

**Florida Board of Governors**

**Request to Offer a New Degree Master's Degree Program**

University of South Florida  
University Submitting Proposal

Fall 2008  
Proposed Implementation Date

Graduate School  
Name of College or School

Information Technology  
Name of Department(s)

Information Technology  
Academic Specialty or Field

Master of Science in Information  
Technology (15.1202)  
Complete Name of Degree  
(Include Proposed CIP Code)

**The submission of this proposal constitutes a commitment by the university that, if the proposal is approved, the necessary financial resources and the criteria for establishing new programs have been met prior to the initiation of the program.**

Date Approved by the University Board of Trustees	President	Date
Signature of Chair, Board of Trustees	Date	Vice President for Academic Affairs
		Date

Provide headcount (HC) and full-time equivalent (FTE) student estimates of majors for Years 1 through 5. HC and FTE estimates should be identical to those in Table 1. Indicate the program costs for the first and the fifth years of implementation as shown in the appropriate columns in Table 2. Calculate an Educational and General (E&G) cost per FTE for Years 1 and 5 (Total E&G divided by FTE).

Implementation Timeframe	Projected Student Enrollment (From Table 1)		Projected Program Costs (From Table 2)		
	HC	FTE	Total E&G Funding	Contract & Grants Funding	E&G Cost per FTE
Year 1	25	14	\$37,000		\$2,700
Year 2	25	14			
Year 3	25	14			
Year 4	25	14			
Year 5	25	14	\$42,000		\$3,000

*Note: This outline and the questions pertaining to each section must be reproduced within the body of the proposal to ensure that all sections have been satisfactorily addressed.*

## **INTRODUCTION**

### **I. Program Description and Relationship to System-Level Goals**

- A. Briefly describe within a few paragraphs the degree program under consideration, including (a) level; (b) emphases, including concentrations, tracks, or specializations; (c) total number of credit hours; and (d) overall purpose, including examples of employment or education opportunities that may be available to program graduates.**

The proposed University of South Florida Master of Science in Information Technology (MSIT) program will prepare students for leadership roles in the IT industry. The program of study provides a balanced curriculum, combining IT management strategies and technology leadership with advanced course work in an IT concentration.

The Master of Science in Information Technology program is an 24-18 month, 36 credit program for those who have a Bachelor' Degree in Information Technology, Information Systems, Management or related fields and who are seeking leadership roles in government, business, industry or service sectors.

The Information Technology Association of America (ITAA) defines information technology (IT) as "the study, design, development, implementation, support or management of computer-based information systems, particularly software applications and computer hardware." The work of IT professionals includes data management, networking, engineering computer hardware, database and software design, as well as management and administration of entire complex computer systems. IT is a rapidly changing field, requiring technological problem solvers who can adapt to multi-platform, distributed computing environments and talk about the application of technology in business, industry, government and service sectors in ways that make sense to the non-IT employee and manager.

- B. Describe how the proposed program is consistent with the current State University System (SUS) Strategic Planning Goals. Identify which goals the program will directly support and which goals the program will indirectly support. (See the SUS Strategic Plan at <http://www.flbog.org/StrategicResources/> )**

The Master of Science in Information Technology **directly** supports the following goals in the State University System's 2005-2013 Strategic Plan:

- Access to master's degrees (Goal IA)
- Meeting statewide professional and workforce needs in computer science and information technology (Goal IB3d)

The Master of Science in Information Technology **indirectly** supports the following goals in the State University System's 2005-2013 Strategic Plan:

- Meeting statewide professional and workforce needs in economic development – emerging technologies (Goal IB3)
- Meeting statewide professional and workforce needs in economic development: high-wage/high-demand jobs (Goal IB4)

## **INSTITUTIONAL AND STATE LEVEL ACCOUNTABILITY**

### **II. Need and Demand**

- A. Need: Describe national, state, and/or local data that support the need for more people to be prepared in this program at this level. Reference national, state, and/or local plans or reports that support the need for this program and requests for the proposed program which have emanated from a perceived need by agencies or industries in your service area. Cite any specific need for research and service that the program would fulfill.**

Of all 67 Florida counties, Polk County - USF Lakeland's primary service county - has ranked 9<sup>th</sup> in growth from the 2000 census to the 2005 estimate census. Going forward to 2030, the Bureau of Economic and Business Research (BEBU) at the University of Florida projects a 43.8% increase in the Polk County population, from 541,840 in 2005 to 779,200 in 2030.

A similar trend is expected in student population growth in Polk County. The Polk County School Board reported that total enrollment has risen nearly 12,000 in the past five years and could pass 100,000 by 2009.<sup>1</sup> Graduation rates are also expected to increase from 2006 to 2011 by 24% in Polk County.<sup>2</sup>

Increased education access, education attainment and economic development are key priorities for the central Florida region served by USF Lakeland. The U. S. Labor Department, Florida Works, and regional development councils have identified key occupational growth areas anticipated in education; management and administration; nursing and health sciences; criminal justice; industrial, manufacturing, warehousing and distribution engineering; information technology and industrial applications of technology.

The Central Florida Development Council (CFDC) has identified goals for economic development, targeting an aggressive program of expansion and retention of existing jobs and creation of new enterprises, including small business development and entrepreneurship, technology-centered and high wage jobs, and development of business and research incubators. Information technology has been identified by the Agency for Workforce Innovation (2005) as an area of anticipated increased demand (approximately

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1 Crouse, J. (2006, 11/02) Students in Polk Exceed 90,000. The Ledger, pp. B/1.

2 Source: FL DOE

26%) from 2006-2014. Information technology is the acknowledged engine for national and regional economic growth (National Institute of Standards and Technology). The Information Technology Association of America (ITAA) defines information technology (IT) as "the study, design, development, implementation, support or management of computer-based information systems, particularly software applications and computer hardware." The work of IT professionals includes data management, networking, engineering computer hardware, database and software design, as well as management and administration of entire complex computer systems. IT is a rapidly changing field, requiring technological problem solvers who can adapt to multi-platform, distributed computing environments and talk about the application of technology in business, industry, government and service sectors in ways that make sense to the non-IT employee and manager.

**B. Demand: Describe data that support the assumption that students will enroll in the proposed program. Include descriptions of surveys or other communications with prospective students.**

Enrollments in the Bachelor of Science in Information Technology have increased over the last five years:

2002-2003	2003-2004	2004-2005	2005-2006	2006-2007
42	78	82	96	93

Source: InfoMart Unduplicated Headcount Intended and Declared Majors

Advisors indicate that both former students and general public regularly call inquiring about the availability of a master's degree. In addition, informal conversations with area businesses, industry, city and county government and service organizations during regional strategic planning meetings indicate support for the MSIT.

**C. If similar programs (either private or public) exist in the state, identify the institution(s) and geographic location(s). Summarize the outcome(s) of any communication with such programs with regard to the potential impact on their enrollment and opportunities for possible collaboration (instruction and research). Provide data that support the need for an additional program.**

The September 2007 State University System Academic Degree Program Inventory shows no existing master's degree program in Information Technology.

**D. Use Table 1 (A for undergraduate and B for graduate) to categorize projected student headcount (HC) and Full Time Equivalents (FTE) according to primary sources. Generally undergraduate FTE will be calculated as 40 credit hours per year and graduate FTE will be calculated as 32 credit hours per year. Describe the rationale underlying enrollment projections. If, initially, students within the institution are expected to change majors to enroll in the proposed program, describe the shifts from disciplines that will likely occur.**

The MSIT Program will benefit from a cohort model in which a limited number of students are admitted and complete a course of study. Students can complete the program in 24 months, enrolling in 6 credits per term or in approximately 18 months,

enrolling in 9 credits per term. Students would be admitted into the program every two years. Given the intended hands-on and problem-based nature of the program, a cohort would be limited to 20-25 students per cycle.

**TABLE 1-B  
PROJECTED HEADCOUNT FROM POTENTIAL SOURCES  
(Graduate Degree Program)**

Source of Students (Non-duplicated headcount in any given year)*	Year 1		Year 2		Year 3		Year 4		Year 5	
	HC	FTE	HC	FTE	HC	FTE	HC	FTE	HC	FTE
Individuals drawn from agencies/industries in your service area (e.g., older returning students)	15	8	15	8	15	8	15	8	15	8
Students who transfer from other graduate programs within the university**	0	0	0	0	0	0	0	0	0	0
Individuals who have recently graduated from preceding degree programs at this university	5	3	5	3	5	3	5	3	5	3
Individuals who graduated from preceding degree programs at other Florida public universities	5	3	5	3	5	3	5	3	5	3
Individuals who graduated from preceding degree programs at non-public Florida institutions	0	0	0	0	0	0	0	0	0	0
Additional in-state residents***	0	0	0	0	0	0	0	0	0	0
Additional out-of-state residents***	0	0	0	0	0	0	0	0	0	0
Additional foreign residents***	0	0	0	0	0	0	0	0	0	0
Other (Explain)***	0	0	0	0	0	0	0	0	0	0
<b>Totals</b>	<b>25</b>	<b>14</b>	<b>25</b>	<b>14</b>	<b>25</b>	<b>14</b>	<b>25</b>	<b>14</b>	<b>25</b>	<b>14</b>

**E. Indicate what steps will be taken to achieve a diverse student body in this program, and**

**identify any minority groups that will be favorably or unfavorably impacted. The university's Equal Opportunity Officer should read this section and then sign and date in the area below.**

The diversity of students in Information Technology is comparable to the diversity of the USF and Undergraduate Studies student populations with Asian (4%) and Hispanic (8%) student representation in IT being slightly lower than similar student populations in USF and Undergraduate Studies, and with male student representation in IT being notably higher than male student populations in USF and Undergraduate Studies.

	Black	American Indian	Asian	Hispanic	White	Male	Female
USF	12%	1%	6%	11%	70%	40%	60%
Undergraduate Studies	16%	1%	6%	13%	64%	38%	62%
IT	15%	1%	4%	8%	72%	83%	17%

Source: InfoMart Unduplicated Headcount Declared Majors 2006-2007

Student recruitment efforts will be conducted in collaboration with campus Diversity Officers and with regional high school and community college counselors/advisors. In addition, the Department of Information Technology is a partner in the STARS Alliance (Students and Technology in Academia, Research and Service), a grant with the University of North Carolina Chapel Hill. The STARS Alliance is focused on increasing the diversity and number of students entering the field of computing (i.e., computer science, information systems, information technology, software engineering, computer engineering, and related disciplines and interdisciplinary areas). In addition, the STARS Leadership Corps (SLC) at the University of South Florida Lakeland (USFL) provides opportunities for students from underrepresented populations to participate in mentoring and partnership activities aimed at increasing students' success in higher education and interest in technology- and engineering-based careers. Participation in the STARS Alliance provides additional opportunities for student recruitment in both the bachelor's and master's degree programs in Information Technology.

\_\_\_\_\_  
Equal Opportunity Officer

\_\_\_\_\_  
Date

### III. Budget

- A. Use Table 2 to display projected costs and associated funding sources for Year 1 and Year 5 of program operation. Use Table 3 to show how existing Education & General funds will be shifted to support the new program in Year 1. In narrative form, summarize the contents of both tables, identifying the source of both current and new resources to be devoted to the proposed program. (Data for Year 1 and Year 5 reflect snapshots in time rather than cumulative costs.)**

**TABLE 2  
PROJECTED COSTS AND FUNDING SOURCES**

Instruction & Research Costs (non-cumulative)	Year 1						Year 5				
	Funding Source					Subtotal E&G and C&G	Funding Source				Subtotal E&G and C&G
	Reallocated Base* (E&G)	Enrollment Growth (E&G)	Other New Recurring (E&G)	New Non-Recurring (E&G)	Contracts & Grants (C&G)		Continuing Base** (E&G)	New Enrollment Growth (E&G)	Other*** (E&G)	Contracts & Grants (C&G)	
Faculty Salaries and Benefits	194,550	37,800	0	0	0	\$232,350	194,550	42,000	0	0	\$236,550
A & P Salaries and Benefits	0	0	0	0	0	\$0	0	0	0	0	\$0
USPS Salaries and Benefits	0	0	0	0	0	\$0	45,000	0	0	0	\$45,000
Other Personnel Services	0	0	0	24,000	0	\$24,000	0	0	24,000	0	\$24,000
Assistantships & Fellowships	0	0	0	0	0	\$0	0	0	22,000	0	\$22,000
Library	0	0	0	0	0	\$0	0	0	0	0	\$0
Expenses	0	0	0	0	0	\$0	0	0	0	0	\$0
Operating Capital Outlay	0	0	0	0	0	\$0	0	0	0	0	\$0
Special Categories	0	0	0	0	0	\$0	0	0	0	0	\$0
<b>Total Costs</b>	<b>\$194,550</b>	<b>\$37,800</b>	<b>\$0</b>	<b>\$24,000</b>	<b>\$0</b>	<b>\$256,350</b>	<b>\$239,550</b>	<b>\$42,000</b>	<b>\$22,000</b>	<b>\$0</b>	<b>\$327,550</b>

\*Identify reallocation sources in Table 3.

\*\*Includes recurring E&G funded costs ("reallocated base," "enrollment growth," and "other new recurring") from Years 1-4 that continue into Year 5.

\*\*\*Identify if non-recurring.

**Faculty and Staff Summary**

Total Positions (person-years)	Year 1	Year 5
Faculty	8	9
A & P	0	0
USPS	1	2

**Calculated Cost per Student FTE**

	Year 1	Year 5
Total E&G Funding	\$37,800	\$42,000
Annual Student FTE	14	14
E&G Cost per FTE	\$2,700	\$3,000

Current faculty will be rotated into the Master's degree curriculum during the academic year, in such a way as to ensure that one-third of the faculty are assigned to Master's program course work in an academic year with qualified adjunct faculty replacing the regular faculty in the undergraduate curriculum. The rotation is important for ensuring that undergraduate students still benefit from the expertise and experiences of regular faculty. By year 5 additional USPS staff will have been assigned to the unit to provide additional unit organizational and operational support. Funding for the additional staff salary and benefits will be reallocated from the staff pool. Funding for Master's level graduate assistantships will be secured from departmental

operating funds or from private gifts.

- B. If other programs will be impacted by a reallocation of resources for the proposed program, identify the program and provide a justification for reallocating resources. Specifically address the potential negative impacts that implementation of the proposed program will have on related undergraduate programs (i.e., shift in faculty effort, reallocation of instructional resources, reduced enrollment rates, greater use of adjunct faculty and teaching assistants). Explain what steps will be taken to mitigate any such impacts. Also, discuss the potential positive impacts that the proposed program might have on related undergraduate programs (i.e., increased undergraduate research opportunities, improved quality of instruction associated with cutting-edge research, improved labs and library resources).**

Currently the only programs the department delivers are at the undergraduate level. The implementation of this master's degree program is expected to have a minimal negative impact on the undergraduate offerings. This is largely due to the increased use of distance learning technologies in the department. We have faculty on two campuses – Lakeland and Sarasota – and an increasing number of our students take cross-campus courses. The positive impacts, in contrast, are significant. We anticipate that increased undergraduate participation in research will occur, and that the quality and variety of internships available to undergraduates will increase as the work done in the graduate student IT projects raises the level of awareness of our programs in the outside professional community.

- C. Describe other potential impacts on related programs or departments (e.g., increased need for general education or common prerequisite courses, or increased need for required or elective courses outside of the proposed major).**

No anticipated negative impacts.

- D. Describe what steps have been taken to obtain information regarding resources (financial and in-kind) available outside the institution (businesses, industrial organizations, governmental entities, etc.). Describe the external resources that appear to be available to support the proposed program.**

In conjunction with the development of the USF Lakeland Campus Master Plan, an Endowed Chair in Information Technology will be established by the Williams Company, the donor of the land on which the new campus location will be established.

In addition approximately \$20 million will be sought from private donors to supplement State funding for construction of the first new campus site building. It is anticipated that the IT Department will be one of the first academic units to be housed in the initial new campus site building.

As the program matures and as partnerships with regional IT departments and industry are established for field experiences and internships, additional opportunities will be provided to establish scholarships and undergraduate internship opportunities.

#### **IV. Projected Benefit of the Program to the University, Local Community, and State**

**Use information from Table 1, Table 2, and the supporting narrative for “Need and Demand” to prepare a concise statement that describes the projected benefit to the university, local community, and the state if the program is implemented. The projected benefits can be both quantitative and qualitative in nature, but there needs to be a clear distinction made between the two in the narrative.**

Information technology is acknowledged as the engine for national and regional economic growth (National Institute of Standards and Technology). The strength of the Master of Science in Information Technology is its focus on problem solving, adaptation and cross-field communication – all critical skills in today’s rapidly changing business, governmental and organizational environments – as well as multi-platform, distributed computing environments.

With information technology identified as an area of increased demand in Florida (Agency for Workforce Innovation, 2005) and with no existing master’s degree programs in Information Technology in the State, the Master of Science in Information Technology is anticipated to contribute to the State’s and university’s missions, to regional and state economic development, and to the aspirational goals of the working IT professional interested in career advancement or career change and enhancement.

#### **V. Access and Articulation – Bachelor’s Degrees Only**

**A. If the total number of credit hours to earn a degree exceeds 120, provide a justification for an exception to the policy of a 120 maximum and submit a request to the BOG for an exception along with notification of the program’s approval. (See criteria in BOG Regulation 6C-8.014)**

Not applicable.

**B. List program prerequisites and provide assurance that they are the same as the approved common prerequisites for other such degree programs within the SUS (see Common Prerequisite Manual <http://www.facts.org>). The courses in the Common Prerequisite Counseling Manual are intended to be those that are required of both native and transfer students prior to entrance to the major program, not simply lower-level courses that are required prior to graduation. The common prerequisites and substitute courses are mandatory for all institution programs listed, and must be approved by the Articulation Coordinating Committee (ACC). This requirement includes those programs designated as “limited access.”**

**If the proposed prerequisites they are not listed in the Manual, provide a rationale for a request for exception to the policy of common prerequisites. NOTE: Typically, all lower-division courses required for admission into the major will be considered prerequisites. The curriculum can require lower-division courses that are not prerequisites for admission into the major, as long as those courses are built into the curriculum for the upper-level 60 credit hours. If there are already common prerequisites for other degree programs with**

the same proposed CIP, every effort must be made to utilize the previously approved prerequisites instead of recommending an additional “track” of prerequisites for that CIP. Additional tracks may not be approved by the ACC, thereby holding up the full approval of the degree program. Programs will not be entered into the State University System Inventory until any exceptions to the approved common prerequisites are approved by the ACC.

Not applicable.

- C. If the university intends to seek formal Limited Access status for the proposed program, provide a rationale that includes an analysis of diversity issues with respect to such a designation. Explain how the university will ensure that community college transfer students are not disadvantaged by the Limited Access status. NOTE: The policy and criteria for Limited Access are identified in BOG Regulation 6C-8.013. Submit the Limited Access Program Request form along with this document.**

Not applicable.

- D. If the proposed program is an AS-to-BS capstone, ensure that it adheres to the guidelines approved by the Articulation Coordinating Committee for such programs, as set forth in Rule 6A-10.024 (see Statewide Articulation Manual <http://www.facts.org>). List the prerequisites, if any, including the specific AS degrees which may transfer into the program.**

Not applicable.

## **INSTITUTIONAL READINESS**

### **VI. Related Institutional Mission and Strength**

- A. Describe how the goals of the proposed program relate to the institutional mission statement as contained in the SUS Strategic Plan and the University Strategic Plan.**

The USF Lakeland 2007-2012 Strategic Plan challenges the campus to embrace a polytechnic model of education, focusing on interdisciplinary and applied learning; the application of cutting-edge research and technology to real world needs; and partnerships that support economic, social, and community development. Access to increased post-secondary education and post-baccalaureate education is perceived by the USF Lakeland service region as critical for attracting and sustaining businesses and industries that thrive on innovation and new technologies and that have the potential for raising the standard of living and quality of life in the region and state. The Master of Science in Information Technology degree supports regional economic development efforts.

The MSIT also complements the University of South Florida’s mission by providing student access to a graduate degree that would provide opportunities for engaged, learner-centered and interdisciplinary learning and for translation and application of

emerging technology research to identified regional community and economic development.

**B. Describe how the proposed program specifically relates to existing institutional strengths, such as programs of emphasis, other academic programs, and/or institutes and centers.**

Information technology is acknowledged as the engine for national and regional economic growth (National Institute of Standards and Technology). The strength of the Master of Science in Information Technology is its focus on problem solving, adaptation and cross-field communication – all critical skills in today’s rapidly changing business, governmental and organizational environments – as well as multi-platform, distributed computing environments.

With information technology identified as an area of increased demand in Florida (Agency for Workforce Innovation, 2005), the Master of Science in Information Technology is anticipated to be of interest to the working IT professional and to the related field professional interested in career advancement or career change and enhancement.

**C. Provide a narrative of the planning process leading up to submission of this proposal. Include a chronology (table) of activities, listing both university personnel directly involved and external individuals who participated in planning. Provide a timetable of events necessary for the implementation of the proposed program.**

The department has been planning for a graduate program for over a year. Initial discussions were held with Dr. Marshall Goodman, Vice President and CEO of USF Lakeland, regarding the need for such a program to support the continued professional development of IT professionals in the regional service area. Further discussion were held between the department and Dr. Judith Ponticell, Associate Vice President for Academic Affairs at USF Lakeland. Although informal discussion occurred during the summer of 2006, the need for a graduate certificate and eventual master’s degree (and associated graduate level courses) in Information Technology was first discussed at the department faculty meeting on September 6, 2006, which was attended by Dr. Judith Ponticell. At the following department meeting on October 18, 2006, the Curriculum Committee was requested to work on developing courses and a certificate proposal. That committee met on October 24, 2006, and began the process of soliciting course proposals from department faculty. On February 8, 2007, the Curriculum Committee again met to review course proposals received and to request more proposals. The Chair of the committee reported to the general department meeting on February 21, 2007, and requested additional proposals. Committee reports delivered at the department meetings of March 21, 2007, and April 25, 2007, described progress. Work continued informally during the summer. The Curriculum Committee again met on September 19, 2007, to finalize proposals. A report was given to the department meeting on September 21, 2007. When an opportunity to go forward with a master’s degree program presented itself in early October, 2007, we found that most of the preparatory work had been done. The

Chair, Assistant Chair, and the Chair of the Curriculum Committee worked with Dr. Judith Ponticell to prepare a preliminary proposal that was presented at a Graduate School Roundtable meeting on October 15, 2007, at which we were encouraged to move forward to complete the full proposal.

### **Planning Process**

Date	Participants	Planning Activity
9/6/2006	IT Dept. faculty, Dr. Judith Ponticell	Department Meeting: Initial discussion of Graduate Certificate & Masters degree
10/18/2006	IT Dept. faculty	Department Meeting: Further discussion. Referred to Curriculum Committee
10/24/2006	IT Dept. Curriculum Committee	Solicitation of course proposals initiated
2/8/2007	IT Dept. Curriculum Committee	Course proposals reviewed, more requested
2/21/2007	IT Dept. faculty	Department Meeting: Progress report, request for additional proposals
3/21/2007	IT Dept. faculty	Department Meeting: Progress report
4/25/2007	IT Dept. faculty	Department Meeting: Progress report
9/19/2007	IT Dept. Curriculum Committee	Finalized proposals
9/21/2007	IT Dept. faculty	Department Meeting: Progress report
10/15/2007	Roundtable members, Department Chair, Curriculum Committee Chair	Presented preliminary degree program proposal, received approval to proceed with full proposal

### **Events Leading to Implementation**

Date	Implementation Activity
November-December 2007	Formal degree proposal, including courses, presented to USF Graduate Council and Board of Trustees for approval.
March, 2008	Initial graduate course offerings scheduled for fall semester, 2008.
August, 2008	Initial graduate course offerings begin
September, 2008	Additional graduate course offerings scheduled for spring semester, 2009.
January, 2009	Additional graduate course offerings begin.
March, 2009	Rest of graduate course offerings scheduled for fall semester, 2009.
August, 2009	Rest of graduate course offerings begin.
December, 2009	First MSIT degree awarded.

## **VII. Program Quality Indicators - Reviews and Accreditation**

**Identify program reviews, accreditation visits, or internal reviews for any university degree programs related to the proposed program, especially any within the same academic unit. List all recommendations and summarize the institution's progress in implementing the recommendations.**

Not applicable.

## VIII. Curriculum

- A. Describe the specific expected student learning outcomes associated with the proposed program. If a bachelor's degree program, include a web link to the Academic Learning Compact or include the document itself as an appendix.

The Master of Science in Information Technology degree is geared toward experienced IT professionals who are interested in broadening and deepening their knowledge of new and emerging information technologies, and in advancing their careers in IT leadership while remaining in the workforce. The MSIT provides students with a broad and integrative understanding of both technology and operational and strategic business and organizational applications. The MSIT graduate will demonstrate strong information technology skills as well as problem solving skills needed for the deployment of technology solutions to achieve business and organizational goals.

The MSIT Program of Study will provide students with a strong, foundational core of theoretical knowledge and cutting-edge research, together with opportunity to deepen knowledge and skill in application concentrations related to students' interests, backgrounds and career goals. Concentrations may include, but are not limited to, areas such as information technology management, information security, software design and management, e-commerce and entrepreneurship, network development and management, and human-computer interface.

### Core & Elective Courses (36 semester credits)

#### Required Courses (24 semester credits)

5000	<b>IT Project Management</b>	3
	General aspects of project management, emphasizing the important, special considerations which apply to information technology projects.	
5010	<b>Network Management</b>	3
	Detailed communications systems, e.g., Packet switching networks, local area networks, satellite systems, the open systems interconnect (OSI) reference model, and development of communications software.	
5020	<b>Web Site Management</b>	3
	Duties of a web master from web development to web sites administration and deployment. State of the art open source technologies will be used to illustrate these various advances of web administration. Topics include: web site development, configuration management, testing, and quality assurance.	
5030	<b>Enterprise IT Integration</b>	3
	A capstone and professional experience through in-depth study of major issues in enterprise software architecture. Topics include architecture business cycle, architecture styles and patterns, quality models and attributes, architecture	

- description languages, architectural reusability, architecture-driven analysis and testing. Course concepts are developed through case studies and projects.
- 5040 **Enterprise Database Systems** 3  
 Topics involving approaches to modeling, designing and implementation of various DBMSs such as advanced normalized Relational, Object-Oriented, Object relational. Included are advanced SQL statements and PL/SQL as DDL and DML languages. Student research projects in advanced topics such as data warehousing, mining and distributed databases.
- 5050 **Multimedia and E-Commerce** 3  
 Design principles of multimedia authoring and communication systems, including interface and characteristics of video processing equipment, multimedia document architectures, media encoding/compression schemes, real-time scheduling of time critical multimedia documents, multimedia editors, current communication standards and software.
- 6000 **IT Project** 6  
 An information technology project requiring the student to integrate all that has been learned into a project of the student's choice, worthy of 6 semester credits.

#### **Electives (12 semester credit hours)**

- 6010 **Network Programming** 3  
 An overview of the principles of computer networks, including a detailed look at the OSI reference model and an overview of various popular network protocol suites. The course will focus on network programming using Java, and distributed computing using remote method invocation technologies, peer-to-peer protocols, and mobile code. Furthermore, we will critically present selected papers on network programming research topics, including coordination, mobility, ad-hoc networks, multimedia, security, and quality of service.
- 6020 **Software Testing and Validation** 3  
 Various topics in software testing and quality assurance. Topics include testing levels, testing techniques such as specification-based techniques, code-based techniques, fault-based techniques, usage-based techniques, GUI-based testing, object-oriented techniques, and integration and system testing, in addition to testing software aids and tools.
- 6030 **IT Strategic Management** 3  
 Information Technology (IT) is a strategic asset that is being used to mold competitive strategies and change organizational processes. As IT and its uses become more complex, developing strategies and systems to deliver the technology has become more difficult. This course is designed to partially fulfill this need and to enable students to integrate concepts and theories learned in previous IT courses.
- 6040 **IT & Systems for E-Business** 3

Provides a managerial perspective on how Web Design and Internet Computing are evolving and how they will impact future enterprise e-solution. It will cover both the foundations of Web design and computing and the important technological advancements (protocols and languages) in Internet and Web to facilitate a truly robust and integrated computing environment.

**6050 IT Advanced Project Management 3**

Exploration of the complexities of managing modern technology projects (e.g., project management success, maturity, strategic planning, outsourcing, and cultural implications); core values and success factors in a Project Management Office; and driving factors in marketing and selling high-tech products to mainstream customers.

**6060 IT Intelligent Agents 3**

A survey of Intelligent (software) Agents used on the Internet by many different corporations in several different applications. Intelligent agent software components: artificial intelligence, neural networks, expert systems, etc. Applications such as filtering, search and retrieval, monitoring, recommending, negotiating, profiling, interfacing, etc.

**6070 IT Risk Management 3**

Aspects of risk managements throughout the life of a project, including both quantitative and qualitative risk assessment models.

**6080 Data Mining Tools and Techniques 3**

The process of knowledge discovery or retrieval of hidden information from data banks and collections of databases, including sorting through a large volume of data and extracting decision rules. Includes data mining algorithm and technique using software tools geared for the user who typically does not know exactly what (s)he's searching for, but is looking for particular patterns or trends. Analysis of detail data to unearth unsuspected or unknown relationships, patterns and associations that might be of value to a given organization. Case study applications from various domains (e.g., financial, geoscientific data mining).

**6090 Information Security Architecture 3**

Successful adaptation and implementation of a security program based on a code of practice for information security management. Topics include risk assessment models, a detailed risk assessment methodology, and an information security evaluation process. Development of a security proposal valid for most organizations. An overview of current standards and gap analysis.

**Total Requirements: 36 semester credit hours**

**B. Describe the admission standards and graduation requirements for the program.**

Students seeking admission to the MSIT program must have a Bachelor' Degree in Information Technology, Information Systems, Management or related fields with a minimum cumulative GPA of 2.0 and with evidence of completion of the required core courses found in the University of South Florida's Bachelor of Science in Information Technology degree program or their equivalent.

The Master of Science in Information Technology program is a 36-credit program. Students complete a suite of core courses and select four elective courses to complete their program. Students' elective choices in their programs of study can be individually tailored to accommodate a variety of entering backgrounds and career goals and to take advantage of new courses developed in a dynamic and constantly changing field.

An IT capstone project is required to complete the degree. The average duration of the program is 24-18 months, depending on students enrolling in 6 credits or 9 credits per term.

- C. Describe the curricular framework for the proposed program, including number of credit hours and composition of required core courses, restricted electives, unrestricted electives, thesis requirements, and dissertation requirements. Identify the total numbers of semester credit hours for the degree.**

See VIII A.

- D. Provide a sequenced course of study for all majors, concentrations, or areas of emphasis within the proposed program.**

See VIII A.

- E. Provide a one- or two-sentence description of each required or elective course.**

See VIII A.

- F. For degree programs in the science and technology disciplines, discuss how industry-driven competencies were identified and incorporated into the curriculum and identify if any industry advisory council exists to provide input for curriculum development and student assessment.**

While no accepted academic curriculum has been established for *undergraduate* IT programs, let alone graduate programs, discussions with local industry IT leaders have identified technology needs for IT professionals. These center around (1) integration of technologies across technical and organizational boundaries, (2) management of advanced and developing technologies, and (3) state-of-the-art practices. Additionally, the Information Technology Laboratory (ITL) of the National Institute of Standards and Technologies (NIST) includes computer security, digital information access, software conformance and advanced networking as focus areas

for IT. Courses have been developed to fulfill these needs. The department has been developing an IT advisory council in conjunction with the local school board and community college, reflecting the fact that IT education must be viewed as a continuum, from which and into which an IT worker may exit and re-enter at different stages in his/her career. An advisory council focusing on only one level (such as graduate education) would miss the longitudinal and integrative aspects of IT education; thus, we have elected to take this approach of creating an advisory council across all levels with representation from local business, industry, government and service organizations.

- G. For all programs, list the specialized accreditation agencies and learned societies that would be concerned with the proposed program. Will the university seek accreditation for the program if it is available? If not, why? Provide a brief timeline for seeking accreditation, if appropriate.**

There is currently no specialized agency accrediting *graduate* programs in Information Technology. ABET has only in the last few years begun accrediting baccalaureate programs in Information Technology, and our department is currently preparing to apply to ABET for accreditation of the BSIT program. When and if specific accreditation becomes available for a master's degree in Information Technology, our department plans to seek that accreditation.

- H. For doctoral programs, list the accreditation agencies and learned societies that would be concerned with corresponding bachelor's or master's programs associated with the proposed program. Are the programs accredited? If not, why?**

Not applicable.

- I. Briefly describe the anticipated delivery system for the proposed program (e.g., traditional delivery on main campus; traditional delivery at branch campuses or centers; or nontraditional delivery such as distance or distributed learning, self-paced instruction, or external degree programs). If the proposed delivery system will require specialized services or greater than normal financial support, include projected costs in Table 2. Provide a narrative describing the feasibility of delivering the proposed program through collaboration with other universities, both public and private. Cite specific queries made of other institutions with respect to shared courses, distance/distributed learning technologies, and joint-use facilities for research or internships.**

Course work can be delivered in a hybrid model, utilizing an alternative calendar and distance learning format that can include videoconferencing, Webcast and varying online environments. Instruction will utilize small and large group discussions, lecture, media presentations, case studies, problem analysis, problem-based assessments, performance-based assessments, student presentations, written assignments and/or field experiences.

## **IX. Faculty Participation**

- A. Use Table 4 to identify existing and anticipated ranked (not visiting or adjunct) faculty who will participate in the proposed program through Year 5. Include (a) faculty code associated with the source of funding for the position; (b) name; (c) highest degree held; (d) academic discipline or specialization; (e) contract status (tenure, tenure-earning, or multi-year annual [MYA]); (f) contract length in months; and (g) percent of annual effort that will be directed toward the proposed program (instruction, advising, supervising internships and practica, and supervising thesis or dissertation hours).

**TABLE 4  
ANTICIPATED FACULTY PARTICIPATION**

Faculty Code	Faculty Name or "New Hire" Highest Degree Held Academic Discipline or Speciality	Rank	Contract Status	Initial Date for Participation in Program	Mos. Contr. Year 1	FTE Year 1	% Effort for Prg. Year 1	PY Year 1	Mos. Contr. Year 5	FTE Year 5	% Effort for Prg. Year 5	PY Year 5
A	William D. Armitage, Ph.D. Electrical Engineering	Asst. Prof.	Tenure earning	Fall 2008	9	0.75	0.25	0.19	9	0.75	0.25	0.19
A	Paul Bao, Ph.D. Computer Science	Assoc. Prof.	Tenure earning	Spring 2009	9	0.75	0.25	0.19	9	0.75	0.25	0.19
A	Abdel Ejnoui, Ph.D. Computer Science & Engineering	Asst. Prof.	Tenure earning	Spring 2009	9	0.75	0.25	0.19	9	0.75	0.25	0.19
A	Alessio Gaspar, Ph.D. Computer Science	Asst. Prof.	Tenure earning	Summer 2009	9	0.75	0.25	0.19	9	0.75	0.25	0.19
A	William Harding, Ph.D. Mgmt. Information Systems	Asst. Prof.	MYA	Summer 2009	9	0.75	0.25	0.19	9	0.75	0.25	0.19
A	Raed Hawat, Ph.D. Computer Science & Engineering	Instructor	MYA	Fall 2008	9	0.75	0.25	0.19	9	0.75	0.25	0.19
A	Sunita Lodwig, Ph.D. Theoretical Plasma Physics	Instructor	MYA	Fall 2009	9	0.75	0.25	0.19	9	0.75	0.25	0.19
A	John Wiginton, Ph.D. Economics	Instructor	MYA	Spring 2010	9	0.75	0.25	0.19	9	0.75	0.25	0.19
B	New Hire, Ph.D. Computer Science	Professor	Tenure	Fall 2009	0	0.00	0.00	0.00	9	0.75	0.25	0.19
<b>Total Person-Years (PY)</b>								<b>1.52</b>				<b>1.71</b>

Faculty Code	Source of Funding	PY Workload by Budget Classification	
		Year 1	Year 5
A	Existing faculty on a regular line	1.52	1.52
B	New faculty to be hired on a vacant line	0.00	0.19
C	New faculty to be hired on a new line	0.00	0.00
D	Existing faculty hired on contracts/grants	0.00	0.00
E	New faculty to be hired on contracts/grants	0.00	0.00
<b>Overall Totals for</b>		<b>Year 1 1.52</b>	<b>Year 5 1.71</b>

**B. Use Table 2 to display the costs and associated funding resources for existing and anticipated ranked faculty (as identified in Table 2). Costs for visiting and adjunct faculty should be included in the category of Other Personnel Services (OPS). Provide a narrative summarizing projected costs and funding sources.**

Current faculty will be rotated into the Master’s degree curriculum during the academic year, in such a way as to ensure that one-third of the faculty are assigned to Master’s program course work in an academic year with qualified adjunct faculty replacing the regular faculty in the undergraduate curriculum. The rotation is important for ensuring that undergraduate students still benefit from the expertise and experiences of regular faculty. By year 5 additional USPS staff will have been assigned to the unit to provide additional unit organizational and operational support. Funding for the additional staff salary and benefits will be reallocated from the staff pool. Funding for Master’s level graduate assistantships will be secured from departmental operating funds or from private gifts.

**C. Provide the number of master's theses and/or doctoral dissertations directed, and the number and type of professional publications for each existing faculty member (do not include information for visiting or adjunct faculty).**

The current program in the Department of Information Technology is a bachelor of science degree. Faculty in the department have not had access to graduate students at the master’s or doctoral levels and, thus, have not had opportunity to direct master’s theses or dissertations unless the faculty member participated in such activities in former institutions.

Faculty Name	Theses	Dissertations	Number and Type of Professional Publications
William D. Armitage Assistant Professor	0	0	Journal Publication with ISSN (or Fine Art Equiv.): 7 Presentations, Products, Patents (Fine Art Equivalents): 15 Publication without ISSN or ISBN: 1
Paul Bao Associate Professor	2	4	Book or Segment of Book with ISBN (or Fine Art Equiv.): 5 Journal Publication with ISSN (or Fine Art Equiv.): 50 Presentations, Products, Patents (Fine Art Equivalents): 76
Abdel Ejnoui Assistant Professor	0	0	Book or Segment of Book with ISBN (or Fine Art Equiv.): 15 Journal Publication with ISSN (or Fine Art Equiv.): 8

			Presentations, Products, Patents (Fine Art Equivalents): 6
Alessio Gaspar Assistant Professor	0	0	Book or Segment of Book with ISBN (or Fine Art Equiv.): 1 Journal Publication with ISSN (or Fine Art Equiv.): 8 Presentations, Products, Patents (Fine Art Equivalents): 27 Publication without ISSN or ISBN: 1
William Harding Instructor	0	0	Journal Publication with ISSN (or Fine Art Equiv.): 6 Presentations, Products, Patents (Fine Art Equivalents): 7 Publication without ISSN or ISBN: 3
Ray Hawat Instructor	0	0	
Sunita Lodwig Instructor	0	0	Journal Publication with ISSN (or Fine Art Equiv.): 5 Publication without ISSN or ISBN: 1
John Wigginton Instructor	40	3	

**D. Provide evidence that the academic unit(s) associated with this new degree have been productive in teaching, research, and service. Such evidence may include trends over time for average course load, FTE productivity, student HC in major or service courses, degrees granted, external funding attracted, as well as qualitative indicators of excellence.**

	Degrees Granted	Average Course Load	FTE Productivity	Unduplicated Student Headcount	External Funding Awarded
2003-2004	8	—	—	78	\$262,467
2004-2005	10	—	—	82	\$129,597
2005-2006	11	8	9	96	—
2006-2007	10	10	26	93	\$113,307

Source: InfoMart (NOTE: Some records in InfoMart for Information Technology do not begin until Spring 2006)

## **X. Non-Faculty Resources**

**A. Describe library resources currently available to implement and/or sustain the proposed**

**program through Year 5. Provide the total number of volumes and serials available in this discipline and related fields. List major journals that are available to the university's students. Include a signed statement from the Library Director that this subsection and subsection B have been reviewed and approved for all doctoral level proposals.**

[USF Lakeland Librarian to provide information.]

- B. Describe additional library resources that are needed to implement and/or sustain the program through Year 5. Include projected costs of additional library resources in Table 3.**

[USF Lakeland Librarian to provide information.]

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Library Director

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Date

- C. Describe classroom, teaching laboratory, research laboratory, office, and other types of space that are necessary and currently available to implement the proposed program through Year 5.**

Currently research space is available in the USF Lakeland IT/Engineering Research Lab (LTB 2150); inasmuch as IT Projects conducted by students in this program will take place primarily in an outside industry venue, this is considered to be sufficient, at least initially. The Chair of the IT Department will serve on the planning committee for facilities at any new campus constructed for USF Lakeland and will ensure that adequate classroom and research space are provided to meet the needs of an expanding program at both the undergraduate and graduate levels. Current teaching space is adequate to support the graduate courses envisioned, with more emphasis given to distance delivery of courses, especially at the undergraduate level.

- D. Describe additional classroom, teaching laboratory, research laboratory, office, and other space needed to implement and/or maintain the proposed program through Year 5. Include any projected Instruction and Research (I&R) costs of additional space in Table 2. Do not include costs for new construction because that information should be provided in response to X (J) below.**

See XJ.

- E. Describe specialized equipment that is currently available to implement the proposed program through Year 5. Focus primarily on instructional and research requirements.**

Instructional equipment is fully adequate to support the program. Teaching classrooms are fully equipped with current equipment and instructional technology. The department has implemented and operates a linux-based cluster for effective experimentation and instruction in the areas of networking, security, operating systems and system administration.

- F. Describe additional specialized equipment that will be needed to implement and/or sustain the proposed program through Year 5. Include projected costs of additional equipment in Table 2.**

No additional equipment is currently anticipated to be needed to support the proposed program through Year 5, although changes in the field of information technology are common and cannot be predicted adequately for budgeting purposes. Additional equipment that might fall into this category will be proposed and justified when its need becomes apparent.

- G. Describe any additional special categories of resources needed to implement the program through Year 5 (access to proprietary research facilities, specialized services, extended travel, etc.). Include projected costs of special resources in Table 2.**

Not applicable.

- H. Describe fellowships, scholarships, and graduate assistantships to be allocated to the proposed program through Year 5. Include the projected costs in Table 2.**

It is anticipated that one-two graduate assistantships will be phased in by Year 5 with support for the assistantships included in the departmental budget or provided by private gifts from community partners.

- I. Describe currently available sites for internship and practicum experiences, if appropriate to the program. Describe plans to seek additional sites in Years 1 through 5.**

We anticipate that our primary source for students in this program will be IT professionals already holding responsible positions in the industry. Most, if not all, of our students will conduct their required IT Capstone Project in conjunction with their current place of employment, under supervision of an IT Department faculty member.

- J. If a new capital expenditure for instructional or research space is required, indicate where this item appears on the university's fixed capital outlay priority list. Table 2 includes only Instruction and Research (I&R) costs. If non-I&R costs, such as indirect costs affecting libraries and student services, are expected to increase as a result of the program, describe and estimate those expenses in narrative form below. It is expected that high enrollment programs in particular would necessitate increased costs in non-I&R activities.**

The USF Lakeland Campus Master Plan targets the completion of the first building on the new campus site for AY 2010-2011. The estimated construction cost for the first building is \$40.4 million. The Department of Information Technology is scheduled to be one of the academic units housed in this first building.

A Research Enterprise Incubator facility is also targeted for completion by AY 2010-

2011. It is expected that research and business ventures related to information technology will also be included in this facility. The estimated construction cost for the facility is \$50 million.