

# **Distance based MS Degree in Business Analysis for Working Professionals**

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## **ABSTRACT**

The advent of online learning has opened the doors for education systems all over the world. Distance learning has brought new meaning to education, by offering education opportunities that were once, not available. Information systems and technologies are rapidly emerging and infiltrating into every facet of our business processes and personal lives, and the opportunity to lead and capitalize on this growth is paramount to professional success in the computing and information technology business sector. Purdue University's Department of Computer and Information Technology (CIT), designed, developed, and in the process of implementing a 100 percent online Masters of Science degree program in Information Technology Business Analysis. The curriculum was designed to address the needs of technology based working professionals seeking advanced knowledge of business analysis principles and techniques along with leadership skills.

**Keywords:** Business Analysis Curriculum, Distance Education, Business Analysis Professional.

## 1. INTRODUCTION

The Department of Computer and Information Technology (CIT) is housed within the College of Technology at Purdue University. CIT was established in 1978 and since grown to include 450 undergraduate students, 80 plus graduate students, and over 3,600 alumni spread across the globe. The program is offered in Indiana at 3 Purdue campuses: West Lafayette, Columbus, and Kokomo. CIT's undergraduate degree is an ABET IT accredited program. Most of the faculty have several years of industry experience and maintain an active professional consulting practice.

In January of 2014 CIT faculty set in motion the plans to develop a new master's degree program centered on business analysis. The faculty recognized the need for highly skilled information technology individuals with advanced business analysis education. Working together, the curriculum was defined, potential tooling identified, and resources were made available to design and develop the individual courses.

### 1.1 Motivation for the Program

Information systems and technologies are rapidly emerging and infiltrating into every facet of our business processes and personal lives, and the opportunity to lead and capitalize on this growth is paramount to professional success in the computing and information technology business sector. The successful development of software systems and information technologies within this 'new world' paradigm requires a deep understanding of the design, development, deployment, and management of processes unique to the IT business domain, in addition to methods inherent to contemporary Business Analysis. This effort was motivated by the following factors:

- Poor requirements management is a major cause of project failure, second only to changing organization priorities. (PMI 2104)

- Organizations waste US\$51 million for every US\$1 billion spent on projects and programs due to poor requirements management. (PMI 2104)
- Only 49 percent of organizations have the resources in place to do requirements management properly. (PMI 2104)
- 53 percent of organizations fail to use a formal process to validate requirements in an unbiased way. (PMI 2104)
- Growing demand for qualified business analysts within the information technology industry as well as other domains. According to the U.S. Bureau of Labor Statistics, the business analysis profession is expected to experience 19 percent job growth by 2022. American employers will need 876,000 business analysis related professionals by 2020.
- Provide a means for individuals to obtain the Project Management Institute's (PMI) Professional Business Analysis (PBA) certification (introduced in 2014) and / or the International Institute of Business Analysis's (IIBA) Certified Business Analysts Professionals (CBAP) certification. IIBA, an organization dedicated to the business analysis profession, is experiencing tremendous growth. As of February 1, 2010, there were 827 Certified Business Analysts Professionals (CBAP) recipients, no Certification of Competency in Business Analysis (CCBA) recipients, 11,976 members, and 89 chapters. As of October 2013, IIBA now has 27,344 members, 109 chapters on 6 continents, CCBA Recipients: 430 and CBAP Recipients: 3,139. These statistics reflect over 100 percent growth in membership and certifications over this period of time. (IIBA 2014)
- Provide opportunities for those individuals with technology related

bachelor degrees to earn an advanced degree.

- Provide additional revenue streams for the faculty, department, college, as well as the university.
- Through expert teaching, research, and education, business analysis professionalism will be advanced.
- Serve the needs of the information technology professional community by providing a high quality education for those working professionals in the business analysis role furthering the value that can be brought to their respective organizations and the profession.

Using technology to free learning from the limits of time or space makes education available to more people. Some of those already in the labor force may find distance learning the only option for upgrading skills, finishing a degree, or pursuing another degree. Distance learning helps many adult learners balance the demands of work and family with their pursuit of more education (Mariani, 2001).

## 2. THE PROGRAM

The Department of Computer and Information Technology at Purdue University has developed an advanced Masters of Science degree in Information Technology Business Analysis (ITBA) specifically for working professionals in the field. This program is distinct from short-term training and certification programs in Business Analysis by delivering in-depth knowledge regarding the unique and distinctive components of computing, software and systems engineering, and information technology, as well as the keys to professional success within their own business sector.

The ITBA program is modeled after the Department of Computer and Information Technology's highly successful and ranked online Information Technology Project Management (ITPM) Master's degree program. In that program students can earn a Master's degree in 22 months

(5 semesters) consisting of 34 hours of course work (14 courses). Up to four hours of course credit may be waived depending on the student's background and experience. The program is conducted completely via distance using web based instruction and social media. The ITBA program has similar credit hour requirements and can be completed in 22 months (5 semesters). It leverages eight existing courses from the ITPM program (these would be considered core courses – reference figure 1 and six new courses designed specifically to address competencies required by the profession as stated by the International Institute for Business Analysis (IIBA) and the Project Management Institute (PMI). All told, ITBA will consist of fourteen courses (34 credit hours) that can be taken during a span of five semesters which is similar to the ITPM Model. By following the same model for all Master's Degree offerings, the Department of Computer Information and Technology (CIT) will be able to better expand to offer Master's Degrees and Certificates in future emerging areas.

The ITBA program utilizes the best business analysis tools, which is integrated with advanced course work involved in applied business analysis, research and business methods inherent to information technology and certification preparation. Importantly, the program goes beyond the material expectations of CBAP and BPA certifications to provide value to working professionals that are already CBAP and PBA certified. Furthermore the ITBA MS program offers career growth opportunities for participants through the completion of a specialized MS degree program delivered through Purdue University: an internationally recognized and global leader of higher education. .

The Department of Computer and Information Technology has designed a program that not only serves beginning students and prepares them for a career in IT business analysis but is also geared to advanced study for those who have some experience and may already have a CBAP or PBA certification. In addition, the program was specifically developed to address emerging

opportunities and trends in the computing and information technology domain such as product and systems design and development, vertical systems integration, as well as emerging opportunities such as software and systems engineering for embedded computing systems, modular and handheld devices, and automated control modules. Understanding the managerial and logistical processes inherent to these emerging areas are key to capitalizing on new information technology opportunities that involve automated, embedded-infrastructure support systems such as consumer appliances, next-generation communication systems, security and entertainment systems, automotive and aviation applications, and alternative energy management and transportation systems, to name a few. In many of these emerging applications of information technology, issues such as system integrity and fault-tolerance of CPU-limited environments take priority over development resources often applied to issues such as user interface and usability. Furthermore, the 21st century will see an unprecedented explosion in the utility of information technologies applied to human healthcare, which includes emerging fields such as telemedicine, assisted living monitoring systems, electronic health records, and personalized medicine, as well as exploiting new discoveries in the life sciences.

### 3. THE FACULTY

The faculty at Purdue University that deliver this program are uniquely qualified. They have extensive industry experience as well as being highly sought after in their fields of study. The faculty further distinguish the program through academic scholarship, extensive peer reviewed publications including authorship of System Analysis and Design and Project Management textbooks and leadership experience in the emerging fields of software engineering for embedded systems, sensors and networks enabling telemedicine, and biotechnology, life sciences and healthcare. This faculty has professional backgrounds as well as real life business analysis experience in various business sectors and across distinct growth industries. These exciting subject areas integrate contemporary business issues in business analysis training that provide an optimal foundation of experience and a critical pedagogy method to deliver a needed educational program for business professionals. These professionals understand the value of a specialized post-bachelor’s degree earned at a top-tier institution and the impact it will have not only on their careers, but on their industries as well.

### 4. COURSE OUTLINE

The proposed adaptable time line and curriculum to completing the Masters of Science in IT Project Management is outlined below. The MS degree can be completed in 22 months (5 semesters) consisting of 34 hours of course work. Each course consists of 8-weeks sessions. Up to four hours of course credit may be waived depending on the student’s background and experience. The program is conducted completely via distance learning using asynchronous web based instruction and social media. This allows students to access course material at any time via Blackboard. The materials are delivered in multiple formats accessible via Windows or Mac workstations or a variety of mobile devices, allowing business professionals portable access that is convenient and addresses their study needs and habits.

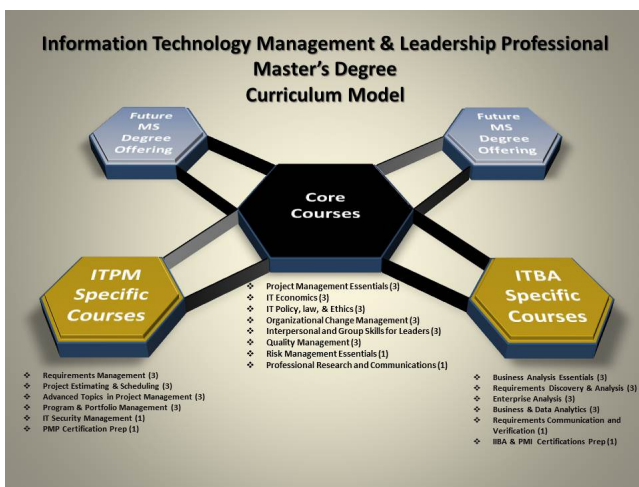


Figure 1

- First Semester
  - Business Analysis Essentials (3 credits or relevant knowledge credit)
  - Requirements Discovery and Analysis (3 credits)
  - Professional Research and Communications (1 credit)
- Second Semester
  - Project Management Essentials (3 credits)
  - Quality Management (3 credits)
  - Risk Management (1 credit)
- Third Semester
  - Interpersonal and Group Skills for Leaders (3 credits)
  - Organizational and Project Change Management (3 credits)
- Fourth Semester
  - Enterprise Analysis (3 credits)
  - IT Economics and Procurement Management (3 credits)
  - Requirements Communication and Verification (1 credit)
- Fifth Semester
  - IT Policy, Law, and Ethics (3 credits)
  - Business and Data Analytics (3 credits)
  - CBAP or PBA certification prep (1 credit) (if needed)

Each of the courses listed above contains a similar structure following a set of industry best practices for distance learning course work for working professionals. The faculty use course management software, discussion groups, and research based homework, and other techniques to support purposeful higher-order learning.

## 5. Pedagogy

Malcolm Knowles' theory of andragogy is an attempt to develop a theory specifically for adult

learning. Knowles emphasizes that adults are self-directed and expect to take responsibility for decisions. Adult learning programs must accommodate this fundamental aspect. Andragogy (as opposed to pedagogy) makes the following assumptions about the design of learning:

- Adults need to know why they need to learn something
- Adults need to learn experientially
- Adults approach learning as problem solving
- Adults learn best when the topic is of immediate value

Using these assumptions, the faculty have designed the program utilizing the following elements:

- The recorded lectures all use the same template and adhere to a time limit of each being no longer than 15 minutes. The lectures are posted in Blackboard in several formats so students can access them when convenient
- Each course lasts 8 weeks, we run two sessions each semester
- Each course is broken down into learning modules which reflect a related set of learning objectives. Each module contains the recorded lectures, an introduction document, an outline document, homework assignments, and discussion forums.
  - Introduction – list of learning objectives for the module, reading assignments, weekly discussion topic, and any homework assigned
  - Outline – Breakdown of topics covered in each lecture and relevant reading material covered in each lecture
  - Discussion forums are conducted within Blackboard and have proven to be an extremely

valuable tool to engage the students in the material. The forums are graded based on the quality of the student's response to the posted open-ended question and also based on their responses to other student posts. Faculty also get involved in the discussion increasing the learner/teacher interaction which is extremely important to student success (Holmberg, 1995). Sutton (2000), building on work done by Fulford and Zhang (1993) and Kruh and Murphy (1990), postulated an interaction known as "vicarious interaction." Not all students interact during individual classes or even during the course of a complete course. However they may "interact" vicariously by listening and or reading the interactions of other students, thus why we give grades for comments to other student posts.

The faculty will continuously improve the program by consistently reviewing progress and performance. A survey tool will be used to solicit feedback from learners and implement improvements based on that feedback. The faculty as well will keep an open mind when hearing feedback from students as the course progresses. Faculty will take corrective action and implement change to address the needs and make improvements for the benefit of students.

As a program of the Purdue University, this program has been built with the highest standards of excellence. The Masters of Science degree in Information Technology Business Analysis is uncompromising in providing a world class education that meets the needs of our students but elevates the bar on quality in education.

## 6. FUTURE DIRECTION

### 6.1 Growing the Program

During the initial offerings of the program, enrollments will be kept at a level that will be

easy to manage by the faculty and administration. With experience and lessons learned, the department is positioned to grow the program by:

- Increased marketing to target audiences
- Implementing a social presence on sites such as Linked-In
- Becoming a PMI and IIBA Certified Educational Provider
- Providing more course offerings
- Providing certificate programs based on a subset of courses

### 6.2 Utilizing the Cloud

Many of the courses have a software component and it is the student's responsibility to obtain the software required by the course at their own expense. Faculty are very cognizant of this fact and try not to place software demands on the students that are unreasonable or unaffordable. But, this restraint can limit the learning experience of an applied program such as this one. In an effort to overcome this hurdle, the CIT faculty have engaged executive management of a well-known cloud services provider. By utilizing their software as a service (SAAS) model, additional, more robust software offerings will be available for the instructors to use in their courses. This software will be available no matter where the students are located and will be free of charge.

### 6.3 In House Distance Learning Studio

Currently, course lectures are presented in a Voice over PowerPoint format. It is the intent of the CIT faculty to utilize a newly created Distant Learning studio in order to record lectures with video which enable instructors to perform demonstrations and create a much more rich learning experience.

## 7. SUMMARY

Beginning in the Fall of 2015, the Department of Computer and Information Technology at Purdue University will begin offering a 34 credit Master's Degree program in Information Technology Business Analysis that can be completed in 22 months. This program was

developed to address a critical need of qualified business analysts in the information technology sector across the globe, as well as provide additional revenues streams to the University, the College, the Department and the faculty.

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