

The Wharton School, University of Pennsylvania  
Operations and Information Management Department

### **Enabling Technologies**

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## **Course Description**

The course provides a broad overview of what's going on in the tech industry. Conducting business in a networked economy invariably involves interplay with technology. The purpose of this course is to improve understanding of technology (what it can or cannot enable), the business drivers of technology-related decisions in firms, and to stimulate thought on new applications. The class provides a comprehensive overview of various emerging technologies and culminates in discussion of potential business impact of these technologies in the near future. No prior technical background is assumed but some interest in (and exposure to) technology is helpful. Every effort is made to build most of the lectures from the basics. That said, students with prior background in tech will find it easier.

Objectives: The course has two main objectives: (i) Provide a broad overview of what's going on in tech (ii) Understand how technology can enable the delivery of online products & services (cloud computing, analytics) and in marketing to your customers (online marketing).

Every week, we will choose a specific sector of the tech industry and investigate the technology enablers, the major players in the sector, competitive dynamics and future opportunities in the sector. The sectors covered include:

### **Class (each lecture below is an 80 minute lecture)**

01. Introduction + Internet Industry Structure
02. Media Delivery Infrastructure (Content Delivery Networks)
03. Cloud Computing
04. Wireless/Cellular Markets I (Introduction + 3G/4G)
05. Wireless/Cellular Markets II (Mobile Platforms: iOS, Android, Windows)
06. Mobile Apps (**Homework 01 due**)
07. Internet Advertising I (Display Ads, Ad networks)
08. Internet Advertising II (Search Engines and Sponsored Search)
09. Ad Tech Platforms (demo)
10. Web & Mobile Analytics + Case Study: Launch of Lovely Mobile App (**Homework 02 due**)
11. Big Data + Mini-projects Discussion
12. AI & Machine Learning (**Quiz 01**)

- 13. AI & Machine Learning
- 14. Personalization on the web (**mini-projects announced**)
- 15. Office hours
- 16. IoT I (**mini-projects discussion**)
- 17. IoT II (guest lecture)
- 18. Payment Technologies
- 19. Educational Technology (EdTech)
- 20. Omni-channel retail
- 21. Hit-driven Industries (gaming, startups, apps)

**Mini-projects due**

- 22. Custora + Stitch guest lecture (building B2B businesses)
- 23. Starting Up and Raising Seed/Series-A Financing (Yodle Case Study) (**Quiz 02**)  
Readings: Yodle article by Hosanagar and Stevens

- 24. Discuss projects + student-suggested topics
- 25. Global Tech Markets

Readings: How eBay Failed in China. <http://www.forbes.com/sites/china/2010/09/12/how-ebay-failed-in-china/>

Powerplay in Tech Sector. <http://www.deccanchronicle.com/141227/commentary-columnists/article/powerplay-tech-sector>

- 26. Final Project Presentations (**Projects due**)
- 27. Final Project Presentations
- 28. Final Project Presentations

**Calendar**

Session Number	Date
01	Jan. 12
02	Jan 17
03	Jan 19
04	Jan 24
05	Jan 26
06	Jan 31
07	Feb 02
08	Feb 07
09	Feb 09
10	Feb 14
11	Feb 16
12	Feb 21
13	Feb 23
14	Feb 28
15	Mar 02
16	Mar 14
17	Mar 16
18	Mar 21

19	Mar 23
20	Mar 28
21	Mar 30
22	Apr 04
23	Apr 06
24	Apr 11
25	Apr 13
26	Apr 18
27	Apr 20
28	Apr 25

### **Intended Audience and Prerequisites**

Anyone interested in understanding the various technologies fundamental to business in a networked world. No prerequisite or technical background is assumed. Class lectures are built from the basics and are self-contained. Students with a limited technical background will find the course a useful primer on technology from a managerial perspective. Students with moderate to advanced technical backgrounds may find the course a useful survey of emerging technologies. The course is highly recommended for students with interest in any of the following areas: **entrepreneurial management, venture capital, new media, consulting/strategy, and product management/business development in the tech sector.**

### **Requirements and Grading**

There are 4 parts that contribute to the final grade in the course. One of these is based on group work.

- 1) Project (Group)  
35% (semester project: 25% and mini-project 10%). A group of 4-5 students can work on a class project. The project will be structured in 2 phases and will include a field-based mini consulting project where students will consult for actual startups (phase 1). Students will select the semester project (phase 2). The scope of the project can vary from being a business plan, a survey, or a case-based analysis of a problem. Sample projects from previous years will be posted on the website.
- 2) 2 Quizzes (Individual)  
30%
- 3) Homeworks (Individual)  
20% (2\*10). For each of the homework assignments, you should also submit a brief write-up which summarizes your response to the homework/case questions. Your write-up should reflect your own thoughts on the subject. Homeworks submitted late (i.e. after they have been discussed in class) will not be graded. Unfortunately, I cannot help you make up missed homeworks through other assignments/readings. It is not easy to create new assignments for individual students. Please do not email the professor or TA regarding this.
- 4) Class participation  
15%. To minimize subjectivity, class participation will be primarily (though not entirely) based on attendance. If you miss up to 2 sessions (i.e. a full 3 hour class), there will be no penalty. We understand that things come up (interviews, weddings, fevers/flu) and everyone has a buffer of two 90-minute classes for this. You are not expected to notify the professor or TA about your absence. For every missed class beyond the first two, points will be deducted. If you miss more than a third of the classes, you will get 0% for class participation. The purpose of this penalty is to account for the fact that several students who wanted to take the course were denied registration due to insufficient seats.

## **Guidelines for Project**

### Project Report

1. No required length (page limit). The reports will be judged on content.
2. I will evaluate the reports for the following (the latter two will be weighted more):
  - a. Quality of information gathered (“research”)
  - b. Structured information on your own (“writing and logical presentation”)
  - c. Analysis (quantitative or based on sound logical reasoning).

### Project Presentations

1. All teams must submit presentation slides as well.
2. On the last day, I will ask most of the teams to present the project (it is in your best interest to have 1 person present because time management is usually better achieved with one person presenting).
3. The goal of the presentation would be convey the basic idea in under 5 minutes. I realize this is insufficient time to showcase all the work you have done (☺), but the other option will be to have an additional class.
4. Additional details regarding the presentation slides and the presentation will be emailed later.

### Grading Approach

Total: 25 Points. All team members usually receive the same grade unless there is broad consensus among members of a team that effort has been disproportionate (all team members will answer a survey at the end of the course).

Objective: The idea is to use the project to explore topics of significant interest to you (but ones we did not cover in class in great detail).

## **Reading Materials for the Course**

1. All readings will be posted online (see course website for updates as we proceed).

## **Deliverables/Quizzes**

Please note all items that are bolded in the schedule above. These denote a deliverable or a quiz on that day.