TEXAS TECH UNIVERSITY
Graduate School™

Graduate Program Review

2005-2011

Department of
Engineering (Masters Program)

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Whitacre College of
Engineering

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November 2011

PROGRAM REVIEW OUTLINE
Department of Engineering (Masters Program)

I. Program Overview – A one to two-page summary of department's vision and goals.

II. Graduate Curricula and Degree Programs

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   - Tenured and Tenure-Track by Rank - Fall Data (chart)
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I. Percentage (%) of full time students receiving financial support
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K. Programs for mentoring and professional preparation of graduate students.
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- Department Operating Cost - Academic Year (chart)
- Department Operating Cost as a Fraction of Employees - (table)

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- Summary of Number of Proposals Written and Accepted (table)

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- Research Expenditures (chart)
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D. Internal funding
- Source of Internal Funds (TTU) - (table)

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F. Departmental resources for research and teaching (i.e. classroom space, lab facilities) - (table)
G. HEAF expenditures (table)
H. External Program Accreditation – Name of body and date of last program accreditation review including description of body and accreditation specifics.

VI. Conclusions – a one- to two-page summary of the observed deficiencies and needs identified by your review. Highlight areas of greatest need and areas of significant contributions.

VII. Appendices – should include, but not be limited to, the following:

Table of Contents

A. Strategic plan
   - Attachment from Strategic Planning website
B. Curriculum Map
C. Graduate Course Offerings (table)
D. Graduate Student Handbook
E. Graduate Student Association(s) - Description and information
F. Graduate Faculty Information (current Confirmation/Reconfirmation form packets for all tenured and tenure-track faculty)

I. Program Overview – A one to two-page summary of department's vision and goals.

The history of distance learning at Texas Tech's College of Engineering begins in 1966 when professors from the College of Engineering were flown to Phillips Petroleum in Borger, Texas, to teach classes to their engineers. Eventually, the professors began to drive to Amarillo and teach the courses, so that students in addition to Phillips Petroleum employees could participate.

The College of Engineering received a grant from Amarillo in 1992 to purchase videotaping equipment, including cameras and videotape-copying equipment, to provide engineering masters courses to the engineers in Amarillo. This was the first step in delivering a technology-based distance learning program. For this program, the Master of Engineering degree was approved by the Texas Higher Education Coordinating Board to be offered to distance students.

In 1996, the program underwent another change, this time to start using the Internet and web servers to aid in delivering the curriculum to distant students. The video component of the courses was still delivered using videotapes; it was not until 1999 that a robotic CD-copying array was purchased. Burning the video on CD ROMs increased the efficiency of the copying process, and decreased the cost of media and postage while almost eliminating damaged media.

The Amarillo program began during the spring semester of 2002, with the Amarillo Health Sciences Center facilities being used to teach the onsite classes and the videoconference classes. Both the Amarillo and Abilene sites were operational for the fall semester of 2002.

The Master of Engineering degree is used to meet needs of several constituencies: On-Campus Students, Distance Students, Health Care Option Students, Dual J.D /MEN Students, and Students ON-site at Raytheon in Dallas, TX (discontinued in 2010). On-campus students can be accepted into the Master of Engineering degree program provided they have adequate reason for wanting/needing an interdisciplinary degree. General distance learning students, for whom the Master of Engineering degree was the only degree option available prior to 1998, may enroll in this degree program with a clear understanding of its interdisciplinary nature and the limit of courses available at a distance. In 1998, two additional degree programs became available to distance learning students: the Master of Science in Systems and Engineering Management and the Master of Science in Software Engineering. The Healthcare Option under the Master of Engineering degree is designed to meet the growing demand for engineers trained to apply the principles of engineering, health sciences, and business administration to managing the physical, technological, and support services of healthcare facilities. The Dual J.D /MEN program is designed for students interested in the areas of intellectual property (particularly patents) and law and science. The last group that uses the Master of Engineering degree are the students at Raytheon, Inc. in Dallas, Texas (Discontinued in 2010). These students were taught onsite at Raytheon by professors from Texas Tech University and went through the program as a cohort.

While the Master of Engineering degree was previously the only degree offered to the off-campus students, that is no longer the case. New distance students are directed toward the engineering distance degree that best meets their needs. At this time, students in the Master of Engineering program must justify their interest and need for an interdisciplinary degree in

engineering, or be a part of one of the specialty options. The Master of Engineering Program is not a department as such, because it does not have faculty, classrooms, or administrative resources. The courses offered under the Master of Engineering program come from the existing departments in the College of Engineering and sometimes other colleges in the university.

The vision for the Master of Engineering program is to provide an interdisciplinary degree to individuals who have undergraduate engineering or science degrees, and seek to enhance their education in engineering at the graduate level. In addition, individuals with undergraduate degrees in non-engineering or science-related fields who need post-graduate education in engineering, and are willing to level, will have the opportunity to work toward the Master of Engineering degree.

The Engineering Distance Learning Program and the Master of Engineering Degree have been closely coupled for many years. The two were synonymous from 1992 to 1998, where in effect, the distance learning program was the Master of Engineering Program. The two have become less synonymous since 1998, because now the engineering distance learning program offers degree programs in addition to the Master of Engineering degree, and with the addition of the on-campus Healthcare and dual J.D./MEN options.

The goals for the Master of Engineering Degree are to continue to offer a variety of engineering courses to students who require an interdisciplinary degree in engineering. On-campus students enrolled in the Master of Engineering Degree have all the courses in engineering available, provided the students meet the prerequisite requirements. Programs, such as Healthcare, J.D./MEN, and Raytheon, will be limited to the curriculum specifically defined for those programs.

The goal of offering more engineering courses to off-campus students in the Master of Engineering Program is being supported by two additional factors. Under the Master of Science in Systems and Engineering Management Degree Program, students have requested that technical courses in their field be offered. These technical courses are comprised to form a minor under the Systems and Engineering Management degree. The second factor is the need to develop graduate certificate programs within the College of Engineering to meet the needs of primarily off-campus learners who desire post baccalaureate education without seeking a master's degree. The courses made available for minors under the Systems and Engineering Management Degree and for the certificate programs will also be available to students in the Master of Engineering Degree Program. This will provide numerous options or constituencies for these courses to be offered to distance students. The result is an increase in the number of courses available for the Master of Engineering degree which expands the interdisciplinary environment for all off-campus learners.

II. Graduate Curricula and Degree Programs

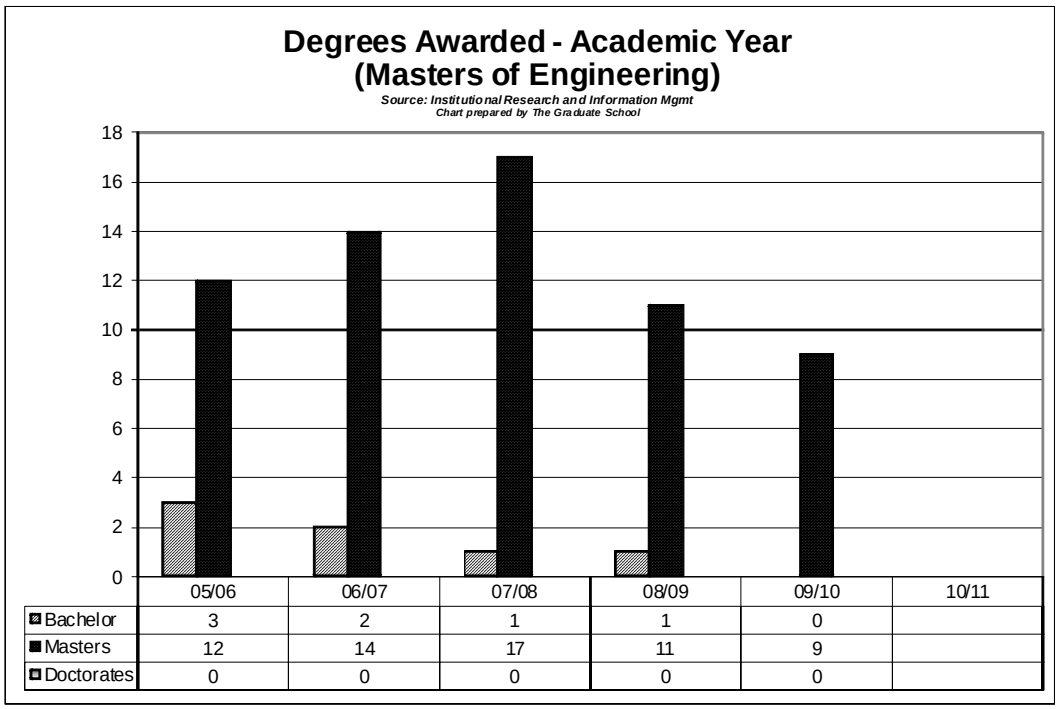
A. Scope of programs within the department

The scope of the Master of Engineering program is to offer the program to several constituencies: On-Campus Students, Distance Students, Health Care Option students, Dual J.D /MEN students, and students ON-site at Raytheon in Dallas, TX (discontinued in 2010). On-campus students can be accepted into the Master of Engineering degree program provided they don't need funding and have adequate reason for wanting/needing an interdisciplinary degree. General distance learning students, for whom the Master of Engineering degree was the only degree option available prior to 1998, may enroll in this degree program with a clear understanding of its interdisciplinary nature and the limit of courses available at a distance. In 1998, two additional degree programs became available to distance learning students: the Master of Science in Systems and Engineering Management and the Master of Science in Software Engineering. The Healthcare Option under the Master of Engineering degree was created to meet the growing demand for engineers trained to apply the principles of engineering, health sciences, and business administration to managing the physical, technological, and support services of healthcare facilities. The Dual J.D./MEN program was designed for Law students with an undergraduate degree in engineering or the sciences, interested in the areas of intellectual property (particularly patents). The last group that uses the Master of Engineering degree are the students at Raytheon, Inc. in Dallas, Texas (Discontinued in 2010). These students were taught onsite at Raytheon by professors from Texas Tech University and went through the program as a cohort.

The primary mode for delivering to distance students is to use asynchronous learning methods, where the students receive the course lectures and course materials via the Internet. The distance students follow the same schedule as the on-campus students and view the recorded lecture presented to the on-campus section of the class, but have flexibility during any given week as to when they view the lectures.

B. Number and types of degrees awarded

Note: There is not a Bachelors Degree associated with the Master of Engineering Degree.



Graduate Program Degrees Awarded

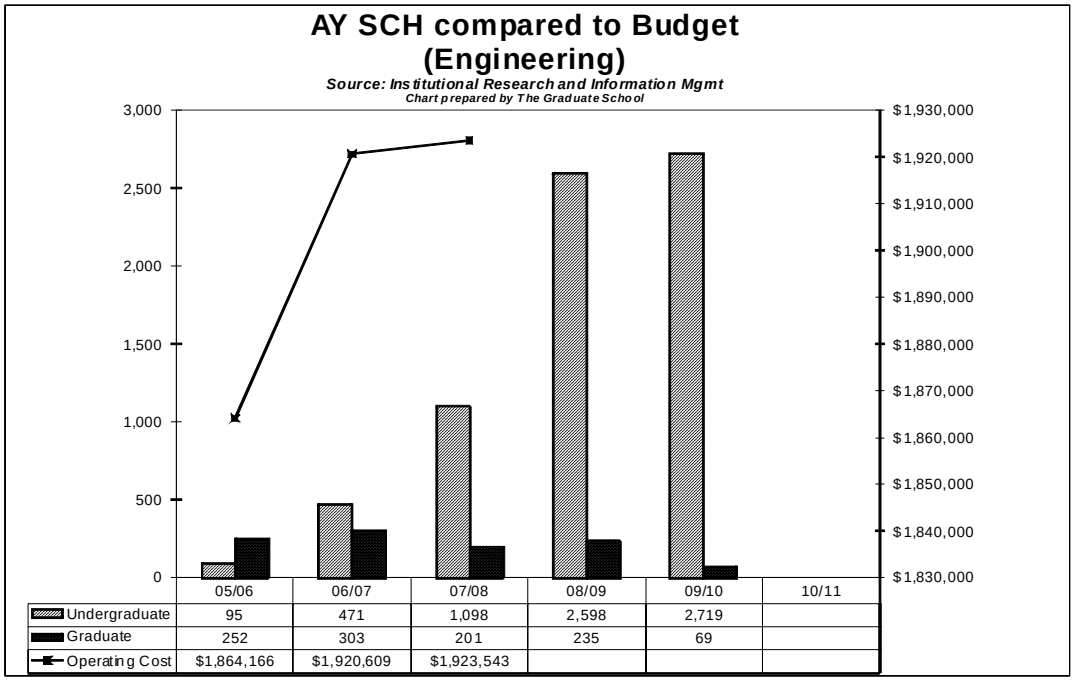
Source: Institutional Research Services

Name of Program	2005-2006	2006-2007	2007-2008	2008-2009	2009-2010	2010-2011
Bioengineering	0	0	0	0	0	
Masters of Engineering	12	14	17	11	9	

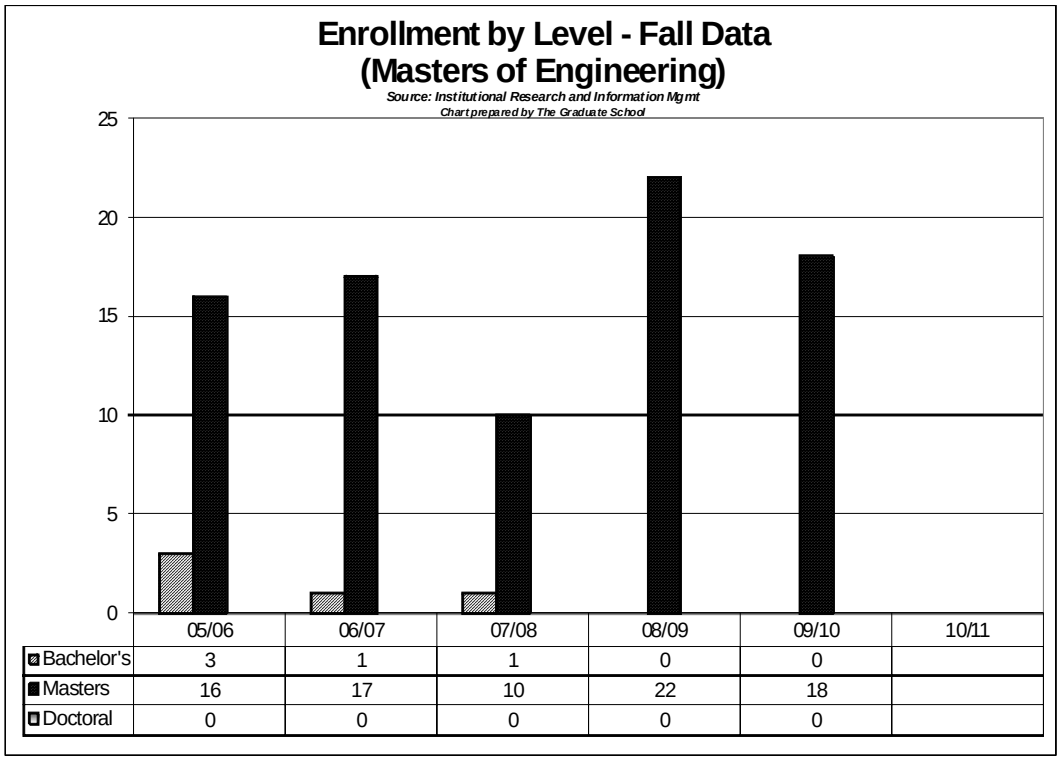
Comparison of Degrees Awarded - Fall Data	05/06	06/07	07/08	08/09	09/10	10/11
North Carolina State University						
Bachelor						
Master	19	21	13	21	28	22
Doctoral						
Purdue University						
Bachelor						
Master		99	97	54	54	57
Doctoral						
University of Colorado						
Bachelor						
Master	26	52	50	40	52	51
Doctoral						
University of Illinois						
Bachelor	117	118	110	109	122	114
Master	8	8	6	7	4	2
Doctoral						
University of South Florida						
	392	467	428	395	422	463
	188	179	247	211	181	239
	21	30	52	37	51	40
Texas Tech University						
Bachelor	3	2	1	1	0	
Master	12	14	17	11	9	
Doctoral	0	0	0	0	0	

C. Undergraduate and graduate semester credit hours

Note: The operating costs shown in the graph below are incorrect. The correct operating costs for the MEN degree are shown in section 5A.



D. Number of majors in the department for the fall semesters



	05/06	06/07	07/08	08/09	09/10	10/11
Bachelor's	3	1	1	0	0	
Masters	16	17	10	22	18	
Doctoral	0	0	0	0	0	

Graduate Program Enrollment

Source: Institutional Research Services

Name of Program	2005-2006	2006-2007	2007-2008	2008-2009	2009-2010	2010-2011
Bioengineering	0	0	0	0	3	
Masters of Engineering	16	17	10	22	18	

Comparison of Enrollment - Fall Data	05/06	06/07	07/08	08/09	09/10	10/11
North Carolina State University						
Bachelor						
Master	63	64	74	87	82	77
Doctoral						
Purdue University						
Bachelor						
Master		299	280	217	224	263
Doctoral						
University of Colorado						
Bachelor						
Master	51	64	62	72	71	89
Doctoral						
University of Illinois						
Bachelor	602	565	588	540	454	426
Master	23	19	8	2		
Doctoral						
University of South Florida						
	1886	2033	2040	2153	2277	2350
	308	370	459	433	451	424
	257	305	311	291	313	387
Texas Tech University						
Bachelor	3	1	1	0	0	
Master	16	17	10	22	18	
Doctoral	0	0	0	0	0	

E. Course enrollments over the past six years (enrollment trends by course)

- Figures are totals – classes may be offered more than once a year

The courses shown below are the courses taught by Dr. Ertas, Dr. Maxwell, and other ME Professors, to the students at Raytheon. The Raytheon courses are made up of all Master of Engineering students, as all Raytheon students are enrolled in the Master of Engineering program.

Course Enrollments by Academic Year

Source: Institutional Research Services

Department	Subject	Course	2005-06	2006-07	2007-08	2008-09	2009-10	2010-11	Total
ENGR	ENGR	5000				50			50
ENGR	ENGR	5360				1			1
ENGR	ENGR	5362				5	6		11
ENGR	ENGR	5392					8	4	12
ENGR	ENGR	6330				1	9	2	12
TECH	ENGR	5000	57	80	60				197
TECH	ENGR	5331							0
TECH	ENGR	5340							0
TECH	ENGR	5354		16					16
TECH	ENGR	5360	16	18	11	12			57
TECH	ENGR	5361							0
TECH	ENGR	5362		5					5
TECH	ENGR	5363							0
TECH	ENGR	5364							0
TECH	ENGR	5365							0
TECH	ENGR	6330	11	14	16	10			51
TECH	ENGR	7000							0
TECH	ENGR	8000							0
Totals			**84**	**133**	**87**	**79**	**23**	**6**	**412**

Since there is not a Master of Engineering department, the courses for this degree program come from the various departments in the College of Engineering. The courses shown in the table below are courses that contained one or more Master of Engineering student.

Course	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011
CE5331		1	1			
CHE5344						1
CS5301	1	1				1
CS5302	1					

CS5303		1				1
CS5331			10		1	1
CS5332						4
CS5356					1	1
CS5362	13	16				
CS5368				1		
CS5369	1					
CS5374			1			
CS6000	1					
ECE5316						2
ECE5331						1
ECE5343						6
ECE5350						4
ECE5351						1
ECE5355						1
ECE5356						2
ECE5364						1
ECE5367						1
ECE5371						1
ECE5391						2
ECE6000						2
ECE6360						1
EE5325					1	
EE5343	2				2	
EE5351					1	
EE5364					1	
EE5391		1			4	
ENGR5000	57	96	59	49		
ENGR5360	6	14	10	2		
ENGR5392						2
ENGR6330	11	16	16	11	9	2
IE5305				3		3
IE5306					4	
IE5307					2	
IE5309		1				
IE5311					1	1
IE5316	1					2
IE5317	1					1
IE5318				2		4
IE5319	2					
IE5320					1	3
IE5321	1				1	6

IE5322	2			1		1
IE5323	2					2
IE5325		1			2	
IE5329	2				3	
IE5331				1	4	
IE5340	13					
IE5342	1					
IE5344	1					
IE5346		2			1	
IE5371						4
IE6331						1
IE7000			2			2
ME5302	5	14	10	1		
ME5342				1		
ME5352					2	
ME5353	13	14	10			1
ME5354	5		10			
ME6301						1
ME6331				18		
ME7000						1
PETR5380	2					
PSS5100	2					
PSS5304	2					
PSS5371			1			
PSS5372			1			
PSS6000	2					
PSS7000	1					
WE5300						1
WE5301						1
WE5310						1
WE5311						1
Total	151	178	131	90	41	75

F. Courses cross listed (syllabus included behind)

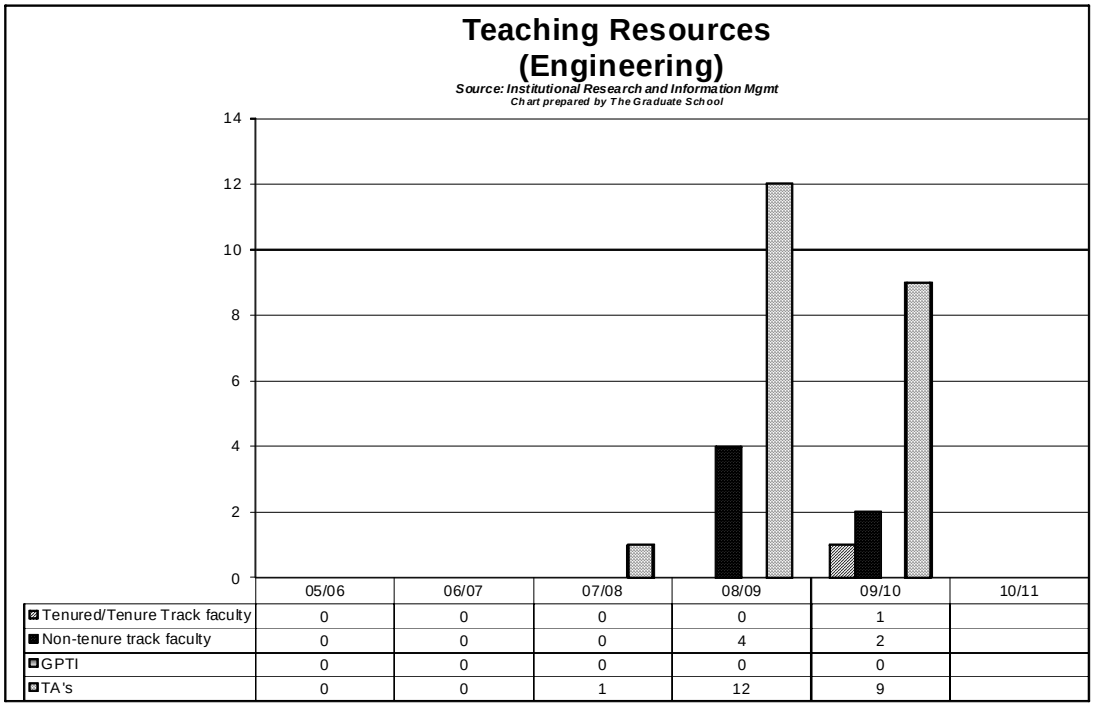
There are no cross listed courses for the master of Engineering Program.

III. Faculty

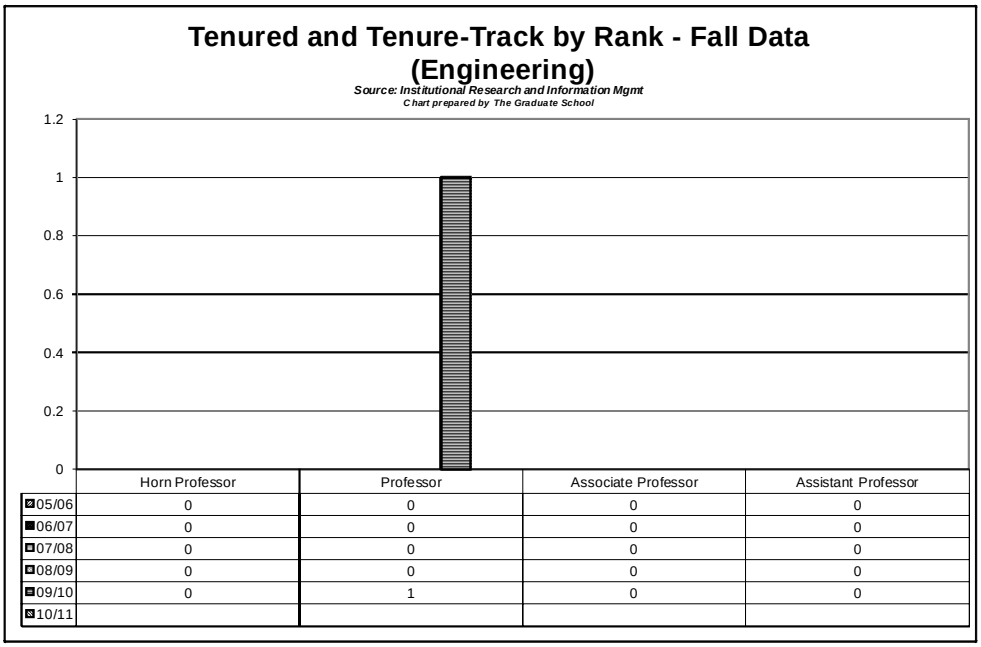
The faculty/college relationship for the Master of Engineering degree is very different from a standard department. The Master of Engineering program does not have any faculty directly associated with the program. All courses for the Master of Engineering program are derived from the various departments in the College of Engineering. This creates a unique situation for the Master of Engineering program in that it depends on other departments for all of its courses thus meetings its goal of an interdisciplinary degree program. In addition, no method exists by which to directly measure teaching resources for the Master of Engineering program. The teaching resources consist of the College of Engineering faculty who teach courses with distance sections, plus those who teach resident courses that have Master of Engineering students.

Note: There are no faculty for the Master of Engineering Degree Program, so we do not know where the numbers came from that are represented in the following tables.

A. Number, rank, and demographics of the graduate faculty



	05/06	06/07	07/08	08/09	09/10	10/11
Tenured/Tenure Track faculty	0	0	0	0	1	
Non-tenure track faculty	0	0	0	4	2	
GPTI	0	0	0	0	0	
TA's	0	0	1	12	9	



Comparison of Full-time Faculty	05/06	06/07	07/08	08/09	09/10	10/11
North Carolina State University						
Tenure/Tenure Track						
Non-tenure track						
TA's						
Purdue University						
Tenure/Tenure Track		37	42	45	41	50
Non-tenure track		2	2	2	2	2
TA's						
University of Colorado						
Tenure/Tenure Track	3	3	3	3	3	3
Non-tenure track						
TA's	0	0	0	0	0	0
University of Illinois						
Tenure/Tenure Track	17					
Non-tenure track	4					
TA's	4					
University of South Florida						
	103	103	94	94	106	108
	31	29	27	10	13	13
Texas Tech University						
Tenure/Tenure Track	0	0	0	0	1	
Non-tenure track	0	0	0	4	2	
TA's	0	0	1	12	9	

B. List of faculty members

List <u>all</u> faculty who were employed by your department during the six years of this review

There are no faculty members employed for the Master of Engineering Degree Program.

FACULTY NAME	JOB TITLE	HIRE DATE	END DATE	Member of Grad Faculty? Y or N

C. Summary of the number of refereed publications and creative activities.

Publication Type	2005 N= F=	2006 N= F=	2007 N= F=	2008 N= F=	2009 N= F=	2010 N= F=
Refereed Articles/Abstracts						
Books/Book Chapters						
Other Publications						
Presentations/Posters						
<insert extra here>						
<insert extra here>						
<insert extra here>						
N = # of full time faculty contributing F = # of full time faculty in department						

D. Responsibilities and leadership in professional societies

Professional Leadership	**2005 N= F=**	**2006 N= F=**	**2007 N= F=**	**2008 N= F=**	**2009 N= F=**	**2010 N= F=**
Editor/Editorial						
Executive Board						
Officer in National Org.						
Committees						
<insert extra here>						
<insert extra here>						
<insert extra here>						
N = # of full time faculty contributing F = # of full time faculty in department						

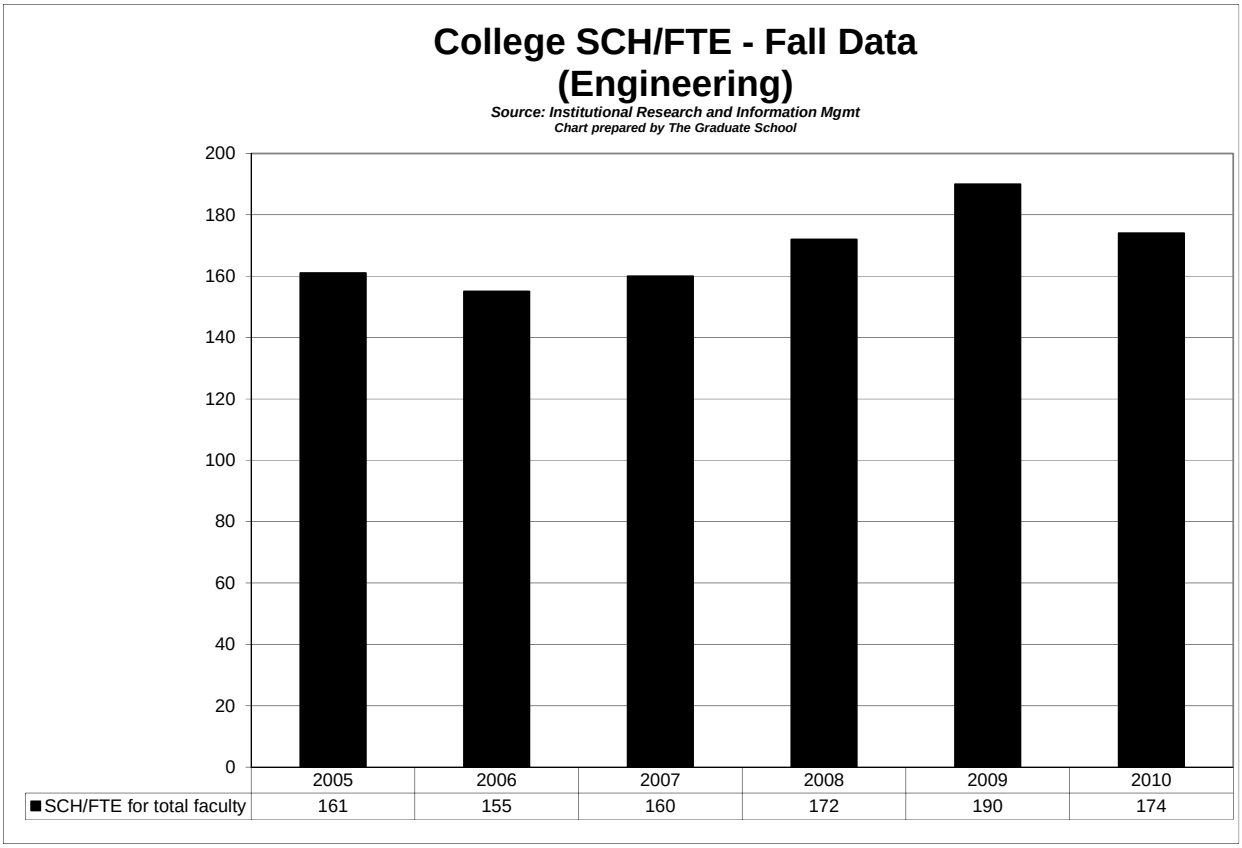
Graduate Student Committee's faculty have served for the past 6 years

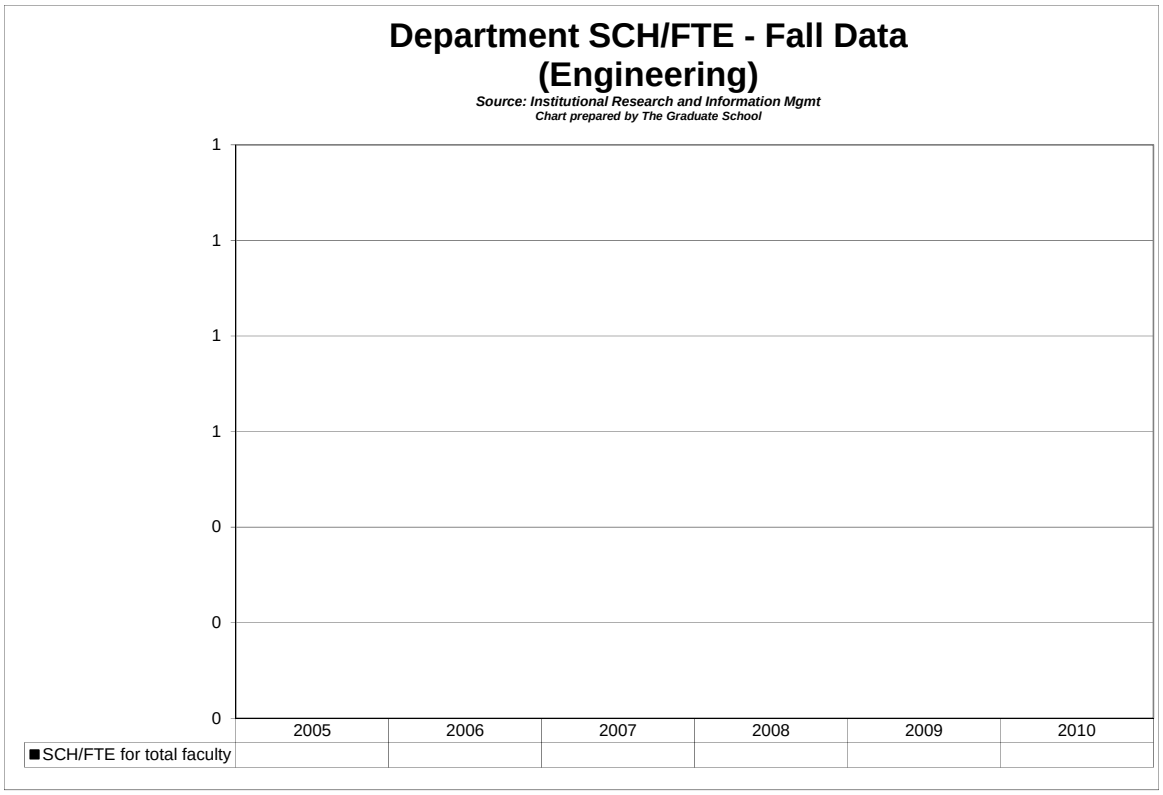
	Committees Chaired		Committees Served in department		Committees Served outside department	
Faculty Name	Masters	Doctoral	Masters	Doctoral	Masters	Doctoral

E. Assess average faculty productivity for Fall semesters only (use discipline appropriate criteria to determine)

FACULTY WORKLOAD

	2005	2006	2007	2008	2009	2010
University	15.82	16.08	15.44	15.55	16.30	17.42
College	14.35	14.91	14.63	14.82	14.51	16.14
Department	NA	NA	NA	NA	NA	NA

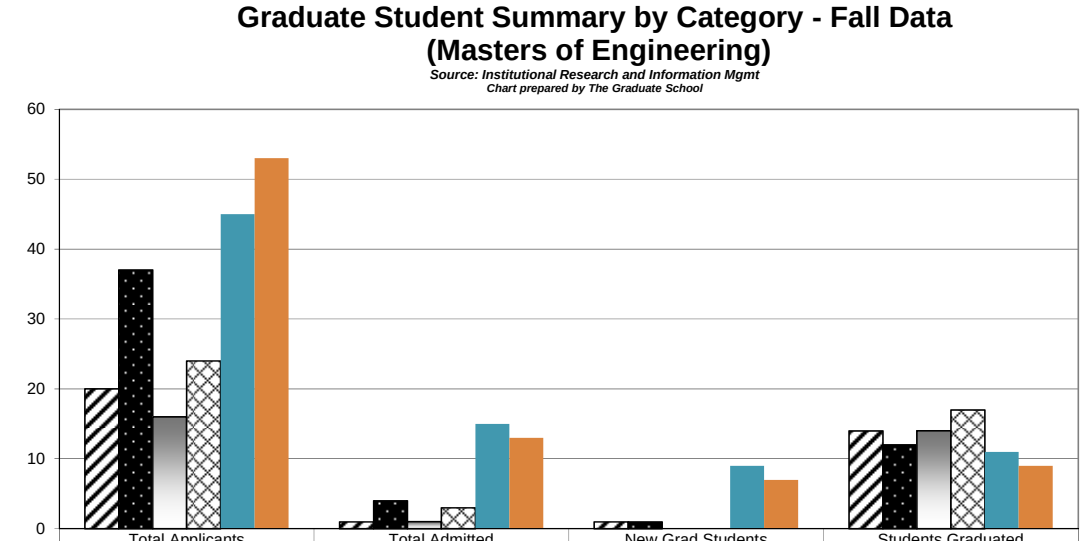




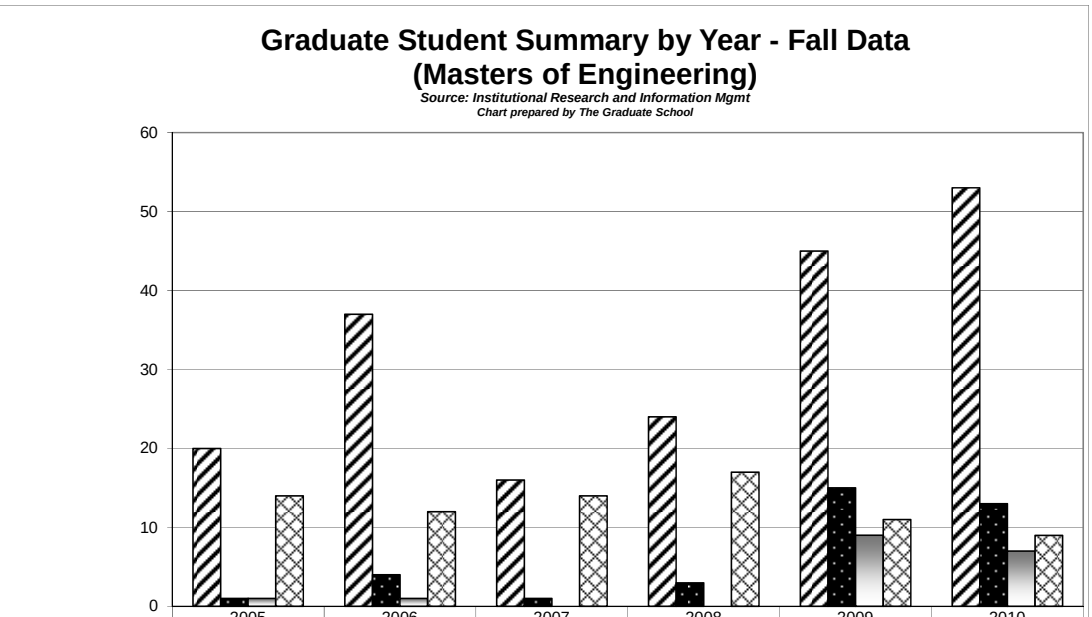
* No Departmental data for just Engineering - only College data

IV. Graduate Students

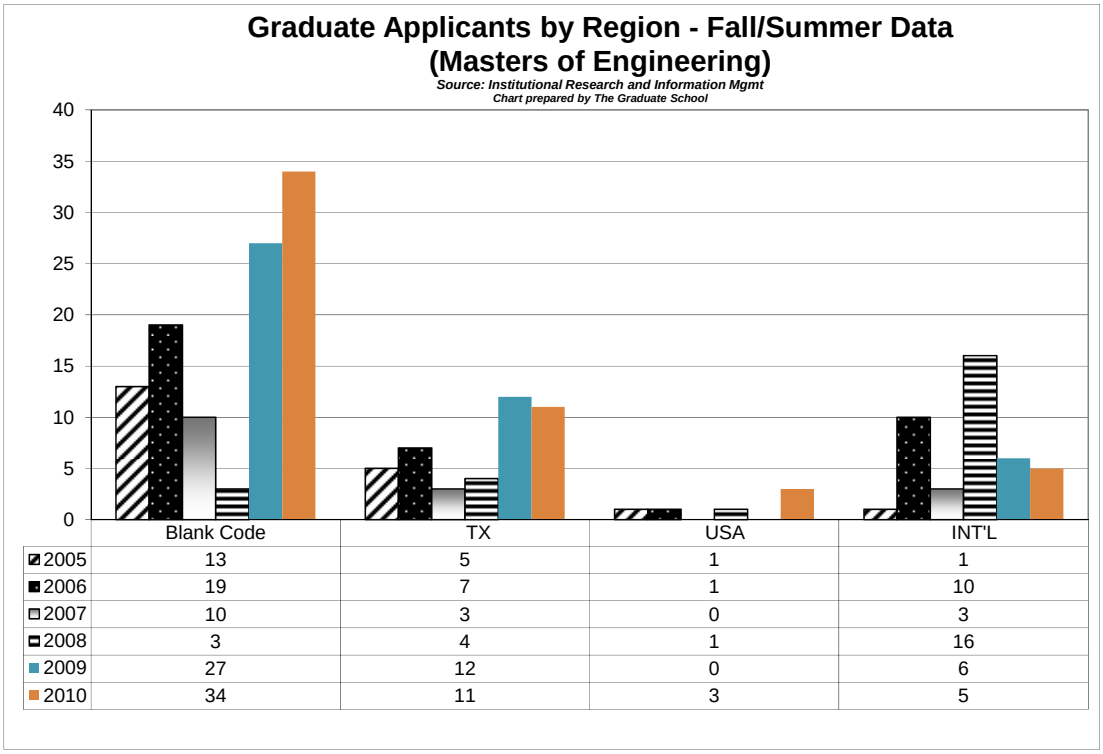
A. Demographics of applicants and enrolled students



	Total Applicants	Total Admitted	New Grad Students	Students Graduated
2005	20	1	1	14
2006	37	4	1	12
2007	16	1	0	14
2008	24	3	0	17
2009	45	15	9	11
2010	53	13	7	9



	2005	2006	2007	2008	2009	2010
Total Applicants	20	37	16	24	45	53
Total Admitted	1	4	1	3	15	13
New Grad Students	1	1	0	0	9	7
Students Graduated	14	12	14	17	11	9



	Blank Code	TX	USA	INT'L
2005	13	5	1	1
2006	19	7	1	10
2007	10	3	0	3
2008	3	4	1	16
2009	27	12	0	6
2010	34	11	3	5

Masters of Engineering

Graduate Applicants - Fall Data	2005		2006		2007		2008		2009		2010	
	F	M	F	M	F	M	F	M	F	M	F	M
American Indian	0	0	0	0	0	0	0	0	0	0	0	0
Asian	0	0	0	2	0	0	1	1	0	2	0	4
Black	0	1	0	0	0	2	0	0	0	1	0	1
Hispanic	0	1	1	0	0	0	0	1	0	2	0	1
Multiple	0	0	0	0	0	0	0	0	0	0	0	0
Nat Haw/Pac Island	0	0	0	0	0	0	0	0	0	0	0	0
Non-Resident	1	0	3	5	1	2	1	12	4	31	8	28
Unknown	2	9	5	14	0	0	0	2	0	0	0	1
White	1	5	0	7	3	8	1	5	0	5	1	9
Gender Total	4	16	9	28	4	12	3	21	4	41	9	44
Total Applicants	20		37		16		24		45		53	

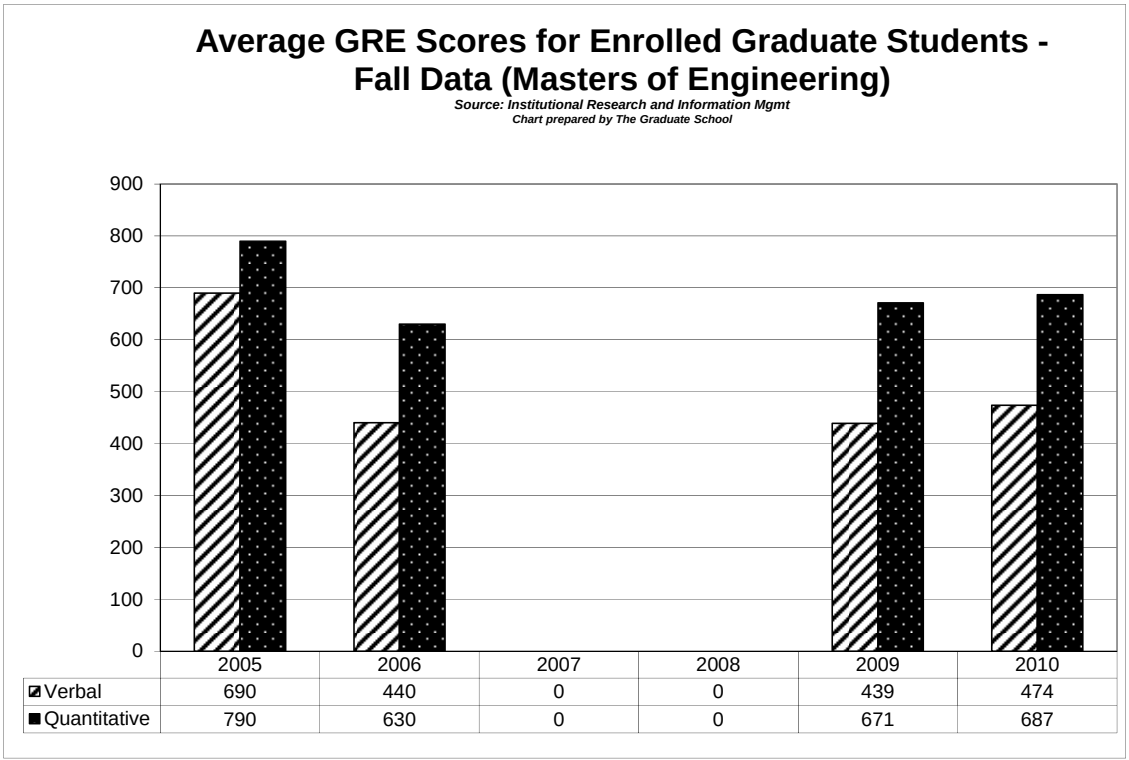
Admitted Graduate Students - Fall Data	2005		2006		2007		2008		2009		2010	
	F	M	F	M	F	M	F	M	F	M	F	M
American Indian	0	0	0	0	0	0	0	0	0	0	0	0
Asian	0	0	0	1	0	0	1	0	0	0	0	2
Black	0	1	0	0	0	0	0	0	0	1	0	0
Hispanic	0	0	1	0	0	0	0	0	0	1	0	0
Multiple	0	0	0	0	0	0	0	0	0	0	0	0
Nat Haw/Pac Island	0	0	0	0	0	0	0	0	0	0	0	0
Non-Resident	0	0	0	0	1	0	0	0	2	9	0	6
Unknown	0	0	0	0	0	0	0	0	0	0	0	1
White	0	0	0	2	0	0	0	2	0	2	1	3
Gender Total	0	1	1	3	1	0	1	2	2	13	1	12
Total Admitted	1		4		1		3		15		13	

Enrolled New Graduate Students - Fall Data	2005		2006		2007		2008		2009		2010	
	F	M	F	M	F	M	F	M	F	M	F	M
American Indian	0	0	0	0	0	0	0	0	0	0	0	0
Asian	0	0	0	1	0	0	0	0	0	0	0	1
Black	0	1	0	0	0	0	0	0	0	0	0	0
Hispanic	0	0	0	0	0	0	0	0	0	0	0	0
Multiple	0	0	0	0	0	0	0	0	0	0	0	0
Nat Haw/Pac Island	0	0	0	0	0	0	0	0	0	0	0	0
Non-Resident	0	0	0	0	0	0	0	0	2	5	0	3
Unknown	0	0	0	0	0	0	0	0	0	0	0	0
White	0	0	0	0	0	0	0	0	0	2	1	2
Gender Total	0	1	0	1	0	0	0	0	2	7	1	6
Total Enrolled	1		1		0		0		9		7	

Demographics of Enrolled Graduate Students - Fall Data												
	2005		2006		2007		2008		2009		2010	
	F	M	F	M	F	M	F	M	F	M	F	M
American Indian	0	0	0	0	0	0	0	0	0	0	0	0
Asian	0	0	0	1	0	0	0	0	0	0	0	1
Black	0	1	0	1	0	0	0	1	0	1	0	1
Hispanic	1	3	1	1	0	1	0	0	0	2	0	1
Multiple	0	0	0	0	0	0	0	0	0	0	0	0
Nat Haw/Pac Island	0	0	0	0	0	0	0	0	0	0	0	0
Non-Resident	0	0	0	0	0	0	0	0	3	6	2	8
Unknown	0	3	0	10	3	13	0	0	0	0	0	0
White	0	9	0	2	0	0	1	8	0	10	1	4
Gender Total	1	16	1	15	3	14	1	9	3	19	3	15
Graduate	17		16		17		10		22		18	

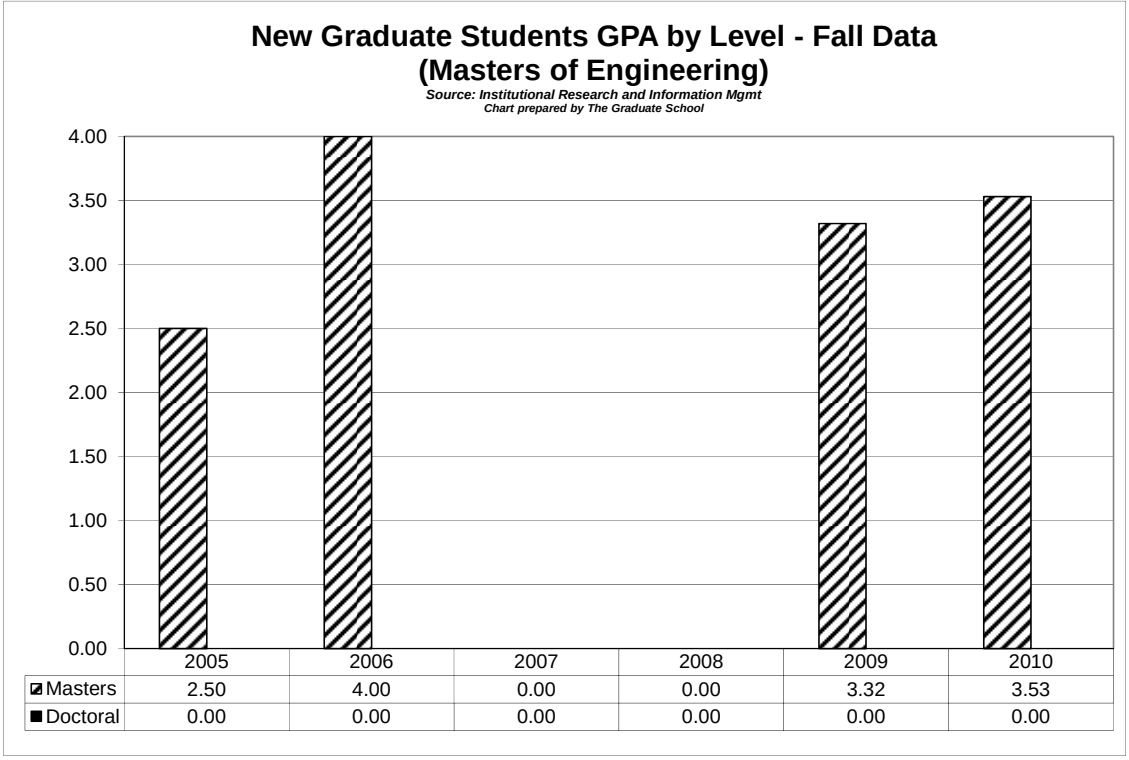
Demographics of Enrolled Undergraduate Students - Fall Data												
	2005		2006		2007		2008		2009		2010	
	F	M	F	M	F	M	F	M	F	M	F	M
American Indian	0	0	0	0	0	0	0	0	0	0	0	0
Asian	0	0	0	1	0	0	0	0	0	0	0	0
Black	0	0	0	0	0	0	0	0	0	0	0	0
Hispanic	0	1	0	1	0	1	0	1	0	0	0	0
Multiple	0	0	0	0	0	0	0	0	0	0	0	0
Nat Haw/Pac Island	0	0	0	0	0	0	0	0	0	0	0	0
Non-Resident	0	0	0	0	0	0	0	0	0	0	0	0
Unknown	0	0	0	0	0	0	0	0	0	0	0	0
White	0	4	0	1	0	0	0	0	0	0	0	0
Gender Total	0	5	0	3	0	1	0	1	0	0	0	0
Undergraduate	5		3		1		1		0		0	

B. Test scores (GRE, GMAT and/or TOEFL) of enrolled students



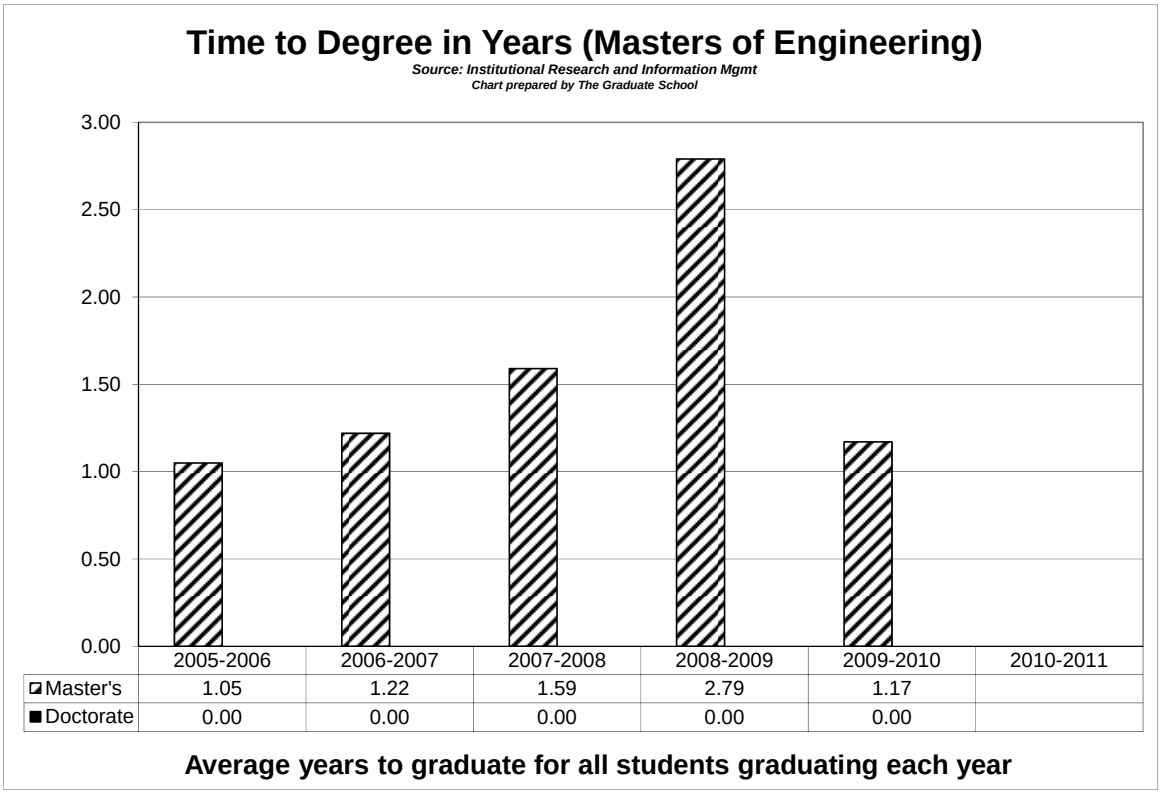
	2005	2006	2007	2008	2009	2010
Verbal	690	440	0	0	439	474
Quantitative	790	630	0	0	671	687

C. GPA of new students



	2005	2006	2007	2008	2009	2010
Masters	2.50	4.00	0.00	0.00	3.32	3.53
Doctoral	0.00	0.00	0.00	0.00	0.00	0.00

D. Time to Degree in Years – Average years to graduate for all students graduating each year



E. Number of RA's, TA's or GPTI's, with total number of graduate students in the program.

Not Applicable

F. Initial position and place of employment of graduates over the past 6 years

As the Master of Engineering program is primarily an off-campus program, the issue of initial position and placement of graduates for employment is not an applicable issue for the Master of Engineering Program. The typical student in the Master of Engineering program is already professionally employed while pursuing this degree. The largest block of students are with Raytheon, Inc. in Dallas, Texas, (Discontinued in 2010) with the second being Pantex, Inc. outside of Amarillo, Texas. As for the remaining students in the Master of Engineering program, their employers are varied with the common thread being they employed as engineers. The military has also supported students in the program.

The table below represents the placement of Master of Engineering Students with the Healthcare option.

Name	Initial Position	Initial Employer	Location
2005-2006			
2006-2007			
2007-2008			
2008-2009			
2009-2010			

2010-2011			
Samuel Chanjaplammootil	Lead Analyst - Physical Plant	TTU Health Sciences Center	Lubbock, TX
Li Yi	Research Engineer	PuraCap Pharmaceutical LLC	South Plainfield, NJ

G. Type of financial support available for graduate students

None

H. Number of students who have received national and university fellowships, scholarships and other awards

None

AWARD	05/06		06/07		07/08		08/09		09/10		10/11	
	$	# Stud	$	# Stud	$	# Stud	$	# Stud	$	# Stud	$	# Stud
AT&T Chancellors												
Summer Dissertation												

I. Percentage of full time master and doctoral students who received financial support.

Financial support for graduate students in the Master of Engineering degree is somewhat different than the typical on-campus student. Since most of these students are off-campus, there are not graduate assistant or teaching assistant positions available. Off-campus students have the same access to university financial aid as on-campus students, but typical off-campus students are not competitive on a needs basis as they are full-time employed in their profession.

J. Graduate Student Publications and Creative Activities – Number of discipline-related refereed papers/publications, juried creative/performance accomplishments, book chapters, books, and external presentations by Master and Doctoral students in the department.

As the Master of Engineering degree is non-thesis, there are no poster, thesis, or dissertation presentations. However, Raytheon students (Discontinued in 2010) wrote comprehensive reports on work related projects. These reports were signed by the faculty member directing the program (Dr. Ertas) and by the MEN graduate advisor According to Dr. Kiesling(Graduate Advisor in 2004 and 2005), these reports are of quality comparable to, or higher than, the typical masters thesis that is produced in the college. They are also well received by the employers because they present solutions or advancements to solving product or production-related problems in the company.

Publication:	Refereed		Non-Refereed		Poster presentations		Other activities	
Year	Thesis	Diss.	Thesis	Diss.	Thesis	Diss.	Thesis	Diss.
2010								
2009								
2008								
2007								
2006								
2005								

K. Programs for mentoring and professional preparation of graduate students

Off-campus students in the Master of Engineering program are already professionals in the workforce. For on-campus students, there is frequent interaction between the students and faculty advisers where job-related mentoring takes place. These students also have the opportunity to meet other professionals in their classes and exchange professional information.

L. Department efforts to retain students and graduation rates.

Maintaining off-campus graduate students, from a retention and graduation perspective, presents difficulties which are not prevalent on campus. Retention rates tend to be different for off-campus students since they are not located near the campus and are not full-time students. Many times retention difficulties stem from conflict with their professional duties related to their full-time job.

In order to provide support for graduate students at a distance, we maintain contact with the students via e-mail and telephone. Retention is additionally aided by flexibility built into the program. Since the program is offered asynchronously to students regardless of their location, students who relocate can continue to work toward the Master of Engineering degree. Likewise, the program allows students to focus their class time during evenings and weekends which allows them to pursue their advanced degree while having fewer conflicts with their professional career.

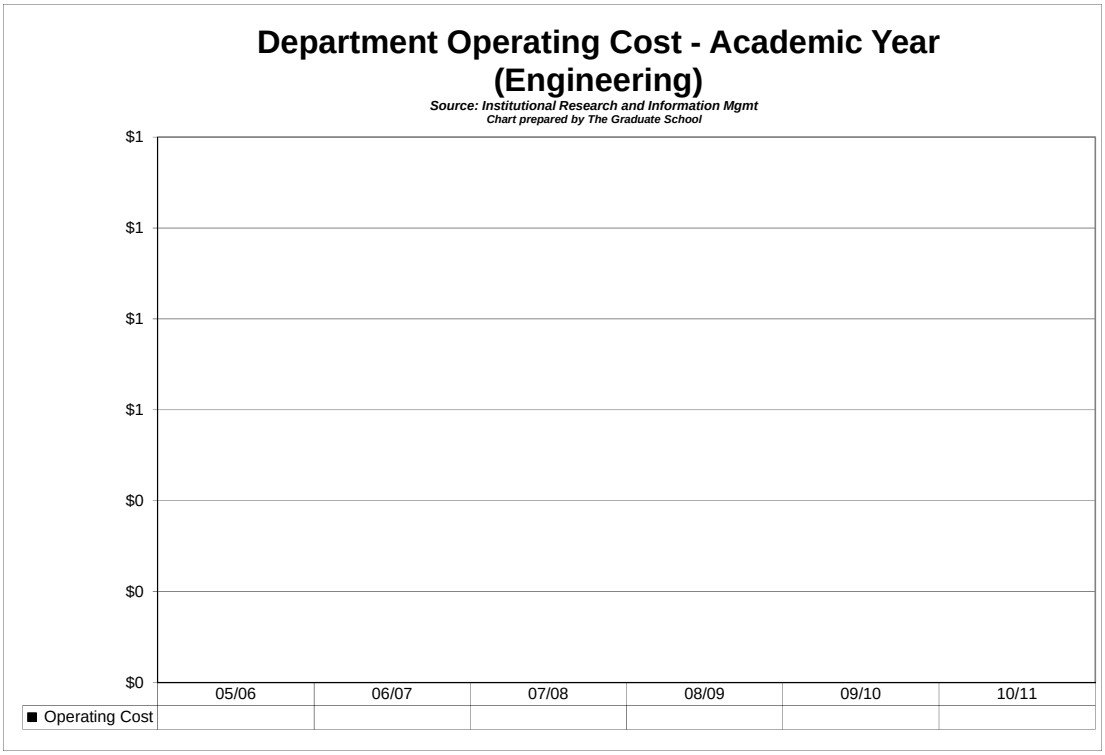
M. Percentage of Full-Time Master and Doctoral students per year – Fall Data

The only full-time students in the MEN program are a portion of the students in the MEN Healthcare option and the on-campus MEN students. This group comprises less than 5 percent of the total students in the Men program.

V. Department

A. Department operating expenses*

The costs shown in the table below are incorrect since there is not a department, and the only expenses are staff members that support the Distance Learning program and MEN students. The students in Master of Engineering program only represent about 10% of the total distance students and thus only 10% of the abovementioned expenses would be attributable to the MEN program. The costs associated with the Raytheon program (Discontinued 2010) were borne by Raytheon and are not shown here.



Department Operating Costs as a Fraction of Employees

	05/06	06/07	07/08	08/09	09/10	10/11
Dept Operating Cost	$3,735	3,359	3,612	4,112	6,177	4,498
Faculty & Staff	33,615	30,233	32,510	37,009	55,596	40,848
Dept Op Cost /FS	0.11	.011	.011	.011	.011	.011

B. Summary of Proposals (submitted)

Summary of Number of Proposals Written and Accepted

	Foundation		State		Federal		Others		Successfully funded	
	D	M	D	M	D	M	D	M	D	M
2010										
2009										
2008										
2007										
2006										
2005										

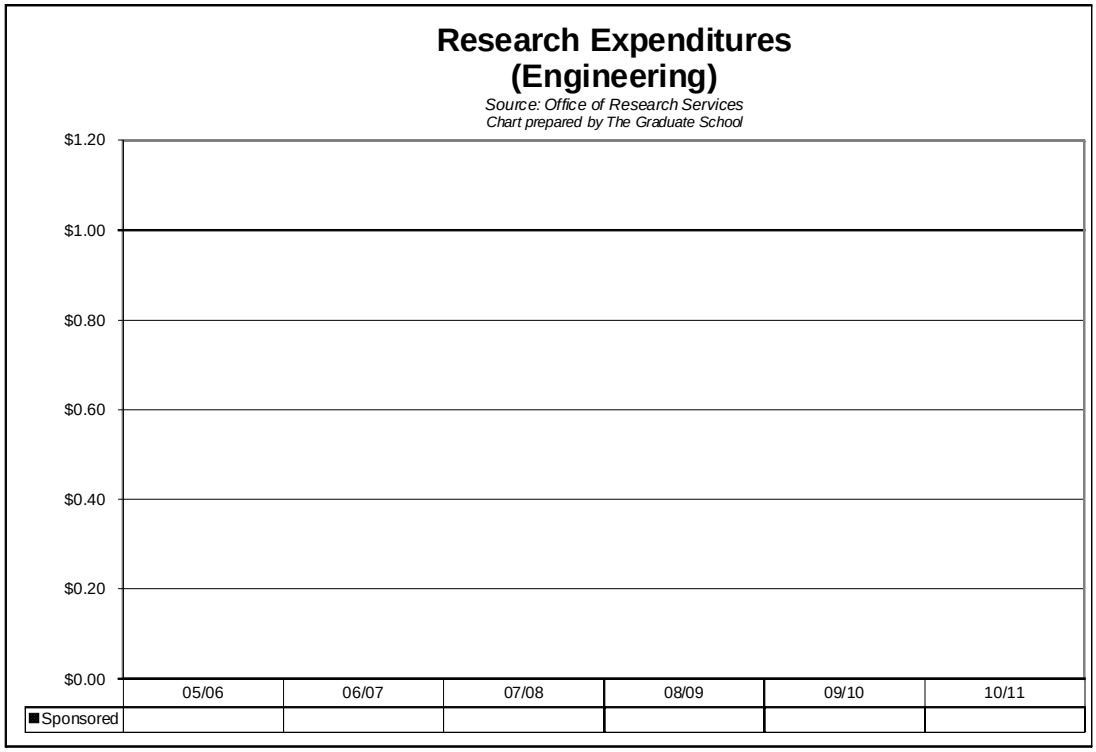
D = proposals written by CO-PI's from your department only
M = proposals written by CO-PI's from multiple departments

C. External Research expenditures

SUMMARY OF FACULTY AWARDS BY HOME DEPARTMENT

Source: Office of Research Services

Year	*Number of Awards*	*Facilities & Administrative*	*Award Amount*
05/06			
06/07			
07/08			
08/09			
09/10			
10/11			
Totals:	***0.00***	***$0***	***$0***



Comparison of Research Expenditures	05/06	06/07	07/08	08/09	09/10	10/11
North Carolina State University						
Purdue University						
University of Colorado						
University of Illinois	$1,798,000					
University of South Florida	$12,672,896	$12,047,329	$12,792,719	$11,944,061	$14,571,168	$15,799,611
Texas Tech University						

D. Internal Funding

Source of Internal Funds (TTU)

	05/06	06/07	07/08	08/09	09/10	10/11
Research Enhancement						
Research Incentive						
Line Items						
Interdisciplinary Seed Grants						
New Faculty Start-ups						
Matching from VP of Research						
Special needs and opportunities						
Research Promotion						
Graduate School Fellowships						
HEAF						
TOTALS:	***0***	***0***	***0***	***0***	***0***	***0***

E. Scholarships and endowments

F. Departmental resources for research and teaching (i.e., classroom space, lab facilities)

Type of Space	Number of Rooms	Total Assignable Square Feet
OFFICES:		
Faculty & Administration	Engineering Center RM 100 N	296
Clerical		
Graduate Assistant	Engineering Center RM 106A	41
Technician	Livermore Center RM 103	302.4
Emeritus		
LABS:		
Special Instruction Labs		
Research Labs		
STORAGE:		
LIBRARY:		
CENTERS & OTHER FACILITIES:		
Office		
Lab (Instruction & Research)		
TOTAL SQUARE FEET		639.4 * 25% MEN = 159.85

G. HEAF expenditures

	Labs	Classroom	Other (identify)	TOTAL
10/11				
09/10				
08/09				
07/08				
06/07				
05/06				

H. External Program Accreditation – Name of body and date of last program accreditation review, if applicable. Include description of body and accreditation specifics.

VI. Conclusion – a one- to two-page summary of the observed deficiencies and needs identified by your review. Identify areas of greatest need and areas of significant contributions.

The Master of Engineering degree has offered great opportunity and flexibility for off-campus students to obtain a master's degree in engineering on a part-time basis. Additionally, this degree offers the opportunity for students to obtain post-graduate education in areas not offered by Texas Tech, because of its liberal transfer policy of permitting up to 15 credit hours to be transferred in from other institutions. The Master of Engineering degree was the primary degree offered to off-campus students for more than 30 years. With the advent of master's degrees in Software Engineering and Systems and Engineering Management being available to distance students, the Master of Engineering degree is now being used as the appropriate option for students wanting an interdisciplinary learning environment.

While the Master of Engineering degree is primarily offered to off-campus students, the Distance Learning Program in the College of Engineering is not defined by the Master of Engineering degree. The Master of Engineering program provides the opportunity for students who want/need an interdisciplinary learning experience in engineering. The Master of Engineering degree program also provides an opportunity for non-engineers to level and then pursue graduate level engineering coursework. Curriculum options have been developed to promote special needs in the interdisciplinary environment, and one example is the Healthcare Engineering Option.

The Master of Engineering degree was never intended to be a primary degree offering. It was intended to meet the needs of the students who truly want an interdisciplinary experience at the graduate level. This is supported by the fact that all the courses come from other departments in the college and university. As there are no faculty directly associated with the Master of Engineering degree, all courses must be offered by non-associated departments. On-campus students are welcome to take any course in engineering for which they have the required prerequisites. Off-campus students rely solely upon a variety of courses being offered through the Distance Learning Program to meet the requirements of the Master of Engineering degree.

The Master of Engineering degree will increase its viability at a distance, as departments in engineering offer additional courses to distance learning students. As offerings increase, students in the Master of Engineering program will be offered a more complete interdisciplinary environment. In addition, some departments are having difficulty with adequate on-campus enrollment in some of their courses. Adding off-campus students to these courses will help improve their viability from a cost perspective.

VII. Appendices – should include, but not be limited to, the following:

A. Strategic Plan
B. Curriculum Map
C. Graduate Course Offerings
D. Graduate Student Handbook
E. Graduate Student Association(s)
F. Graduate Faculty Information

APPENDIX A

Strategic Plan

Work with engineering departments to provide courses for the Master of Engineering Degree program for off campus students.

Look for offerings that are complementary with other existing programs in engineering (example, minors under the M.S. in Systems and Engineering Management, and graduate certificate programs)

Distance offerings will be governed by the graduate curriculum committee which will be actively involved in course offerings, evaluating activity involved in course offerings, and ensuring quality of on-campus and off-campus offerings. The curriculum committee will also work to promote interaction between engineering departments.

The distance learning advisory committee will have some overlap with the graduate curriculum committee, but has a primary mission of delivery and pedagogy to distant students. This committee will also develop and evaluate potential for certificate programs within the College of Engineering.

APPENDIX B

Curriculum Map

Texas Tech University Program Level - Curriculum Map

LEGEND

[I] OUTCOME STATEMENT:

The program outcome is (x) EXPLICITLY (score of 2) or (m) IMPLICITLY (score of 1) reflected in the course syllabus as being one of the learning outcomes for this course.

[II] LEVEL OF CONTENT DELIVERY:

(I) INTRODUCED - Students are not expected to be familiar with the content or skill at the collegiate level. Instruction and learning activities focus on basic knowledge, skills, and/or competencies and entry-level complexity. Only one (or a few) aspect of a complex program outcome is addressed in the given course (score of 1).

(R) REINFORCED- Students are expected to possess a basic level of knowledge and familiarity with the content or skills at the collegiate level. Instruction and learning activities concentrate on enhancing and strengthening knowledge, skills, and expanding complexity. Several aspects of the outcome are addressed in the given course, but these aspects are treated separately (score of 2).

(A) ADVANCED - Students are expected to possess a strong foundation in the knowledge, skill, or competency at the collegiate level. Instructional and learning activities continue to build upon previous competencies with increased complexity. All components of the outcome are addressed in the integrative contexts (score of 3).

[III] FEEDBACK ON STUDENT PERFORMANCE / ASSESSMENT:

(F) Students are asked to demonstrate their learning on the outcome through homework, projects, tests, etc. and are provided formal Feedback (score of 1).

Date	12/1/2009	SELECTED *PROGRAM LEARNING OUTCOMES*														
Degree Title:		State SLO here			State SLO here			State SLO here			State SLO here			State SLO here		
Ed.D. in Higher Education (face-to-face and online formats)																
Courses in Degree Program		[i] Outcome Statement (X, M)	**[ii] Level (I, R, A)**	[iii] Feedback (F)	[i] Outcome Statement (X, M)	**[ii] Level (I, R, A)**	[iii] Feedback (F)	[i] Outcome Statement (X, M)	**[ii] Level (I, R, A)**	[iii] Feedback (F)	[i] Outcome Statement (X, M)	**[ii] Level (I, R, A)**	[iii] Feedback (F)	[i] Outcome Statement (X, M)	**[ii] Level (I, R, A)**	[iii] Feedback (F)
EDHE xxxx																
EDHE xxxx																

Master of Engineering

The curriculum is based on the students request as supported by their Statement of Purpose and with the guidance and oversight of the Graduate Advisor.

Master of Engineering Healthcare Option

The Healthcare Engineering curriculum consists of 36 graduate-level semester credit hours, including 33 course credits (11 courses) and 3 credits for research. The 11 courses include 9 required courses and 2 electives described below:

(I) 9 required courses including 6 in Engineering and 3 in Health Sciences:
A. 6 engineering courses to be selected from the following:
Chemical Engineering (CHE)
CHE 5363 Biochemical Engineering
CHE 5364 Chemical Engineering Applications in Biological Systems
CHE 5365 Biotransport
CHE 5366 Biomicrofluidics
CHE 5385 Bioprocess Control
CHE 5660 Advanced Bioengineering

Civil and Environmental Engineering (CE)
CE 5327 Geotechnical Practice for Waste Disposal
CE 5395 Solid and Hazardous Waste Treatment

Computer Science (CS)
CS 5352 Advanced Operating Systems Design
CS 5356 Advanced Database Management Systems
CS 5358 Software Studio I
CS 5363 Software Project Management
CS 5366 Software Process Improvement
CS 5368 Intelligent Systems
CS 5369 Web-Based Software Systems
CS 5373 Software Modeling and Architecture
CS 5375 Computer Systems Organization and Architecture
CS 5376 Communication Networks
CS 5388 Neural Networks
CS 5393 Bioinformatics

Electrical and Computer Engineering (ECE)
ECE 5316 Power Electronics
ECE 5325 Telecommunication Networks
ECE 5343 Power Systems Engineering
ECE 5350. Introduction to Medical Instrumentation
ECE 5351 Biomedical Signal Processing
ECE 5352 Medical Imaging
ECE 5355 Genomic Signal Processing and Control
ECE 5356 Biosensors and Bioelectronics

ECE 5364 Digital Signal Processing
ECE 5367 Image Processing
ECE 5385 Introduction to Microsystems I
ECE 5391 Electric Machines and Drives
ECE 6360 Computer Vision and Image Reconstruction
ECE 6363 Adaptive Pattern Recognition

Engineering (ENGR)
ENGR 5392 Ethics in Engineering Practice and Research

Industrial Engineering (IE)
IE 5301 Ergonomics and Design
IE 5302 Environmental Ergonomics
IE 5303. Work Physiology
IE 5304 Occupational Biomechanics
IE 5305 Cognitive Engineering
IE 5306 Safety Engineering
IE 5309 Human Factors in Engineering and Design
IE 5312 Queuing Theory
IE 5319 Risk Modeling and Assessment
IE 5320 Systems Theory
IE 5321 Decision Theory and Management Science
IE 5322 Industrial Cost Analysis
IE 5325 Productivity and Performance Improvement in Organizations
IE 5329 Project Management
IE 5342 Design of Experiments
IE 5344 Statistical Data Analysis
IE 5346 Total Quality Systems
IE 5356 Biomedical Design and Manufacturing
IE 5371 Bioengineering Systems

Mechanical Engineering (ME)
ME 5317 Robot and Machine Dynamics
ME 5351. Advanced Engineering Design
ME 5352 Probabilistic Design
ME 5353 Fundamental of Transdisciplinary Design and Process
ME 5354 Systems Engineering Principles
ME 5360 Bio-Fluid Mechanics
ME 5362 Orthopedic Biomechanics

B. 3 health sciences courses to be selected from the following:
Clinical Practice Management (AHCP)
AHCP 5301 Healthcare Foundations
AHCP 5305 Leadership in Healthcare Organizations
AHCP 5306 Healthcare Delivery System
AHCP 5307 Healthcare Practice Management I
AHCP 5308 Healthcare Practice Management II
AHCP 5309 Decision Making with Statistics

AHCP 5310 Coding and Healthcare Law
AHCP 5315 Professional Development and Healthcare Ethics
AHCP 5317 Public Policy and Issues in Aging
AHCP 5320 Long Term Care Management
AHCP 5321 Regulatory Aspects of Long-Term Care
AHCP 5322 Risk, Quality and Patient Safety
AHCP 5330 Introduction to Biomedical Informatics

Clinical Service Management (AHCM)
AHCM 5315 Issues in Gerontology for Healthcare Managers

Nursing (NURS)
NURS 5376 Best Practices for Safe Healthcare Systems
NURS 6320. Systems Leadership for Effectiveness, Quality and Safety
NURS 6325 Informatics and Technology to Improve Healthcare
NURS 6340 Advancing Policy and Politics in Healthcare
NURS 6345 Population Health and Epidemiology

(II) 2 electives to be selected from all graduate-level engineering and health sciences courses, including those listed above, in addition to the following:

Biological Informatics (BINF)
BINF 5301 Biological Informatics

Biological Sciences (BIOL)
BIOL 5302 Advanced Cell Biology
BIOL 5306 Advanced Cancer Biology

Information Systems and Quantitative Sciences (ISQS)
ISQS 5231 Information Technology for Managers
ISQS 5341 Business Problem Solving and Information Technology
ISQS 6341 Data Communications and Network Management
ISQS 6342 Strategic Uses of Information Systems Technology

Management (MGT)
MGT 5308 Consumer-Driven Healthcare Design

Public Administration (PUAD)
PUAD 5334 Healthcare Policy and Administration

TTU College of Engineering and the TTU School of Law
Joint Degree Program Requirements leading to the JD/MEN

Admission requirements for MS: 3.0 GPA (undergraduate); LSAT may substitute for the GRE in the joint degree program; an undergraduate, ABET-approved engineering degree or equivalent; and approval of the School of Law and the School of Engineering.

	NON-JOINT HOURS REQUIRED	JOINT HOURS REQUIRED
JD degree requirements:	**90**	**78**
MEN degree hours credited:	0	12
MEN requirements:	**36**	**24**
JD degree hours credited:	0	12
TOTAL HOURS	126 hours	126 hours

The Law School will award a maximum of 12 hours credit toward the JD degree for completion of the MEN degree courses listed below, which have been approved by the law faculty:

Engineering Ethics and Its Impact of Society*	ENGR 5392	3 hours
All other 5000 level courses for the MEN degree	5xxx	6 hours

Except that no more than 15 credit hours (5 courses) can be taken from any on engineering program.

The School of Law does not award credit for the following courses, but these are required for the MEN degree:

Master's Report Course	ENGR 6330	3 hours

The School of Engineering will award 12 hours of credit toward the MEN degree for completion of the JD degree courses listed below which have been approved by the Engineering faculty committee.

Law, Science, Policy & Scientific Evidence**	LAW 6048	3 hours
Law and Bioterrorism	LAW 6007	3 hours
Environmental Law	LAW 6327	3 hours
Water Law	LAW 6027	3 hours
International Environmental Law	LAW 6322	3 hours
Water Quality and Pollution Seminar	LAW 6273	3 hours
Oil and Gas Law	LAW 6311	3 hours
Patent Law	LAW 6294	3 hours
Copyright Law	LAW 6063	3 hours
Administrative Law	LAW 6079	3 hours
Nanotechnology Law and Policy**	LAW 6307	3 hours

**Joint JD/MEN candidates must take at least one of these courses as additional law school requirements for the JD/MEN degree

*Joint JD/MEN candidates must take this course as requirement for the JD/MEN degree.

Joint Degree Program Sample Schedule for the JD/MEN

[Possible law courses are in brackets. No specific course is guaranteed in any term.]

YEAR 1/LAW

FALL & SPRING	First year required courses	29 hours
SUMMER	LAW courses	6 hours
	[Professional Responsibility 3 hours]	

YEAR 2/LAW
YEAR 1/MEN

FALL		
ENGR 5392	Engineering Ethics and Its Impact on Society	3 hours
5XXX	Engineering elective	3 hours
	LAW courses	9 hours
	[Income Tax 4 hours]	
	[Criminal Procedure 3 hours]	
	[Law, Science…* 2 hours]	
		15 hours
SPRING		
5XXX	Engineering elective	3 hours
	LAW courses	14 hours
	[Evidence 4 hours]	
	[Commercial Law 4 hours]	
		17 hours
SUMMER		
5XXX	Engineering elective/online course	3 hours
	LAW Clerkship	
		3 hours

YEAR 3/LAW
YEAR 2/MEN

FALL		
5XXX	Engineering elective	3 hours
5XXX	Engineering Elective	3 hours
	LAW courses	9 hours
	[Nanotechnology Law* 3 hours]	
	[Business Entities 4 hours]	
		15 hours
SPRING		
5XXX	Engineering elective	3 hours
5XXX	Engineering elective	3 hours

	Law Courses	10 hours
	[Patent Law	2 hours]
	[Wills and Trust	4 hours]
_____		
		16 hours

APPENDIX C

Graduate Course Offerings

DEPARTMENT COMPLETES TABLE:

Course	Title	Hours	Description	Qualifier
ENGR 6330	Master's Report	(3)	Formal technical report on an interdisciplinary topic under guidance of faculty from one or more departments.	Graduate Standing

All other courses for the MEN degree are offered by existing engineering departments.

APPENDIX D

Graduate Student Handbook

Master of Engineering Degree

The program leading to the Master of Engineering (MEN) degree is an undifferentiated (interdisciplinary), non-thesis one, designed primarily for practicing engineers. For such practicing engineers, credit for graduate course work completed in residence at another graduate school may be accepted for as much as 15 hours of the 36 semester hour requirements for the Master of Engineering degree. All work credited toward the degree must be completed within nine calendar years. In addition to the regulations governing admission to the Graduate School, a baccalaureate degree in engineering, or its equivalent, is required for entrance to the Master of Engineering Program.

Degree Requirements

Students in the Master of Engineering program are subject to all Masters Degree regulations as outlined in the Graduate Catalog. Due to its interdisciplinary nature, the Master of Engineering program does not require specific major and minor subjects. However, the program does allow up to six hours of course work to be taken outside of engineering, upon the approval of the graduate advisor. Students in the Master of Engineering program do not have any language or tool-subject requirements. Every candidate for a Masters Degree is required to pass a final comprehensive examination. At the discretion of the advisory committee, the examination may be written, oral, or a combination of both.

Transfer of Courses

As stated above, students are permitted to transfer courses into the Master of Engineering program upon approval of their graduate advisor. The student should seek approval of the transfer courses prior to registering for such courses. Courses taken without prior approval and prior to enrolling in the Master of Engineering program will be accepted at the discretion of the graduate advisor. All transfer courses are subject to the same time limitations as courses taken in the program (a maximum of nine years from the first course in the plan of study until graduation).

The Curriculum

The curriculum for the Master of Engineering program consists of 36 semester credit hours of coordinated graduate level course work. No more than 15 credit hours (5 courses) can be taken from any one engineering program, e.g., Industrial Engineering or Software Engineering.

Special Cases

Any student who does not have an undergraduate degree in engineering is considered a special case. To provide the student with a solid program and to ensure that the student

has the background necessary to complete the program, the following background is required:
Basic Sciences: Students must have at least 15 semester hours of basic sciences including 12 hours of chemistry and/or physics.
Mathematics: Twelve semester hours above algebra and trigonometry are required. Normally this will mean completion of the engineering mathematics for engineers and scientists (which includes ordinary differential equations and Laplace transforms).
Engineering Sciences: The student must complete 27 hours of engineering science courses. Applications-oriented advanced science coursework may be included as well as up to 12 semester hours of engineering technology technical sciences courses.
Engineering Analysis, Design and Synthesis: The need for courses in these areas will be judged on an individual basis, considering the student's educational background, work experience, and field of interest.
Humanities and Social Sciences: The equivalent of 16 semester hours of coursework in the humanities and/or social sciences.

Healthcare Engineering Option in the Master of Engineering Degree

The curriculum leading to the Master of Engineering Degree with an option in Healthcare Engineering (MEHE) is designed to meet the growing demand for engineers trained to apply the principles of engineering, health sciences, and business administration to effectively manage the physical, technological, and supports services of healthcare facilities in order to optimize the safety, quality, efficiency, accessibility, and cost effectiveness of healthcare delivery processes and healthcare systems. You can see all the exciting job opportunities that this degree can provide on our jobs page.

With a strong engineering college, a comprehensive health sciences center with hospital facilities, and a quality business college all on the same campus, Texas Tech University is one of the first institutions offering a degree option in Healthcare Engineering.

Curriculum

This interdisciplinary curriculum consists of 36 graduate-level semester credit hours, including 33 course credits (11 courses) and 3 credits for research. The 11 courses include 9 required courses and 2 electives in Engineering, Health Sciences, and Business. To allow practicing engineers to manage career and family commitments while earning graduate credentials and upgrading their professional skills, a number of the courses are offered on-line, and it is possible to complete the degree curriculum entirely through distance-learning. See Curriculum and Course Description and Research.

Admission

In addition to the regulations governing admission to the Graduate School, a baccalaureate degree in engineering, or its equivalent, is required for entrance to Master of Engineering program. See Application for Admission.

Degree Requirements

Master of Engineering students are subject to all Masters Degree regulations as outlined in the Graduate Catalog. All work credited toward the degree must be completed within nine calendar years. There is no thesis, language or tool-subject requirement. Every candidate for a Masters Degree is required to pass a final comprehensive examination.

Financial Aid

Graduate school can be expensive, and we understand some of the problems this may cause. However, there are several scholarships available for graduate students in general and some specifically for this particular degree option.

Transfer of Courses

Credits for graduate course work completed in residence at another accredited graduate school may be accepted for as many as 12 hours of the 36 semester hour requirements upon approval of the MEHE advisor.

APPENDIX E

Graduate Student Association(s)

There are no Graduate Student Associations for the Master of Engineering Degree Program.

APPENDIX F

Graduate Faculty Information

There are no graduate faculty employed for the Master of Engineering Program.

TEXAS TECH UNIVERSITY
Graduate School

Graduate Program Reviews

2005-2011

FACULTY AND STUDENT SURVEY RESULTS

College: Whitacre College of Engineering

Department: Masters of Engineering

Conducted by: Institutional Research & Information Management

November 2011

FACULTY SURVEY RESULTS – MASTERS OF ENGINEERING

Number of faculty participated in survey

Professor	0
Assoc. Professor	0
Asst. Professor	0
Other	1
PARTICIPANT TOTAL	1

SCALE

5	4	3	2	1	-	
Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree	N/A	**Average**

Q-1 The facilities and equipment available to teach graduate courses are adequate.

0	1	0	0	0	0	**4.00**

Q-2 I have adequate access to facilities and equipment needed for my graduate work.

0	1	0	0	0	0	**4.00**

Q-3 The quality and availability of departmental graduate student office space is adequate for my needs.

0	1	0	0	0	0	**4.00**

Q-4 Library resources available to me are adequate.

1	0	0	0	0	0	**5.00**

Q-5 Teaching resources (faculty, teaching assistants) are adequate to my needs.

0	1	0	0	0	0	**4.00**

Q-6 The program offers an adequate selection of graduate courses, sufficient for timely completion of a full graduate program.

0	1	0	0	0	0	**4.00**

Q-7 The graduate courses available are taught at an appropriate level and are of sufficient rigor.

0	1	0	0	0	0	**4.00**

Q-8 The graduate teaching assistants available to faculty in the program are of appropriate quality.

1	0	0	0	0	0	**5.00**

Q-9 Graduate courses in other fields, needed to support your program or minor, are sufficiently available.

0	1	0	0	0	0	**4.00**

Q-10 There is adequate communication about policy and program changes in your department.

0	1	0	0	0	0	**4.00**

Q-11 There is adequate communication from the upper administration regarding policy changes.

0	1	0	0	0	0	**4.00**

Q-12 I am satisfied with the professional interaction with faculty throughout TTU.

0	1	0	0	0	0	**4.00**

Q-13 Graduate courses in other fields, needed to support your program(s) or minors, are sufficiently accepted.

0	1	0	0	0	0	**4.00**

Q-14 Graduate courses in other fields, needed to support your program(s) or minors, are sufficiently recommended by your advisor(s).

0	1	0	0	0	0	**4.00**

Q-15 I am receiving the research and professional development guidance I need from other faculty.

0	1	0	0	0	0	**4.00**

Q-16 I am satisfied with the professional interaction with the graduate program coordinator(s).

0	1	0	0	0	0	**4.00**

Q-17 I am satisfied with the professional interaction with other faculty within the program(s).

0	1	0	0	0	0	**4.00**

Q-18 I am treated as a respected contributor to the graduate program in which I am involved.

1	0	0	0	0	0	**5.00**

Q-19 I have been given an opportunity to be engaged in decisions regarding changes in the program(s).

0	1	0	0	0	0	**4.00**

Q-20 Course and program changes are evaluated by all faculty and voted upon by those faculty.

0	1	0	0	0	0	**4.00**

Q-21 Sufficient graduate teaching assistantship stipends are available.

0	0	1	0	0	0	**3.00**

Q-22 The program offers adequate opportunity for its faculty to gain teaching training.

0	1	0	0	0	0	**4.00**

Q-23 Graduate teaching assistantships assignments are made equitably, based on established criteria.

0	1	0	0	0	0	**4.00**

Q-24 Graduate program policies are clearly defined and readily available to me.

0	1	0	0	0	0	**4.00**

Q-25 Graduate program policies clearly identify petition and appeals procedures available.

0	1	0	0	0	0	**4.00**

FACULTY COMMENTS:

What do you consider to be the strengths of your graduate program(s)?

What changes, if any, could be made to improve the quality of your graduate program(s)?

Please feel free to add any additional comments or questions in the space below.

STUDENT SURVEY RESULTS - MASTERS OF ENGINEERING

Number of students participating in survey

Doctoral	0
Master's Thesis	3
Other	2
PARTICIPANT TOTAL	5

Student participant: Years in program

1ST year	3
2nd year	2
3rd year	0
4th year	0
5th year	0
6th year	0

SCALE

5	4	3	2	1	-	
Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree	N/A	**Average**
Q-1 The research facilities and equipment available for my graduate research meet my needs.						
1	1	0	1	0	2	**3.67**
Q-2 I have adequate access to facilities and equipment needed for my graduate work.						
1	1	0	1	0	2	**3.67**
Q-3 The quality and availability of departmental graduate student office space is adequate for my needs.						
1	1	1	0	1	1	**3.25**
Q-4 Library resources available to me are adequate for my needs.						
3	1	0	0	0	1	**4.75**
Q-5 Teaching resources (faculty, teaching assistants) are adequate to my needs.						
2	3	0	0	0	0	**4.40**
Q-6 The program offers an adequate selection of graduate courses, sufficient for timely completion of a full graduate program.						
1	2	0	2	0	0	**3.40**
Q-7 The graduate courses available are taught at an appropriate level and are of sufficient rigor.						
3	2	0	0	0	0	**4.60**
Q-8 The graduate teaching by faculty in the program is of appropriate quality.						
2	3	0	0	0	0	**4.40**
Q-9 Graduate courses in other fields, needed to support my program or minor, are sufficiently available.						
1	3	1	0	0	0	**4.00**
Q-10 Program seminars are adequate to keep me informed of developments in my field.						
1	3	0	1	0	0	**3.80**

Q-11 The initial advising I received when I entered the program was an adequate orientation.

0	3	2	0	0	0	**3.60**

Q-12 I have a department mailbox or other form of communication with faculty & graduate students.

1	1	2	1	0	0	**3.40**

Q-13 I have adequate access to my major professor.

1	3	1	0	0	0	**4.00**

Q-14 I am receiving the research and professional development guidance I need.

1	1	1	1	0	1	**3.50**

Q-15 I am satisfied with the professional interaction with my major professor.

2	2	1	0	0	0	**4.20**

Q-16 I am satisfied with the professional interaction with faculty both within the program and at TTU.

2	3	0	0	0	0	**4.40**

Q-17 I am treated as a respected contributor to the research program in which I am involved.

1	1	1	0	0	2	**4.00**

Q-18 I have been given an opportunity to be engaged in significant research for my thesis or dissertation.

2	0	2	0	0	1	**4.00**

Q-19 If I decide to change my major professor, the mechanism for doing so is suitable.

0	3	2	0	0	0	**3.60**

Q-20 I am informed of opportunities for professional development and contacts outside TTU, such as attendance at professional meetings.

1	3	0	1	0	0	**3.80**

Q-21 Graduate teaching or research assistantship stipends are adequate.

0	0	1	1	1	2	**2.00**

Q-22 The program offers adequate opportunity for its graduate students to gain teaching experience.

0	0	1	2	0	2	**2.33**

Q-23 Graduate teaching assistantships, assignments are made equitably, based on established criteria.

0	0	1	0	1	3	**2.00**

Q-24 Program policies are clearly defined and readily available to me.

2	3	0	0	0	0	**4.40**

Q-25 Graduate program policies clearly identify petition and appeals procedures available to me.

1	4	0	0	0	0	**4.20**

Q-26 There is a well-established mechanism for regular graduate student participation in decisions affecting students, whenever this is appropriate.

1	1	1	1	0	1	**3.50**

STUDENT COMMENTS:

What do you consider to be the strengths of this program?

This program is flexible with option of choosing from vast number of courses. We can study the technology in relation with other sciences.
Very qualified professors who have strong command of subject matter.
The major strength of this program is that it's not very strict on what courses must be taken; rather, I've thus far (1 semester) been very content with the courses I have chosen and am sure they will be a boon to me throughout my entire career. I'm just now becoming familiar with what goes on in bioengineering research as far as our engineering campus goes, and am meeting with professors to discuss thesis work and finding a suitable adviser that is involved in a topic of interest, but the faculty has been very supportive to this end. Because bioengineering is such a diverse field, it's understood that we will take a wide variety of courses, perhaps focusing on a special field of engineering (for me, that would probably be chemical or industrial), while for others it would be electrical, maybe mechanical. The point is that Tech has a world-class engineering college all-around and that in and of itself is good for a program like bioengineering.
Received great support from distance program staff and teachers have been very accommodating in the distance courses I have taken so far. Material presented has been very applicable to real world scenarios
Flexible program structure.

What do you consider to be the weaknesses of this program?

No proper departmental facility. It should have a department or at least a section where the Bioengineering branch is dealt with.
Difficult to register for classes, i.e. get filled too soon and then have to sign up for distance learning and pay extra and don't have one to one teaching. Lab equipment & support not up to date.
The absolute biggest weakness of this program is a lack of interaction with other bioengineering students and a place to call 'home'. As far as I know, we have no wing in any building or even a lounge that bioengineering students can go meet up at. I've only met a few other students in my field in other classes, and for the most part they're too concerned with research at this point to be bothered to take many classes. I know that this field is relatively new at this school and every program has to start somewhere, but I'm more or less in this program by myself, stumbling through the dark as best as I can. At the beginning of the semester I met a couple other students in one of my courses, but they soon dropped and never got in touch with me again. Finally, all major computer programs (SAS, Autodesk suite) should be free downloads.
Lack of a centralized department to interact with other students on a regular basis.

What changes, if any, could be made to improve the quality of this program?

To provide specific department and specific professors to deal with the issues of the program.
Better labs. Allow more students into sections that are on campus.
What I mentioned above in the weaknesses section are the major things worth fixing. A few more courses with a more intense focus on biological processes with respect to engineering would be nice, but as it stands, I value being able to personally specialize myself (not just with respect to research interests) based on my own strengths, which is precisely what I'm doing, although I would benefit greatly from a basic leveling crash-course for incoming bioengineering students, because we're expected to have such a diverse array of knowledge right away. The single most important change that could be made to this program is making it more centralized and engaging, outside of coursework and research, for students. A nice lounge somewhere, maybe an office, and a way of disseminating information pertaining specifically to us (more bioengineering-related fliers on bulletin boards, an e-mail list serve/newsletter, etc.)
Increase in the number of available engineering courses for the Distance program.
Funding marked off for Bioengineering students can be made. It is unfair to let us depend on one of the other Engineering departments for funding, and when they have a change in policy, we are affected.

Please feel free to add any additional comments below.

I work full-time and program has allowed me quality professional development.
I'm glad that I get to be a part of this program as I get to take a lot of courses that I could not have if I had been enrolled in other engineering programs. The only thing that needs to be improved is the availability of Teaching Assistantships. It will also be a good thing to have a career fair centered on bioengineering-related companies.