blame for Iridium's failure? At what point could you have known Iridium would fail?
2. What is your evaluation of Iridium's system design? What impact did the choices that were made have on the subsequent evolution of the venture?

3. What is your evaluation of Iridium's organizational design? What changes would you have made to increase the probability of a successful outcome?
4. What general lessons does Iridium provide for ventures seeking to develop technology intensive products or services?

**3- Eli Lilly and Company The Flexible Facility Decision: mathematical analysis is required for this case.**

1. How has the competitive environment in pharmaceuticals been changing over the past few years? What are the implications for the role of manufacturing within Eli Lilly?
2. How does each facility option affect Lilly's cost structure, capacity management, and product development capabilities? For what type of products does the proposed flexible facility provide an efficient (i.e., low cost) manufacturing capability?
3. What type of flexibility does the "flexibility facility" provide? What is the value of this flexibility to Eli Lilly? How much is Lilly paying for this flexibility?
4. Given Lilly's strategic goals in the 1990s, which option should Steve Mueller recommend? Are there other options that Lilly should be contemplating? If so, what are they?

**4- R&D Management at Universal Luxury Group: mathematical analysis is required for this case.**

1. What is the organizational structure of Universal Luxury's brands and R&D? What are the goals of the brands? What are the goals of R&D? In what ways do the goals of R&D conflict with those of the brands?

2. Does the necessary capacity exist in the R&D center to accept all projects proposed by marketing for the three brands? To answer this question, you will need to create a spreadsheet to compute the demand from marketing for each R&D resource versus the available capacity of each R&D resource. Utilization rates of each resource will be helpful.

   **HINT**: Assume 216 days/year; 19 chemists in texture. Demand for each R&D resource is based on data in Exhibit 13. Start in the category of SKINCARE. (i) Separately consider demand (#trials/year) for Rio, Queen, and Andanzy for each of innovation, core and variation. This will allow you to develop a *composite value for demand of the R&D resource* in skincare (#trials/year). (ii) Compute R&D resource capacity (# trials/year) available for skincare. (iii) Compute *resource utilization*. *REPEAT (i)-(iii)* for ancillaries; texture; and color.

3. In Question 2, you will find that insufficient R&D capacity exists to meet marketing demand for resources. Moreover, in the following year, marketing has submitted requests that will increase the demand for R&D by 15.4%. How would you respond to the shortage of capacity in the R&D center? What other recommendations do you have to improve firm performance?