Master of Engineering Annual Program Report

Year: 2022-2023(updatedJuly24, 2023)

Program Highlights Since Last Report

Identify and briefly discuss any programmatic curriculum changes made since the last report (e.g. new courses, course changes, SLO changes, course dele Respond here:

1. In the 2022

- 4. The departmentshaveimproved the recruiting and admission process. For example Department of Chemical Biomolecular Engineering implemented holistic recruiting and application review criteria for MCHEN applicants This will likely lead to increased enrollment numbers and a more well-rounded applicant pool, thus improving graduate student population quality and performance.
- 5. The Department of Chemical armomolecular Engineering partment developed a survey that has been submitted to industrial partners to evaluate our current offerings in process control and provide feedback on recommended updates.

Table 1. Assessment Results and Analyses for Current Cycle.

STAGE 1: PLAN			STAGE 2: D	0	STAGE 3: STUDY		
Student Learning Student Learning Le	rogram student earning Outcome	Assessment	Assessment Method/Locati on	Benchmark Expectation s		Actions/Goals Based on Data Resülts/hat do the data tell you? How will you use this are How were data from the last cycle used to make changes during this cycle, and What were the results of those changes?	

The Master of Engineering programis a non thesis, 30 semesterhour program designed to suit the needs of the practicing engineers in chemical

Outcome #2: An understanding of professional responsibility, ethics and methods of communication in the practice of engineering.	Outcome # is assessed by the following performance indicators (PIs). 2.1 Understand professional responsibility. 2.2 Understand ethical responsibility. 2.3 Clarity and effectiveness of communication	The outcome is evaluated through the Comprej -0.004 aies durig (t)-6 (h)-0.7 responsib condctnnd m()]TJ 0 Tc 0 -1
	The assessment rubrics can be found in	

Appendix 1.

evaluated shrough the Comprej -0.004 Tc 0.0ir17 Td 1 (e.84 551IW [(CW n W [(CW n9.6 (.6 (u)-0.85.08 Tm ()Tj ET 9 i)2.8 m aies durig (t)-6 (h)-0.7 (en9.6 (.6 (0 -1.217 TD [(s)-4.3 (t)-6 un)-0.7 (d)-0.7 0.0ir17 Td 86 (t)-5.9 '(s)-4.3 (la)-3 responsib condctnnd m()]TJ 0 Tc 0 -1.207 TD [aese.CW n.2 (n34.3 (t)29 (.)]TJ 0 0.043 0 rg-4.354 0 Td ()Tj ET EMC /Artifac

Outcome #3:
An ability to
design an
engineering
system that
meets desired
needs with
appropriate
consideration
of economic,
environmental,
sociopolitical,
safety and
global factors.

Outcome # is assessed by the following performance indicators (PIs).
3.1
Apply engineering principles to meet the needs of designed engineering

The outcome is We aim to evaluated achieve a through the minimum Comprehensive threshold of Exam, which 70% takes place during the student's last semester of study. The Comprehensive Exam committee is responsible for conducting and completing the assessment.

Apply design skills to achieve high quality engineering work.

system.

3.2

3.3
Perform design with consideration of economic, environmental, sociopolitical, and global factors

(equivalent to 2.8 ove3 13.32 re f* EMC BT /P <</MCID</MCID 49Ac8 Tm [(m [(W)0.T /P)8</Mcodua(h)4.2

Table 2. Continuous Improvement Results Since Last Report

Stage 4: ACT		
Actions/Goals Based on Data Results	Status	Discussion of Status
*Copy last cycle's actions/goals and report on	C=Complete	If C, describe efforts that led to accomplishment
progress toward continuous improvement on the	se=Progressing	actions/goals.
here.	N=No Action Taken	If P, provide update on progress made toward accomplishing actions/goals and what tasks remain If N, discuss why action toward accomplishing actions/goals has been delayed and what work whe initiated toward accomplishment.
Courseaddition and deletion In response to students' demands for a dynamic curriculum, new graduate courses are developed and added, while outdated courses are reviewed and removed. These efforts ensure antopdate and relevant curriculum, meeting the evolving demands of the engineering field. Additionally, ongoing work will focus on incorporating engineering math and science courses to further enrich the progam.	d I	Numerous courses have been both added and removed from the catalog, with this process being an ongoing effort. Several course addition requestare currently under consideration and in progress. This continuous review and adjustment of the course offeringsensure that our curriculum remains dynamic and responsive to the changing needs of our students and the engineering industry.
Review and modify thexisting syllabi and change course prerequisites	P	Some existingsyllabi have been reviwed and revised More course syllabi will be reviewed and revised by the department This is an ongoing project.

Several new course modules were developed an seamlessly into the existing courses, with the primary aim of enhancing students' capacity to o/P <E00</MCID 35 >>3DC q406.4.52 02.44 239.8 134.28 r4W n BT 0.00 0 Td [1.04 46.68 191.570 239S]

Table B Assessment Map: Outcomes \(\delta \)ssessment Methods in Current and Upcoming Cycles

Outcomes	2022-2023	2023-2024	20262027	2027-2028
	Assessment Method	Assessment Method	Assessment Method	Assessment Method
Outcome 1				
SLO 1	• Comprehensive	• Comprebentsive 4	•	
An ability to apply the knowledge of	Exam	Exam		
mathematics, sciences, and engineering		• Five courseso(ne		
to solve scientific and engineering		course in each of		
problems of complex natures.		five different		
		disciplines)		

Outcome #1 An ability to apply mathematics, science, and engineering principlessive engineering problems.

PI	4-Exemplary	3-Acceptable	2-Marginal	1-Unacceptable
Math, Science and Engineering Concepts	Explanation shows good understanding of the math and engineering concepts used to solve the problem(s).	Explanation shows some understanding of the math and engineering concepts used to solve the problem(s).	Explanation shows little understanding of the math and engineering concepts needed to solve the problem(s).	Explanation shows very limited understanding of the underlying concepts needed to solve the problem(s)
Math and Engineering Reasoning	Clear evidence of effective math and engineering reasoning.	Some evidence of math and engineering reasoning.	Little evidence of math and engineering reasoning.	No evidence of math and engineering reasoning.
Strategy/ Procedures	Clear evidence of using effective strategies to solve the problem(s).	Some evidence of using strategies to solve the problem(s), but not doing it consistently.	Rarely uses an effective strategy to solve problems.	Never uses an effective strategy to solve problems.

Outcome #2: An understanding of professional responsibility, ethics and methods of communication in the practice of engineering

Dimension	4-Exemplary	3-Acceptable	2-Marginal	1-Unacceptable
Understand professional responsibility	Describe the professional impact of a solution in details with pertinent facts. Ascertain exactly what decision must be decided upon.	Identify the professional impact, including pertinent facts, and ascertain possible decisions for consideration.		Do not recognize the professional impact and does not identify what must be done.

Understand ethical

Clarity and effectiveness of communication

Communication is clear, organized, effective and accurate.

Communication is somewhat lacking in one of the following:clarity,

DEPARTMENT OF ELECTRICAL ENGINEERING Summary of the Proposed Changes and NewaduateCourses

			Modifica	ations	
Current From University Catalog	Suggested Modification	Title	Descri ption	Pre Rea	New

			Modific	ations	
Current From University Catalog	Suggested Modification	Title	Descri	Pre	New
			ption	Req	
	authenticated and confidential communications, and IPSec. Prerequisite: ELEN 3431 or equivalent with a minimum grade of C.				

ELEN 5312Power Electronics
The course starts with switched ode DG DC converters. First, basic circuit operation, including stead state converter modeling and analysis, switch realization, discontinuous conduction mode, and transforme solated converters will be covered. Next, converter control systems are covered, including AC modeling of converters using averaged methods, smallsignal transfer functions, and classical feedbadoop design. Prerequisite: ELEN 3322.

ELEN 5312Power Electronics
The course introduces the switched mode converters. Includes steadyate converter modeling and analysis, sw 201.3 u(-)T39n1 0 0 11.04 345.6 tilaa-5.7 (s)5N In v e r t

			Modific	ations	
Current From University Catalog	Suggested Modification	Title	Descri	Pre	New
			ption	Req	
	4351 or equivalent with a minimum				
	grade of C.				

ELEN 5316Digital Comm I

Current From University Catalog

		Modifications
Current From University Catalog	Suggested Modification	

INEN 5320 Statistical Decision Making (summer 23)

Identification: INEN 5320 Statistical Decision Making is usually offered during long semester, but it had to be offered during the summer to meet the needs of some of our graduate students. In order to adapt the course to an accelerated inhalfer term the content had to be reduced.

Improvement: The instructor reviewed the content that he had previously.5 (,)-1 (b)2.3 (u4.9 (m)-9.3 8o)-6.7 (an72u2t)5 (e)-6 (nT /H1 (e)-6 (nT /Hu)

code is functioning and it does not look like anything on the internet. However, I still lost over 28 points on minothattails ot even mentioned in the assignment. even though the codes accomplish the main objective of the assignment.

Improvement Plan:

• Check the grading system.

ELEN 5314PLC Prog (Summer 2022)

Identification: Main Students' Comments

• As I have 3+ years field work experience as a control system engineer, therefore I will suggest that this course candout by proposition the industrial software and hardware like Rs Logix 5000 and the course content should be industry/field of industry/field of installed in every second industry, so it would be good for student to work on its software and test his/her logic in lab with hardware is the can get