BOARD OF HIGHER EDUCATION

REQUEST FOR COMMITTEE AND BOARD ACTION

COMMITTEE: Academic Affairs **NO**: AAC 15-20

COMMITTEE DATE: December 2, 2014

BOARD DATE: December 9, 2014

APPLICATION OF UNIVERSITY OF MASSACHUSETTS DARTMOUTH TO AWARD THE MASTER OF SCIENCE DEGREE IN TECHNOLOGY MANAGEMENT

MOVED: The Board of Higher Education hereby approves the application of

University of Massachusetts Dartmouth to award the Master of

Science in Technology Management.

Upon graduating the first class for this program, the University shall submit to the Board a status report addressing its success in reaching

program goals as stated in the application and in the areas of

enrollment, curriculum, faculty resources, and program effectiveness.

Authority: Massachusetts General Laws Chapter 15A, Section 9(b)

Contact: Winifred M. Hagan, Ed.D.

Assistant Commissioner for Academic and Educator Policy

BOARD OF HIGHER EDUCATION

December 2014

University of Massachusetts Dartmouth Master of Science in Technology Management

INTENT AND MISSION

The proposed Master of Science in Technology Management (MSTM) is consistent with the University of Massachusetts Dartmouth (UMD) mission to be actively engaged in teaching and innovative research. It is also aligned with the UMD Charlton College of Business (CCB) to prepare students with a high quality business education. The purpose of the proposed MSTM is to provide a graduate degree to prepare engineers and managers with the knowledge and skills needed to manage and lead technology related business decisions in an increasingly technically complex, diverse, globally interdependent environment.

The proposed program has obtained all necessary governance approvals on campus and was approved by the University of Massachusetts' Board of Trustees on September 17, 2014. The required letter of intent was circulated on July 14, 2014. No comments were received.

NEED AND DEMAND

National and State Labor Market Outlook

The Bureau of Labor Statistics forecasts that the employment of computer and information systems managers is projected to grow 15 percent from 2012 to 2022, faster than the average for all occupations. The U.S. Department of Labor projects that Information Technology related job growth is estimated at 53 percent by 2018. In the Boston area, there were 2,664 technology management related and 38,023 technology manager positions available in February 2013. In addition, salaries in many IT jobs are expected to climb by four to six percent.

Student Demand

UMD conducted a survey of 50 undergraduate students currently enrolled in the CCB in February 2014. Of the 50 students, 39 (78%) plan to pursue a graduate degree in business and 13 (32 %) would be interested in Master of Science in Technology Management (MSTM). UMD anticipates enrolling 10-20 students in the initial semester and will grow to include 30-40 instate, out-of state, and international students per academic year.

 $^{^{1} \, \}underline{http://www.bls.gov/ooh/Management/Computer-and-information-systems-managers.htm\#tab-1},$

² http://www.linkedin.com/job/q-technology-management-l-boston-jobs

http://www.linkedin.com/job/q-technology-manager-jobs)

⁴ http://www.nwitimes.com/business/jobs-and-employment/national-job-outlook-focuses-on-information-technology-health-care-engineering/article_b709138e-e777-5ef2-8613-bdb9e90ead3f.html

OVERVIEW OF PROPOSED PROGRAM

The proposed MSTM program is designed to help both engineers and managers to further advance their career in the area of technology management. Core courses for the MSTM focus on operations, logistics, advanced statistics and data mining, economic models of technology adoption, general issues and challenges in information technology management, business intelligence and knowledge management, enterprise systems, and project management. Elective courses provide students with the opportunity to expand their knowledge in management of technology. The MSTM degree will also utilize resources and curriculum available for the MBA program and other graduate programs within the CCB. It is anticipated that graduates of the proposed MSTM will have the ability to lead their organizations to respond to complex challenges in the global business environment.

Duplication

UMD reported that review of private and public universities in Massachusetts indicated other University of Massachusetts campuses and state universities have programs similar to the UMD proposed MSTM. Tufts University offers a Master of Science in Information Technology. Brandeis University offers a Master of Science in Information Technology Management. UMD found that no program with the unique combination of operations management and information technology management as in the proposed MSTM. State universities in Massachusetts that offer comparable degrees are University of Massachusetts Boston and University of Massachusetts Lowell.

ACADEMIC AND RELATED MATTERS

Admission

General admission requirements to the proposed MSTM program include official transcripts for an undergraduate degree. A minimum overall GPA of 3.0 is required. A GMAT minimum of 550 can be waived if students have an earned baccalaureate degree from UMD with a cumulative undergraduate GPA of at least 3.2 and upon receipt of a recommendation by a UMD faculty member; or an earned baccalaureate degree from an AACSB-accredited or equivalent program with a cumulative undergraduate GPA of at least 3.5. International students are required to have a minimum TOEFL score of 600/PBT, 250/CBT, 100/IBT. In addition, UMD requires three letters of recommendation.

Program Enrollment Projection

	# of Students Year 1	# of Students Year 2	# of Students Year 3 ⁺	# of Students Year 4 ⁺
New Full-Time	5	10	12	15
Continuing Full-Time				
New Part-Time	10	10	16	24
Continuing Part-Time		10	10	16
Totals (FTE) Assumes 2 PT students are counted as 1 FT student	10	20	25	35

Curriculum (Attachment A)

It is expected that students with a bachelor's degree in business will be expected to take 10 courses for 30 credits, 8 required courses, and 2 electives. Students who have earned a bachelor's degree in a field other than business will be expected to complete three prerequisite courses with a minimum grade of B- for each course including Accounting, Economics and Statistics.

Internships or Field Studies

UMD is planning to offer independent study courses similar to those currently offered in the MBA program. These courses will provide experiential learning opportunities such as case study projects and internships.

RESOURCES AND BUDGET

Fiscal (Attachment B)

UMD currently has 26 tenured faculty members, 8 tenure-track faculty, and 3 full time lecturers in the CCB. CCB is currently searching for one full-time tenure-track faculty member for the Department of Decision and Information Sciences (DIS). DIS has currently 11 full-time tenured, tenure-track, or non-tenure-track faculty members. UMD expects that as the MSTM program grows, faculty in core course areas will be added. UMD anticipates that the proposed MSTM program will be net revenue-generating. It is expected that the incremental cost of a new faculty hire will be offset by revenues.

Faculty and Administration (Attachment C)

It is planned that the MSTM will have faculty from the DIS teaching core courses. Faculty members teaching core courses are tenured or tenure track and have terminal degrees in their discipline. It is expected that faculty within the MBA program will also teach some elective courses. In addition, UMD adjunct faculty members have worked in business as a technology executive. As the MSTM grows, tenure-track, non-tenure track, or adjunct faculty in DIS would expect to be added to meet demand incrementally.

The CCB currently has a Dean, an Associate Dean, and 2 Assistant Deans, two center directors (2 tenured and full-time faculty), 6 full-time staff assistants, and several part-time assistants and student assistants. It is planned that the MSTM program will require an additional part-time coordinator. All curriculum development, review, modifications, and assessments will follow existing committee structures and processes, including the department and graduate curriculum committees.

Facilities, Library and Information Technologies

UMD online articles and databases and resources are already available and in place for use by both undergraduate and graduate students. Relevant databases that are expected to be of particular interest to MSTM students include ABI Complete, Business and Company Resource

Center, Historical Wall Street Journal, Hoover's Company Records, Wall Street Journal, and Wharton Research Data Services.

The CCB teaching lab and general-purpose computer lab will be available for MSTM students in addition to access to general-purpose computer labs. The CCB teaching lab offers 36 Lenovo desktop computers, 1 laser printer, 2 overhead projectors, 1 teaching station, and a whiteboard. In the general-purpose lab, there are 41 Lenovo desktop computers, 2 laser printers, 1 overhead projector, and 5 laptop stations. Currently, the software in the labs includes Office 2007 Professional, MS Visio 2007, MS Project 2007, Excel QM 3, POM-QM 3, Tera Term Pro, WinSCP 3, Macromedia Suite 8, Adobe Acrobat 8, and QuickBooks. Finally, CCB classrooms are technology enhanced, including a PC computer, a SMART monitor with touch-screen, a laptop A/V hookup, lecture-capture video equipment, a VCR and/or DVD player, stereo speakers, a document camera, and an Extron control panel. All classrooms, labs, and common areas in the University are covered by wireless internet access.

Affiliations and Partnerships

Once the program has been approved, UMD plans that the DIS business advisory board will be established with members having technology management experiences to assist in the implementation of MSTM.

PROGRAM EFFECTIVENESS

Goal	Measurable Objective	Strategy for Achievement	Timetable
1. To graduate well- prepared students who can augment the workforce by successfully competing for professional positions in the field of Technology Management	1a. Recruit high- quality applicants 1b. Prepare students academically 1c. Assist students in obtaining employment 1d. Maintain student contact and monitor student progress after graduation	1a. Recruiting fairs; posters and flyers at Schools and professional meetings; media advertising; Web site 1b. Strong faculty and well-designed curriculum 1c. Active involvement by Career Services Office; personal contacts 1d. Newsletters, surveys, social events	1a. 3-6 months before admission, then ongoing 1b1d. Ongoing
2. To add to the reputation and visibility of the Charlton College of Business at UMass Dartmouth	2a. Increase number and quality of employers recruiting MSTM graduates 2b. Attract diverse and highly qualified faculty applicants interested in the MSTM program and in the overall mission of the College. 2c. Increase faculty participation at professional conferences 2d. Strive for more faculty/College representation in the local/national media 2e. Increase fundraising within the Charlton College of Business 2f. Host more professional conferences at UMass Dartmouth	2a. Active involvement by Career Services Office; personal contacts 2b. Advertising (on websites such as the Chronicle of Higher Education, Association of MIS, APICS), professional meetings, personal contacts 2c. Encourage faculty attendance; support related costs 2d. Active involvement by the Office of Public Affairs; encourage oped pieces by faculty 2e. Work with the University Advancement Office on leads and prospects 2f. Work with professional Associations.	2a 2f. Ongoing

EXTERNAL REVIEW AND INSTITUTIONAL RESPONSE

Hokey Min, Ph.D. Professor and James R. Good Chair of Management, at Bowling Green State University and Niranjan Pati, Ph.D. Professor of Management and Entrepreneurship at Rowan University reviewed the MSTM proposal. Dr. Min and Dr. Pati conducted a joint site visit on the UMD campus on April 4, 2014 and met with several administrators and faculty. Based on individual reading of the proposal and the observations from the site visit, the reviewers conferred and submitted a joint report.

The reviewers found evidence in the proposal for an existing demand for the MSTM program, sufficient faculty expertise in technology and management and an adequate curriculum to train engineers and managers in technology management. The reviewers noted that a capstone, service learning or internship should be added to the MSTM curriculum, and Enterprise Resource Planning (ERP) should be used to develop MSTM courses, revenues should be invested into the program to enhance program assets and faculty development, and the MSTM advisory board should be independent from the Business Advisory Board.

UMD responded in agreement regarding the addition of a capstone course to the MTSM program. The Curriculum Committee will consider the reviewer's recommendation of POM 682 and MIS 685 as potential capstone courses for the MSTM program. In regards to the reviewers' concerns regarding ERP, UMD explained its plans to initially use Microsoft Dynamics and an ERP platform such as Adempiere to develop some of the MSTM courses. As the MSTM grows and admission of out-of-state and international students increases, UMD will gradually develop a platform to include SAP or Oracle. UMD agreed that service learning opportunities and internships are very effective ways for student to learn through practical experiences and will help MSTM students identify such experiences. UMD will also evaluate service learning and internship experiences for possible award of elective credits on a case by case basis. UMD also agreed with the need for some of the revenues to be re-invested into the program to further enhance curriculum and faculty development and that the MSTM advisory board should be independent from the Business Advisory Board. UMD explained that the existing Business Advisory Board will be used only during the transition phase.

STAFF ANALYSIS AND RECOMMENDATION

Staff thoroughly reviewed all documentation submitted by the **University of Massachusetts Dartmouth** and external reviewers. Staff recommendation is for approval of the proposed **Master of Science in Technology Management.**

ATTACHMENT A: CURRICULUM

<u> </u>	Major Required (Core) Courses (Total co	urses required = 8)	
Course Number	Course Title		Credit Hours
POM 651	Advanced Operations Analysis		3
POM 677	Logistics Strategy and Management		3
POM 681	Business Analytics and Data Mining		3
POM 682	Technology Management Strategies		3
MIS 650	Information Technology Management		3
MIS 675	Advanced Project Management		3
MIS 681	Business Intelligence and Knowledge I	Management	3
MIS 685	Enterprise System: Theory and Practice	e	3
	SubTotal # Co	ore Credits Required	24
Other/Elective (Course Choices: Total courses required = selected)	2 (1 if master's proje	ect or thesis is
ACT 650	Accounting for Decision Making		3
MIS 672	Digital Economy and Commerce		3
POM 675	International Supply Chain Manageme	nt	3
POM 679	Management of Health Care Operation	ıs	3
MGT 659	Strategic Management		3
MKT 650	Marketing Strategy		3
Other Courses	Approved Engineering or/and MBA cocase)	ourses (Case by	
	SubTotal # Electi	ive Credits Required	6
	Curriculum Summary		
Total	number of courses required for the degree	10	
	Total credit hours required for degree	30	
Prerequisite or Ot	her Additional Requirements:	1	
ACT 500 FIN 500 POM 500	Financial Accounting (Existing Finance and Economics for Ma Statistical Analysis (Existing C	nagers (Existing Cou	erse)

ATTACHMENT B: BUDGET

	Yea	ar 1	Yea	ır 2	Yea	ır 3	Yea	r 4	Yea	ır 5
	20	15	20	16	20	17	20	18	20	19
Full-Time Tuition Rate: In-State	1553		1553		1553		1553		1553	
Full-Time Tuition Rate: Out-State	6074		6074		6074		6074		6074	
Mandatory Fees per Student (In- state)	9065		9065		9065		9065		9065	
Mandatory Fees per Student (out- state)	12442		12442		12442		12442		12442	
FTE # of New Students: In-State	5		10		15		20		30	
FTE # of New Students: Out-State	5		10		10		15		20	
# of In-State FTE Students transferring in from the institution's existing programs										
# of Out-State FTE Students transferring in from the institution's existing programs										
		Revenue		Revenue		Revenue		Revenue		Revenu
	Newly	from	Newly	from	Newly	Revenue from	Newly	Revenue from	Newly	from
Fuition and Food	Generated	from existing	Generated	from existing	Newly Generated	from existing	Generated	from existing	Generated	from existin
	Generated	from	Generated	from existing	Newly	from existing	Generated	from existing		from existin
First Year Students	Generated	from existing	Generated	from existing	Newly Generated	from existing	Generated	from existing	Generated	from existin
Tuition and Fees First Year Students Tuition In-State	Generated	from existing programs	Generated Revenue	from existing programs	Newly Generated Revenue	from existing programs	Generated Revenue	from existing	Generated Revenue	existing progran

Mandatory Fees	\$107,535	\$0	\$215,070	\$0	\$260,395	\$0	\$367,930	\$0	\$520,790	\$0
Second Year Students										
Tuition										
In-State										
Out-of-State										
Mandatory Fees										
Third Year Students										
Tuition										
In-State										
Out-of-State										
Mandatory Fees										
Fourth Year Students										
Tuition										
In-State										
Out-of-State										
Mandatory Fees										
Fifth Year Students										
Tuition										
In-State										
Out-of-State										
Mandatory Fees										
Gross Tuition and Fees	\$145,670	\$0	\$291,340	\$0	\$344,430	\$0	\$490,100	\$0	\$688,860	\$0
Grants	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Contracts	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0

Campus budget allocation	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Other Revenues (specify in cell 54)	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Total	\$145,670	\$0	\$291,340	\$0	\$344,430	\$0	\$490,100	\$0	\$688,860	\$0

EXPENDITURE ESTIMATES	S									
	_									
	Yea	Year 1		ar 2	Yea	ar 3	Year 4		Year 5	
	20	15	20	16	20	17	20	18	20	19
	New Expenditu r-es required for Program	Expendit- ures from current resources	New Expenditures required for Program	Expendit- ures from current resources	ures required for	Expendit- ures from current resources	ures required for	Expendit- ures from current resources	New Expenditures required for Program	Expendit- ures from current resources
Personnel Services							•			
Faculty	\$115,000	\$0	\$118,450	\$0	\$122,004	\$0	\$125,664	\$0	\$129,434	\$0
Administrators	\$30,000	\$0	\$40,000	\$0	\$40,000	\$0	\$40,000	\$0	\$40,000	\$0
Support Staff	\$25,000	\$0	\$25,000	\$0	\$25,000	\$0	\$25,000	\$0	\$25,000	\$0
Others	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Fringe Benefits%	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Total Personnel	\$170,000	\$0	\$183,450	\$0	\$187,004	\$0	\$190,664	\$0	\$194,434	\$0
Operating Expenses										
Supplies	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Library Resources	\$0	\$0	\$0	\$0						
Marketing/Promotional Expenses	\$40,000		\$20,000	\$0	•					
Laboratory Expenses	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
General Administrative Overhead	\$10,000	\$0	\$10,000	\$0	\$10,000	\$0	\$10,000	\$0	\$10,000	\$0
Other (specify)	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0

Total Operating Expenses	\$50,000	\$0	\$30,000	\$0	\$30,000	\$0	\$30,000	\$0	\$30,000	\$0
Net Student Assistance										
Assistantships	\$15,000	\$0	\$30,000	\$0	\$30,000	\$0	\$30,000	\$0	\$30,000	\$0
Fellowships	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Stipends/Scholarships	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Total Student Assistance	\$15,000	\$0	\$30,000	\$0	\$30,000	\$0	\$30,000	\$0	\$30,000	\$0
Capital										
Facilities / Campus recharges	\$20,000	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Equipment	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Other	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Total Capital	\$20,000	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
	_									
Total Expenditures	\$255,000	\$0	\$243,450	\$0	\$247,004	\$0	\$250,664	\$0	\$254,434	\$0

	BUDG	ET SUMN	IARY OF N	EW PROG	RAM ONLY
	Year 1	Year 2	Year 3	Year 4	Year 5
	2015	2016	2017	2018	2019
Total of newly generated		\$291,34		\$490,10	
revenue	0	0	\$344,430	0	\$688,860
Total of additional resources	\$255,00	\$243,45		\$250,66	
required for program	0	0	\$247,004	4	\$254,434
	(\$109,33			\$239,43	
Excess/ (Deficiency)	0)	\$47,890	\$97,427	6	\$434,426

Attachment C: Faculty

Name of faculty member (Name, Degree and Field, Title)	Tenured Y/N	Courses Taught Put (C) to indicate core course. Put (OL) next to any course currently taught online.	# of sections	Division or College of Employment	Full- or Part- time in Program	Full- or part- time in other department or program (Please specify)	Sites where individual will teach program courses
Braha, Dan Ph. D. Full time professor	х	Operations Management Logistics & Supply Mgmnt Quant Business Analysis	6 1 5	College of Business	Full Time	No	Main campus
Curran, Cathy Ph.D. in Business Administration	х	Marketing Strategy	5	College of Business	Full Time	Yes, Department of Management and Marketing	Main campus
Forker, Laura Ph.D. in Operations Management Professor	X	Management of Health Care Operations (C) (OL) • Logistics Strategy and Management • Operations Management • Process Management • Service Operations Health Care • Adv Operations Analysis • Logistics Strategy&Manageme nt	1 1 5 3 2 1	College of Business	Full Time	No	Main campus
Gunasekaran, Angappa Ph. D. Dean	х	Logistics Strategy and Management Operations Management Logistics & Supply Mgmnt	1 1 1	College of Business	Full Time	No	Main campus
Li, Yuzhu (Julia) Ph.D. in Management		Information Systems Management of Info Systems	15 5	College of Business	Full Time	No	Main campus

Information Systems Assistant Professor		Management of Info Resources	1				
Ordoobadi, Sharon Ph. D. in Management Associate Professor	Х	Quant Business Analysis Total Quality Improvement Special Topics Operations Mgt	10 4 1	College of Business	Full Time	No	Main campus
Papenhausen, Chris Ph.D. in Strategic Management	Х	Strategic Management	6	College of Business	Full Time	Yes, Department of Management and Marketing	Main campus
Parayitam, Satya PhD in Strategic Management	Х	Strategic Management	5	College of Business	Full Time	Yes, Department of Management and Marketing	Main campus
Rai, Bharatendra Ph.D. in Industrial Engineering Associate Professor	X	Statistical Analysis Business Statistics Process Management Operations Management Quant Business Analysis Total Quality Improvement	9 7 4 6 4	College of Business	Full Time	No	Main campus
Shea, Tim D.B.A. in M. I. S. Associate Professor	х	Digital Economy and Commerce Data Communica&Networks Advanced Info Systems Sp Topics In Info System Information Tech Mgmnt Network Essentials	1 2 6 2 5	College of Business	Full Time	No	Main campus
Shi, Zhengzhong Ph. D Associate Professor	Х	 Information Systems Data Communica&Networks 	12 3	College of Business	Full Time	No	Main campus

		Electronic					
		Commerce/Bus	2				
Sibdari, Soheil Ph.D. in Industrial & Systems		Statistical Analysis International Supply Chain Management	3	College of			Main
Engineering (Operations Research) Associate Professor	Х	 Business Statistics Adv Operations Analysis Quant Business Analysis 	7 3	College of Business	Full Time	No	campus
Fiolessoi		7 thatyolo	5				
Stapleton, Toby MBA from Suffolk University Assistant Dean, Graduate Programs		Advanced Operations Analysis Logistics Strategy and Management	3	College of Business	Full Time	Yes, Assistant Dean, Graduate Programs	Main campus
Wang, Shouhong Ph. D. in Information Systems Full Time Professor	X	Web-Based App Dev&Prog Bus System-Analy & Dsgn Database Dsgn & Implementation Information Systems Program & Prob Solving Information Tech Mgmnt	3 5 6 5 3 2	College of Business	Full Time	No	Main campus
White, D. Steven DBA in Business Administration w/ a major in marketing and a minor in information systems.	X	Marketing Strategy	3	College of Business	Full Time	Yes, Department of Management and Marketing	Main campus
Wu, Jia Ph.D. in Accounting Associate Professor	Х	Accounting for Decision Making (C) (OL) Financial Accounting	26 15	College of Business	Full Time	Yes, Department of Accounting and Finance	Main campus
Bejtlich, Michael M.B.A. in		StrategicManagementMarketing Strategy	3	College of Business	Part Time	Yes, Department of	Main campus

Finance and Accounting PTVL		1			Management and Marketing	
Brian, Plummer Part time	International Supply Chain Management	1	College of Business	Part Time	No	Main campus
Chopooran, John Ph.D. in Chemistry PTL	Marketing Strategy	4	College of Business	Part Time	Yes, Department of Management and Marketing	Main campus
Jackson, Raymond Ph.D. in Economics PTL	Finance and Economics for Managers	2	College of Business	Part Time	Yes, Department of Accounting and Finance	Main campus
Lamothe, Sarah M.B.A. in Business Administration Part time professor	Digital Economy and Commerce	1	College of Business	Part Time	No	Main campus
Walter, Bruce M.B.A. in Business Administraton PTVL	• Financial Accounting	7	College of Business	Part Time	Yes, Department of Accounting and Finance	Main campus