UNIVERSITY OF HOUSTON SYSTEM
BOARD OF REGENTS AGENDA

COMMITTEE: Academic & Student Success

ITEM: Approval of Master of Science in Geosensing Systems Engineering and Sciences Degree at the University of Houston

DATE PREVIOUSLY SUBMITTED:

SUMMARY:

The University of Houston proposes the establishment of a Master of Science in Geosensing Systems Engineering and Sciences degree (GSES) to be administered by the Department of Civil and Environmental Engineering, within the College of Engineering. The degree requires 30 credit hours at the graduate level beyond the Bachelor of Science. Required courses include Survey Measurement and Analysis, Satellite Positioning and Geodesy, and Introduction to Geomatics and Geosensing. Students will be provided with hands on access to the state of the art sensors developed by the National Center for Airborne Laser Mapping and jointly operated by University of Houston and University of California, Berkeley. The demand for graduating students with such skills is high and we expect students graduating from the UH GSES program to receive multiple offers for employment at private companies, government agencies, and academic institutions.

SUPPORTING DOCUMENTATION: Program Description and Financial Pro Forma

FISCAL NOTE: See Financial Pro Forma

RECOMMENDATION/ ACTION REQUESTED: Administration recommends approval of this item

COMPONENT: University of Houston

Renu Khator **PRESIDENT**	Renu Khator	5/3/12 **DATE**
SENIOR VICE CHANCELLOR	John Antel	4/30/12 **DATE**
Renu Khator **CHANCELLOR**	Renu Khator	5/3/12 **DATE**

Master of Science in Geosensing Systems Engineering and Sciences

University of Houston

Congruence with System Goals and University Mission

The Master of Science in Geosensing Systems Engineering and Sciences addresses the system goals of national competitiveness and community advancement by providing high quality educational opportunities for students in a field that is critical for the economic health of the region, specifically in this case the rapidly growing GIS/Geospacial Technology industry.

Program Description

The Cullen College of Engineering proposes a Masters of Science degree program to provide graduate (thesis and non-thesis based) level education to prepare graduates with sufficient background and research skills to successfully embark on academic, national laboratory, or industrial research careers in engineering and science. Geosensing Systems Engineering and Sciences will be administered as a graduate research program within the Cullen College of Engineering, initially supported by the following three departments:

1. Civil & Environmental Engineering (CEE), Cullen College of Engineering
2. Electrical & Computer Engineering (ECE), Cullen College of Engineering
3. Earth & Atmospheric Sciences (EAS), College of Natural Sciences and Mathematics

A minimum of thirty (30) semester hours of graduate credit beyond the BS will be required. A thesis student will be required to take at least 15 hours in structured course work, and at least 3 hours in research, 6 hours in thesis, and 6 hours in electives. A non-thesis student will be required to take 15 hours in structured coursework and 15 hours in electives. Students in the program will have access to state of the art sensors developed by the National Center for Airborne Laser Mapping (NCALM).

NCALM was founded in 2003 in order to provide research quality laser swath mapping data to academic researchers selected through the NSF proposal/peer review process, to advance airborne laser mapping technology, and to provide education and training for students to meet the rapidly growing needs of industry and academia.

Student and Job Market Demand

The American Society for Photogrammetry and Remote Sensing (ASPRS) 10-year remote sensing industry forecast states that "the educational community is not meeting the industry need for master's and Ph.D. level graduates with technical training in geospatial technologies".

The Department of Labor states, "The geospatial technology sector has been selected as one of 14 targeted industries in the High Growth Job Training initiative primarily because it currently meets many of the criteria for an emerging market sector, and is growing in additional areas as well. Geospatial technology shares concerns with the broader field of information technology and can learn from and contribute to the development of this field. The worldwide market for geospatial technologies has enormous potential. The most frequently quoted growth figures estimated the geospatial market at $5 billion in 2001, with projected annual revenues of $30 billion by 2011. This growth is due to many factors, including the sector's importance to national economic and security interests. Recent estimates show the shortfall in advanced level of GIS-trained individuals to be around 3,000 to 4,000 in the U.S. alone, and the shortage outside the United States is even greater. The few graduate programs now in place cannot meet the needs of the marketplace and the global demand will likely continue to grow faster than the supply of qualified graduates".

Program Duplication

There are no similar Graduate Programs in Geosensing Systems Engineering and Sciences in Texas, United States or anywhere else. Only within the last decade has GSES become recognized as a separate academic discipline.

Faculty Resources

The program will utilize existing faculty along with several new faculty members that should all be in place by September 2012. The program is led by Dr. Ramesh Shrestha, who is nationally and internationally recognized as a pioneer in this field.

PRO FORMA FOR MS in Geosensing Systems Engineering and Sciences

v.6 - October 2011

		FY 2013	FY 2014	FY 2015	FY2016	FY 2017	FY 2018	FY 2019
Enrollments		Fall 2012	Fall 2013	Fall 2014	Fall 2015	Fall 2016	Fall 2017	Fall 2018
Cohort 1		4	4					
Cohort 2			2	2				
Cohort 3				8	8			
Cohort 4					4	4		
Cohort 5						10	10	
Cohort 6							6	
Total		4	6	10	12	14	16	
Expenses								
Faculty	FY 2012	FY 2013	FY 2014	FY 2015	FY2016	FY 2017	FY 2018	
Shrestha, Ramesh	-	43,750	43,750	43,750	43,750	43,750	43,750	
Glennie, Craig	-	22,500	22,500	22,500	22,500	22,500	22,500	
Lee, Hyongki	-	20,500	20,500	20,500	20,500	20,500	20,500	
Guoquan, Wang	-	8,000	8,000	8,000	8,000	8,000	8,000	
Staff One new faculty, Spring 2012	-	8,500	8,500	8,500	8,500	8,500	8,500	
One new faculty, Fall 2012	-	8,500	8,500	8,500	8,500	8,500	8,500	
Carter, William	-	5,400	5,400	5,400	5,400	5,400	5,400	
Murphy	-	3,750	3,750	3,750	3,750	3,750	3,750	
Graduate students	-	16,000	31,000	47,000	62,000	62,000	62,000	
Total Salaries	-	136,900	151,900	167,900	182,900	182,900	182,900	
Benefits @ 30%	-	41,070	45,570	50,370	54,870	54,870	54,870	
Total Personnel	-	177,970	197,470	218,270	237,770	237,770	237,770	
Non-Personnel		-	-	-	-	-	-	
Annual maintenance & operations	30,000	30,000	30,000	30,000	30,000	30,000	30,000	
Library and Information Technology	-	-	-	-	-	-	-	
Accreditation		-	-	-	-	-	-	
Cost of equipment transfer	978,750	-	-	-	-	-	-	
Total Non-Personnel	1,008,750	30,000	30,000	30,000	30,000	30,000	30,000	
Total Annual Expense	$ 1,008,750	$ 207,970	$ 227,470	$ 248,270	$ 267,770	$ 267,770	$ 267,770	
Revenue								
University Tuition		27,145	40,717	67,862	81,434	95,006	108,578	
University Fees		7,129	10,694	17,823	21,387	24,952	28,516	
College Tuition and Fees		1,904	2,856	4,760	5,712	6,664	7,616	
Subtotal		36,178	54,267	90,444	108,533	126,622	144,711	
Formula Funding								
Generated				34,165	93,953	93,953	139,506	
Allocated to university operations	60%			(20,499)	(56,372)	(56,372)	(83,704)	
Net additional formula funding				13,666	37,581	37,581	55,802	
Value of Equipment Transfer	978,750							
Funded Graduate Students		84,000	112,000	196,000	224,000	280,000	280,000	
Total new revenue	$ 978,750	$ 120,178	$ 166,267	$ 300,110	$ 370,114	$ 444,203	$ 480,513	
Revenue minus expenses	**$ (30,000)**	**$ (87,792)**	**$ (61,203)**	**$ 51,840**	**$ 102,344**	**$ 176,433**	**$ 212,743**	**364,365**

CONSENT DOCKET – A&SS-E36
05/16/12