NEW YORK INSTITUTE OF TECHNOLOGY

Continuous Program Improvement (CPI)

Student Learning Outcomes (SLO)/Program Learning Outcomes (PLO)

Plan Implementation Report - AY 2023-24

Program name	M.S. in Energy Management
Expected date of submission	6/30/2024
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New York Tech's CPI process is implemented to meet Middle States Commission on Higher Education (MSCHE) Standard V: *Educational Effectiveness Assessment*, which states: "Assessment of student learning and achievement demonstrates that the institution's students have accomplished educational goals consistent with their program of study, degree level, the institution's mission, and appropriate expectations for institutions of higher education."

Each department was asked to create a three-year assessment/evaluation plan to improve student learning for **each of their degree programs** covering the following academic years: **2022-2023, 2023-2024, and 2024-2025.**

All degree programs' three-year Program Learning Outcomes (PLO) plans are available here: http://www.nyit.edu/planning/academic_assessment_plans_reports

This is a report on the PLO CPI plan **implementation** for the **2023-24** academic year.

Preface

Feedback from the CPI Committee on the 2022-2023 report recommended an exit survey of students. Since ENGY 890 is the capstone course which integrates everything the students have learned in the program, the ENGY 890 project serves as a de facto "exit survey" for learning outcomes. ENGY 890 is the course which most closely aligns with PLO #4 since it requires completion of a multidisciplinary research study.

1. Program Learning Outcomes (PLOs) Assessed in AY 23-24:

Graduates of the M.S. in Energy Management program are expected to:

3. Evaluate economic and social factors which influence energy policy and management decisions.

4. Complete a multidisciplinary research study in a specific area of energy management.

2. Method of Assessment

Our direct method of assessment is based on Faculty Course Assessment Reports (FCARs) which are submitted by the faculty for each course they teach.

The FCAR requires the faculty member to identify course-specific learning outcomes (LO's) for his/her course and to establish appropriate performance tasks (APTs) with appropriate documentation to assess to what extent the Student Outcomes are being met. These APTs may be quizzes, exam questions, reports, projects, presentations, etc. Each student's APT is then scored with the method shown in the table below to create an EGMU vector for that specific Student Outcome and a corresponding assessment metric.

The department has determined that the minimum level of quality that it felt was necessary in order to produce graduates that will ultimately achieve our Program Educational Objectives is an EGMU score of 2.0 for each Student Outcome. This score of 2.0 was chosen by the department because in the EGMU score of 2.0 indicates Good and therefore represents what a student would need in order to satisfy the requirements for graduation. A typical EGMU vector for a class with 19 students in which the APT was the third problem of the first exam might be (8, 9, 1, 1) which would signify that 8 students demonstrated a complete and accurate understanding, while 9 students applied appropriate strategies, etc. The average score in this case being 43/19 = 2.26 which is Good.

EGMU	Rubric	Score
E - Excellent	Fully demonstrates/accomplishes the attributes and behavior in the rubric	3
G – Good	Mostly demonstrates/accomplishes the attributes and behavior in the rubric	2
M – Minimal	Minimally demonstrates/accomplishes the attributes and behavior in the rubric	1
U - Unsatisfactory	Does not demonstrate/accomplish the attributes and behavior in the rubric	0

3. Analysis

Learning Outcome #3 Tasks	ENGY 610	ENGY 670	ENGY 695	Average
Social Perspective	2.42	2.53	2.37	2.44
Economic Evaluation	2.37	2.32	2.14	2.28
Goals and Objectives	2.56	2.63	2.57	2.59
Organizational Structure	2.53	2.47	2.46	2.49
Planning and Scheduling	2.47	2.42	2.31	2.40

Learning Outcome #4 Tasks	ENGY 890
Literature Review	2.47
Economic Analysis	2.27
Environmental Analysis	2.33
Method and Conclusions	2.40
Deliver a Presentation	2.20

4. Interpretation

The students exceeded the minimum EGMU score for Learning Outcome #3 and Learning Outcome #4.
The lowest scores were in "Economic Evaluation" for LO #3 and "Deliver a Presentation" for LO #4.

5. Close the Loop

Learning Outcome #3 Actions	ENGY 610	ENGY 670
Social Perspective	Occupant behavior studies	Community engagement examples
Economic Evaluation	Compare financing options	Evaluate costs and benefits
Goals and Objectives	Prioritize upgrades and retrofits	Utilize sustainability criteria
Organizational Structure	Develop job descriptions	Contrast public and private sectors
Planning and Scheduling	Construct detailed timelines	Explain hierarchy of key tasks

Learning Outcome #3 Actions	ENGY 695
Social Perspective	Examine social factors
Economic Evaluation	Demonstrate cost analysis
Goals and Objectives	Establish realistic milestones
Organizational Structure	Diagram chain of command
Planning and Scheduling	Anticipate delays and bottlenecks

Learning Outcome #4 Actions	ENGY 890
Literature Review	Demonstrate research tools
Economic Analysis	Provide economic software
Environmental Analysis	Access to environmental data
Method and Conclusions	Review of project examples
Deliver a Presentation	Public speaking workshops

In order to improve student performance in Learning Outcome #3 and Learning Outcome #4, specific measures have been identified and summarized above. These measures will be implemented by the instructors of these courses. The results will be communicated to all stakeholders at the departmental meeting which takes place at the start of each semester.