

Project Management and Graduate Education

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INTRODUCTION

Project Management is “the application of knowledge, skills, tools, and techniques to the project activities in order to meet or exceed stakeholder needs and expectations from a project” (Duncan, 1996). A project is defined as “a temporary endeavor undertaken to create a unique product or service” (Duncan, 1996). This article provides an overview of the coverage of the project management discipline in academic graduate education.

BACKGROUND

A number of professional organizations have developed around the world to address and foster this specific discipline. Most notable is the Project Management Institute (PMI, www.pmi.org) with about 100,000 members worldwide. Other major international organizations are the Association for Project Management (APM) and the International Project Management Association (IPMA) (Morris, 2001). These organizations have recognized there is a distinct skill set necessary for successful project managers, and the organizations are devoted to assisting their members develop, improve, and keep current these skills (Boyatzis, 1982; Caupin, Knopf & Morris, 1998).

Several universities have also recognized the fact that project management involves distinct skills, and that the traditional degree programs and courses in both business schools and other schools do not adequately cover and/or integrate these skills. The *Chronicle of Higher Education* recently reported that seven Philadelphia-area corporations established ties with four universities in that region to improve the business skills of computer science and IT students; most of these key skills involved the project management skill sets, which are specifically identified later in this document (*Chronicles of Higher Education*, 2001).

Perhaps self-evident from the previous paragraph is the fact that the knowledge and training needed by project managers covers both traditional business disciplines and disciplines involved with building or making things. Often the skills involved with building or making things would be found in an engineering curriculum, and also in information technology or computer science curriculums.

Since the skill sets needed by project managers are extensive, and since these skills involve both business and engineering disciplines, and also since most candidate students are degreed working adults, most schools have developed their project management curriculums as graduate school programs. A number of universities also have a single “project management” course offered as a graduate or undergraduate course.

TYPES OF GRADUATE DEGREE PROGRAMS

An analysis of universities currently offering graduate project management programs indicates several types of programs being offered:

1. A master’s level general degree program (such as an MBA) with a specialization in Project Management;
2. A full masters level (generally MS) program in project management; and
3. A “certification program” of several project management courses.

Some universities offer more than one of these program types. Also in some universities the program is offered in the School of Business (or Management) and in some schools the program is offered in the School of Engineering. In most universities, many of the courses appeared to be shared with other graduate degree programs; in other words, not all of the courses in the program are focused on project management.

PMI (and the other international project management organizations) have a certification program, and for PMI the designation is “Project Management Professional” (PMP). To obtain PMP certification, an individual must have 4,500 hours of documented project management experience over a period of six years, have a BS level college degree, and pass a rigorous 4-hour examination. The first PMP exam was given in 1984 to about 30 people, and today there are over 30,000 PMPs worldwide (Foti, 2001). Once the PMP status is obtained, an individual must earn 60 PDUs (Professional Development Units) every three years. Some universities offer a PMP Exam

Figure 1. Institutions offering graduate credit programs in project management

University	Organize	School	Certificate Program		MBA/MS Specialization		PM Masters Degree	
			# Courses	# PM	# Courses	# PM	# Courses	# PM
Amberton	KA	Business	4	4				
American Graduate Univ.	KA	Business					12	7
Boston University	KA	Business	8	8				
City University	KA	Business	6	6				
Colorado Technical University	Step	Both	6	6	13	6		
George Washington University	Step	Business					12	3
Int'l School of Info. Mgmt.	Step	Business	3	3	12	4		
Keller School of Management	KA	Business	6	4			14	6
Northwestern	Step	Engineering					12	4
Regis University	PG	Business			13	6		
Stevens Inst. Of Technology	Step	Business	4	4	12	4	12	6
U. of Management & Tech.	KA	Both	7	7				
U. of Wisconsin - Madison	KA	Business	6	6				
U. of Wisconsin - Platteville	Step	Business					12	5
University of Central Florida	Step	Engineering	5	1				
University of Maryland	Step + KA	Engineering					10	5
University of Texas - Dallas	Step	Business	6	1	10	1		
Western Carolina University	PG	Business					12	6
Wright State University	Step	Business			12	3		

Preparation course or cover exam prep material in one of their project management courses. However, most graduate programs do not cover exam prep; in fact, the graduate programs studied herein are more geared to providing the PDU credits for PMPs.

Figure 1 summarizes the program types for most of the U.S. universities offering project management programs “certified” by PMI. The list of such schools is on the PMI website (www.pmi.org). Out of the 19 schools listed, 11 offer a certificate program, six offer an MBA/MS specialization, and eight off a full Master’s is project management. In 14 of the 19 schools, the program is entirely in the Business (or Management) school.

PROJECT MANAGEMENT KNOWLEDGE ORGANIZATION

PMI has developed an index of project management skills and knowledge called the “Project Management Body of Knowledge” (PMBOK). The PMBOK has been developed through several iterations over many years; the first version was developed in 1976 (Cook, 2004). The latest version (PMBOK, 2000) has been released (for certification testing beginning 1/2002) (PMI, 2000). It defines nine “knowledge area” which are organized into 37 “processes”. The processes are grouped into five “process groups”. This is illustrated in Figure 2 (for PMBOK, 1996) (Duncan, 1996).

Since so many resources have been put into the development and refinement of the PMBOK and it has

been so well received by the project management community, it seemed prudent to us to organize our graduate program courses around the processes defined within PMBOK. The issue then became how do we “slice and dice” the processes as shown in Figure 2 into distinct (but integrated) courses. The PMBOK document itself organizes its write-up by knowledge area. However, most classic overall project management books and textbooks are organized by process groups (Badiru, 1989; Cleland & King, 1988; Hajek, 1984; Kerzner, 1980; Meredith & Mantel, 1989; Royce, 1988; Verzuh, 1999). There are however a number of books concerning particular parts of project management, and these cover particular knowledge areas, but they are not specifically written as “textbooks” (Fisher & Fisher, 2000; Fleming & Koppelman, 2000; Pinto & Trailer, 1999; Schuyler, 2001; Verma & Thamhain, 1996).

Looking at the universities currently offering degree programs to see how their curricula were organized, we defined three general types of organization:

1. “Step” – Courses are organized in the traditional manner from less depth to more depth over most of the knowledge areas. For example, the first course might be “Introduction to Project Management”; the next might be “Intermediate Project Management”; and the next would be “Advanced Project Management”;
2. “KA” – Follows the PMBOK knowledge areas (Scope, Time, Cost, ...); and
3. “PG” – Follows the PMBOK process groups (Initiation, Planning, ...).

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