This CPI plan is created for improving student success/achievement for AY 2022-2023

Name of the department ____BS/Information Technology

Expected Date of Submission 8/07/2023

Contact: _Steven Billis_____

To ensure NYIT's CPI process meeting *MSCHE Standard V in Educational Effectiveness Assessment: 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.* in this CPI report, each department is requested to create a three-year assessment/evaluation plan to improve student success. Reports should address the following points:

I.   State/create the educational goals of your department in regard to student success.
II.   The stated goals should align with institutional mission, and NYIT strategic action plan goals to optimize student success.
III. Specify your division/department strategic action/initiatives plans with brief rationales, which include current and historical student data analysis of your department that identify the obstacles and discover areas of opportunity for improving student success.

1. *What are the student success goals and strategic actions for your department?*
2. *What are the KPI (both qualitative and quantitative measures) used to assess the actions' effectiveness?*
3. *Describe how the department set up the baseline (if possible) and expected outcomes, the methods to evaluate progress, adjust its actions and determine its effectiveness?*
4. *Identify personnel/leadership, resources to implement the plan, collect and analyze the data and create recommendations for coming years*

IV.   How will the plan and results be conveyed to your department?

Example 1:

I.   Student Achievement Goal 1: students successfully gradate and employed in engineering or their chosen career path (PEO)

II.   NYIT Mission alignment: Provide career-oriented professional education

III. Strategic Action Plan: Provide experiential learning in courses, provide internships for students through the Office of Career *Services.*
      Strategic Actions:

a.   *Expand the number, and quality of students experiential learning and internship*

b.   *Improve graduation rate by **implementing active learning in the program's courses together with e-tools***

Student Achievement Goal 1: students successfully gradate and employed in engineering or their chosen career path (PEO)					
Actions	*KPIs*	*Expected outcomes, by AY 2024-2025*	*Do: Resources & responsible parties*	*Study: Timeline: Data collecting & analysis*	*Recommendations for Action*

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Expand the number, and quality of students experiential learning	• *Number of students participation* • *Number of students employed through internship* • *Quality evaluation of experiential learning*	*>60% (based on historical and current data)*	• *Christopher Springston Director Graduate Programs CoECS* • *Steven Billis Associate Dean Assessment*	*Annual, by assessment coordinator S.Billis*	*TBD*
Improve graduation rate by implementing active learning in the program	• *Course grade distribution in p* • *CFW rate in the courses* • *Student & faculty feedbacks*	• *Grade improvement* • *CFW rate < 10% (established by historical and external benchmarks)*	• *Instructor of ITcourses: Drs. Wenjia Li, Houwei Cao, Frank Lee, Kiran Balagani, Tao Zhang, H. Gu, J. Weng, P.*	*Annual, by Associate Dean Assessment, S Billis*	*TBD*

			Gasti, G. Salayka • *Assessment coordinator S Billis*		

The collaborative teaching strategy together with zyBook 's interactive online textbook is one example of an active learning environment that means to improve teaching and learning in the classroom. Active learning puts the responsibility of learning on the students as well as the instructor. Students are no longer just listeners but active participants in and out of the classroom. It is meant to engage students into the process of learning in order to provide a more meaningful learning experience. There is a Chinese proverb that concisely describes the collaborative teaching strategy, and active learning in general: "Tell me and I forget, teach me and I remember, **involve me and I learn**." **This approach will be applied to all the courses in the 3 graduate programs.**

Experiential learning opportunities exist in a variety of course and non-course-based forms and may include community service, service-learning, graduate research, and experiences such as internships and capstone projects, to name a few. While not every course may provide an opportunity for an open-ended project, instructors in these 3 graduate programs are encouraged to deliver courses so that **the process of learning is grounded in experience.**

The FT faculty members of the CS/IT departments have met previously, as a group, to determine the relationship between the PLOs and the program's required and elective courses. The PLOs are then assessed using a Faculty Course Assessment Report (FCAR).

The PLO that lends itself to assessment based on experiential learning is:

PLO c: An ability to design, implement, and evaluate a computer-based system, process, component, or program to meet desired needs.

This PLO is linked to:

CSCI 455 Senior Project I
In this course students undertake a computer science project under the guidance of a faculty advisor that draws significantly on knowledge and skills acquired in previous course work. **Students work in teams on the design and implementation of a project with emphasis on constraints and trade-offs. Project topics may include computer graphics, computer and network security, and information management.**

ITEC 305 Internet Programming I
This course provides students with an understanding of various Internet programming languages including HTML, Javascript, and Java server side languages, including Java Server Pages and Java Servlets. Furthermore, fundamental website design issues will be discussed including page navigation, user interface, and web page layout.

ITEC 320 Web-Based Multimedia Development I
Introduction to web-based multimedia systems, digital video compression techniques, operating system support for streaming audio and video, as well as network protocols for multimedia. **Emphasis will be placed on the efficient use of resources and proper design choices to achieve the required quality of service for web-based multimedia intensive content.**

In either the fall or spring semester, each CS/IT faculty member prepares an FCAR for each course they teach. The FCAR requires:
• The FT or adjunct faculty teaching a specific course is required to establish appropriate performance tasks (APTs) to assess to what extent each PLO is being met. These APTs may be quizzes, exam questions, reports, projects, presentations, etc.
• Each student's APT is then used to create an EGMU vector for each PLO and a corresponding assessment metric. It should be noted that the faculty member is required to show which part of each APT is being used to form a metric for the student outcome with appropriate documentation. The EGMU rubrics are:

EGMU Rubrics

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

Using CSCI 455 and ITEC 320 which have design elements for experiential learning PLO c was scored as 2.75 and 2.05 respectively. This provides some indication that the CFW rate was < 10%.

VP Amy Bravo oversees student internships. She provides the information to the respective chairpersons who then require that weekly reports that document student employment be submitted together with feedback from their supervisor as to the quality of their work performance.

Micro-Internships: Micro-Internships are short-term, paid, professional assignments that are like those given to new hires or interns. These projects enable Career Launchers to demonstrate skills, explore career paths, and build their networks as they seek the right full-time role. Unlike traditional internships, Micro-Internships can take place year-round, typically range from 5 to 40 hours of work, and are due between one week and one month after kick-off. Micro-Internships are used by companies ranging from those in the Fortune 100 to emerging start-ups, and go across departments including sales, marketing, technology, HR, and finance.

Examples of Experiential Learning Design Projects

Project Proposal: Facial Recognition Attendance System (IT)

In this project, students will be exploring the potential for utilizing facial recognition technology in the design and implementation of an attendance system. The proposed system will be able to capture images of individuals' faces as they enter or exit a specific area and will utilize advanced algorithms to extract and analyze facial features to accurately identify and track individuals. This system has the potential to greatly streamline and improve traditional attendance tracking methods, providing more efficient and accurate attendance tracking for a variety of applications.

Project Proposal: Malware Detection for Android System Using Meta-Features (IT)

In March of 2012 the Google Play Store was launched, and users were allowed to publish Android applications to the store with no special account or registration needed. This made it possible for users to develop and distribute applications with malicious intents such as tracking one's location, accessing one's camera, or sending messages without the victim's knowledge. To solve this problem, students developed a Support Vector Machine (SVM) based malware detection approach, which uses different combinations of API calls and permissions as features to train a classifier that can tell if an app is malicious or not.

The results of this CPI Report involved all the CS/IT faculty and the results will be shared with the adjunct faculty as well. In addition, these results will lead to further improvements with respect to graduation rates for next year's CPI Report.

Retention rates in the BS/IT are poor! The students in this program take MATH 161 "Basic Applied Calculus" and one 3 credit elective. They take CSCI 125, 185 235 with both CS and ECE students who have a much stronger mathematics background and usually do poorer in these classes

than their ECE/CS counterparts. Very often they leave the program because they lose their scholarships and can no longer afford the tuition. It is recommended that we provide special courses for these topics to be taken by the IT students.