

SYSE 590
Integrative Workshop
Winter 2008

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Part I

Objectives

0.1 My Career Thus Far

I have had a satisfying and, by some measure, successful career thus far. My career has been, until recently, heavily focused in the area of Internet/Web based software engineering. Spanning approximately 10 years, it has included roles in implementation, design/architecture, project/program management, engineering management, and others. My B.S. in Computer and Information Sciences gave me a strong foundation as a programmer, and I further developed the knowledge and skills to be an effective architect on the job. The completion of my MBA gave me the credibility and skills to be a more effective manager.

I have discovered, belatedly, that an MBA does not fully meet the needs of a technology/engineering manager. While the MBA curriculum is both broad and deep, and the skills I developed and knowledge I gained in completing the program have all proven valuable, there are still gaps. In order to be an effective leader in a corporate setting, it is necessary to both build credibility in the eyes of those above and below oneself in the organization.

0.2 Fundamental Objectives

0.2.1 Personal Satisfaction, Fulfillment, and Sense of Achievement

I am a fairly intelligent individual; I enjoy learning new concepts and skills, and how to employ them effectively, purely for their own sake. Many of my areas of interest are represented in modern Systems Engineering and Systems Science programs.

0.2.2 Earning Potential

Like most, I work to earn a living, and have financial objectives and obligations. I am always seeking ways to enhance my earning potential.

0.2.3 Stability

Much of my career has been spent in Internet/Web based businesses ... the stereotypical “dot-coms.” While the work is rewarding and lucrative, it is especially sensitive to economic fluctuations, as many of us have learned. Layoffs are common (I don’t think I know anyone in my field who hasn’t been laid off at least once), and competition from our foreign colleagues is increasing. I generally prefer to work for smaller companies, especially startups, where my work can have the most impact, but doing so increases my exposure to these risks. I am always seeking ways to reduce my risk of unemployment.

0.2.4 Career Options

I have worked in Internet/Web based software for about 10 years. While I enjoy the work, I do sometimes get bored with it; I also tire of some of the cultural aspects of the companies that are engaged in the industry. This is one reason I chose to pursue an MBA; an MBA is generic, in the sense that the skills and credentials are applicable to an enormous variety of roles. Not only does the MBA lend credibility in my current field, but it helps to reduce the barriers to jumping to another field.

0.3 Means Objectives

0.3.1 Personal Satisfaction

I get satisfaction from studying topics that I find interesting, and in performing well in school. This is, then, both a *means objective* and a *fundamental objective*.

0.3.2 Earning Potential

I am taking a three tiered approach, focusing on education, and experience, validated by certification.

Education

M.Eng I expect that my earning potential will be significantly enhanced by earning a graduate degree in engineering, as it has been by earning a graduate degree in business. I believe that the combination of an MBA and an M.Eng. (both in terms of skills, and in terms of credentials) will be highly marketable, and, in combination with my experience, will help me to command a satisfactory salary. Portland State is an accredited university, and the M. Eng. in Systems Engineering is recognized by INCOSE; by any measure the program can be expected to provide the rigor and credibility necessary to be well worth the time and effort necessary to complete it.

Certification

PMP I also intend to pursue certification from the Project Management Institute (PMI) as a Project Management Professional (PMP). This certification is widely recognized in industry, and complements all of the Systems Engineering curriculum, my other academic achievements, and my career progression to this point.

CSEP I am also contemplating pursuing certification from the International Council on Systems Engineering (INCOSE) as a Certified Systems Engineering Professional (CSEP). This

Experience I have spent my career thus far focused relatively narrowly on Internet/Web based software. In order to broaden my horizons, so to speak, I have taken a new job at a small consumer electronics (CE) firm, where I am involved in the production of both embedded software and hardware, as well as the integration of the two. This not only expands my experience beyond the Web, but also complements the new skills I am acquiring while progressing through the Systems Engineering curriculum.

0.3.3 Stability

This means both making myself more valuable to my present employer, and more attractive to potential employers. While MBAs are not exactly scarce, engineers with graduate degrees in engineering are not particularly common. An engineer with a strong business background is a rare beast, as is a manager with a strong engineering background. It is my hope that the completion of the M.Eng. program, combined with my other qualifications will create a

strong case for my being both, and will give me the skills and credibility that will make me an unbeatable value to the firm. It is my hope that the combination that I am targeting will allow me to find a niche that is hard to fill, and that I fill effectively.

0.3.4 Career Options

I consider the field of Systems Engineering to be generic, in the sense that the techniques, skills, and concepts are applicable to a wide range of problems. A degree in the field, for example, would have considerable value to someone intending to pursue a career in software engineering (and thus, will enhance my current career), electrical engineering (really, virtually any engineering discipline), business process reengineering, social, political, or economic engineering, or any one of a number of other fields. In fact, it is clear to me that the skills I have learned so far in the program would be profoundly useful to managers even in roles that aren't obviously engineering related; decision making and risk management, for example. Like the MBA, the M.Eng. in Systems Engineering will both enhance my current career path, and open doors for me to migrate to new fields.

Part II

PSU Master of Engineering in Systems Engineering Requirements

0.4 Core Courses (16 Credits)

SYSE 591 Systems Engineering Approach

SYSE 573 Requirements Engineering

EMGT 540 Operations Research in Engineering and Technology Management

Modeling Course Requirement *One of*

SYSC 514 System Dynamics

SYSC 527 Discrete System Simulation

SYSC 529 Process Modeling and Simulation

0.5 Electives (16 Credits)

SYSE 575 Reducing Risk in Decision Making

EAS 561 Reliability Engineering

SYSE 595 Hardware-Software Integration

0.6 SYSE 590 Integrative Workshop

0.7 SYSE 506 Project (9 Credits)

Part III

Plan

I have taken a single course per term; I learned in the Winter 2008 term that I cannot satisfy my personal and professional obligations while maintaining the quality of work and grades that I demand of myself while taking more than a single course. Thus, I will continue to take a single course at a time until I have completed the course requirements of the program.

0.8 Core Courses

Obviously, I must satisfy the *Core Courses* requirement by taking the core courses: *Systems Engineering Approach*, *Requirements Engineering*, and *Operations Research in Engineering and Technology Management*.

0.8.1 Modeling Course Requirement

I am extremely interested in all of the modeling courses, on a personal level. *Discrete System Simulation* holds the most fascination for me, and I anticipate it being the most immediately practical in my career, so I intend to satisfy my *Modeling Course Requirement* with that course. Pragmatically speaking, however, the timing of the offerings may mean that I can complete the program earlier if I take another of the modeling courses instead, which I find completely acceptable.

0.9 Electives

I prefer the online model for higher education; about half of my MBA was completed online, and it was a profoundly positive experience. I believe that I got a better quality of education than I would have in a classroom. I have had overwhelmingly positive experiences in my online courses at Portland State thus far, and so naturally, I prefer to avail myself of the online electives to the extent possible. Thus I intend to fill my elective quota with *Reducing Risk in Decision Making*, *Reliability Engineering*, and *Hardware-Software Integration*; fortunately, the *Reducing Risk in Decision Making* and *Reliability Engineering* both hold special interest to me, and are broadly applicable to my career. *Hardware-Software Integration*, on the other hand, is immediately applicable to my current job. This leaves me with a single elective to complete; given my interest in the modeling courses, it is my hope that I will be permitted to take a second modeling course to satisfy this elective¹. Failing that, there is no shortage of schools local to me offering various engineering programs from which I could take suitable course.

0.10 Integrative Workshop

This document is the output of the *Integrative Workshop* component.

¹I have not yet discussed this with Dr. Migliore...

0.11 Project

I have not yet selected a project!

Part IV

Progress

Course Number	Course Name	Requirement	Completed	Grade
SYSE 591	Systems Engineering Approach	Core	Completed Fall 2007	A
SYSE 573	Requirements Engineering	Core	Completed Spring 2007	A
EMGT 540	Operations Research in Eng. and Tech. Mgt.	Core	Completed Winter 2007	A
SYSC 527	Discrete System Simulation	Modeling	<i>TBD</i>	
SYSE 575	Reducing Risk in Decision Making	Elective	Completed Winter 2008	A
EAS 561	Reliability Engineering	Elective	<i>Spring 2008</i>	
SYSE 595	Hardware-Software Integration	Elective	<i>Summer 2008</i>	
SYSC 514	System Dynamics	Elective ²	<i>TBD</i>	
SYSE 590	Integrative Workshop	Workshop	Winter 2008 <i>ongoing</i>	
SYSE 506	Project	Project	<i>TBD</i>	

Part V

Uncertainty

At this point, I have confidence that I will be able to complete all of the course work involved in the program in a timely manner, and with the level of performance required. The areas of uncertainty, however, are:

0.12 Final Elective

Completing my final elective. It is my hope that I will be able to take a second modeling course to satisfy this requirement. Otherwise, I will have to find a local (to the greater Washington DC Metro Area) offering to satisfy this requirement.

0.13 Project

Completing my project. I have not yet selected a project. I am intimidated by the project requirement. I have spoken to my supervisor at work, and she is willing (eager, even) to help me to find and execute one in the course of my job, but I am not certain that there will be a feasible project to be found. I have more research, and correspondence with Dr. Migliore on this point yet to do, to clarify what, exactly, constitutes a viable project.