




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	MS. ACT
Expected date of submission	6/30/2024
Department chair/program director	Alessandro Melis
Dean's signature	

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.

The report should address the following points:

I. The Annual Program Learning Outcomes (PLOs) Assessment should include the followings.

1. PLO (Program Learning Outcomes) assessed. list the PLOs that have been assessed in AY 23-24 based on your three-year plan (AY22_25)

PLO. 1: Students completing the MS.ACT Program will be able to study, read and identify new insights in histories and theories of architecture and urbanism through systems of representation and technology

- [Arch 775 - Seminar I: History and Theory of Representation and Technologies](#)

PLO.2 Students completing the MS.ACT program will be able to activate computational design implementing aspects of Data Science and Computer Science and innovate in systems of representation; students will be able to innovate in digital fabrication and interactive ecological and healthy space-environments, innovate in digital fabrication at full scale prototypes, and innovate in materials research and design/development.

- [Arch 701B - Computational Design Studio I: Computational Design \(FA 23\)](#)
- [Arch 702B - Computational Design Studio II: Fabrication and Robotics \(SP 24\)](#)

PLO3: Students completing the MS.ACT program will be able to analyze dynamic systems and understand and innovate in ecology and health implementing evidence-based Data Science and computational design;

- [Arch 702B - Computational Design Studio II: Fabrication and Robotics \(SP 24\)](#)
- [Arch 776 - Seminar II: Fabrication Optimization and Material Simulation \(SP 24\)](#)

PLO.4: students will be able to apply evidence-based design and advance architecture design in relation to representation, computation, fabrication and materials being able to conceptually address new paradigms in design informed by new technologies and new cultural projects through simulation, computational design and data science;

- [Arch 701B - Computational Design Studio I: Computational Design \(FA 23\)](#)
- [Arch 702B - Computational Design Studio II: Fabrication and Robotics \(SP 24\)](#)

- [Arch 776 - Seminar II: Fabrication Optimization and Material Simulation \(SP 24\)](#)

PLO 5: Students completing the MS.ACT program will be able to identify conflicts of interests, benefits and disadvantages of the multiple information technologies and identify means to overcome biases in informing physical and social contexts; students will be able to identify means to address the current ecological crises in relation to equity through affordability and inclusion.

- [Arch 775 - Seminar I: History and Theory of Representation and Technologies \(FA 23\)](#)

PLO 8: Students completing the MS.ACT Program will be able to analyze, read and innovate in systems of representation that affect computational design and robotic fabrication and diverse forms of digital technologies

- [Arch 701B - Computational Design Studio I: Computational Design \(FA 23\)](#)
- [Arch 702B - Computational Design Studio II: Fabrication and Robotics \(SP 24\)](#)
- [Arch 775 - Seminar I: History and Theory of Representation and Technologies \(FA 23\)](#)

PLO 9: Students completing the MS.ACT Program will be able to analyze, read and develop skills in computer science and data science by developing techniques in technology through algorithms and Artificial Intelligence

- [Arch 701B - Computational Design Studio I: Computational Design \(FA 23\)](#)
- [Arch 781 - Computational Design I \(FA 23\)](#)
- [Arch 782 - Computational Design II \(SP 24\)](#)

PLO 10: Students completing the MS.ACT Program will be able to analyze, read and develop skills in physical computation in relation to interactivity and robotic fabrication analyzing and developing robotic fabrication add-ons or full systems; develop virtual reality navigation and interactivity

- [Arch 783 - Fabrication and Robotics I \(FA 23\)](#)
- [Arch 784 - Fabrication and Robotics II \(SP 24\)](#)

PLO 11: Students completing the MS.ACT Program will be able to analyze, read and develop skills in CAM, tool paths, robotic routines and simulations and diverse methods of robotic fabrication including 3d printing and robotic fabrication and in relation to material behavior following an evidence-based scientific approach

- [Arch 783 - Fabrication and Robotics I \(FA 23\)](#)
- [Arch 784 - Fabrication and Robotics II \(SP 24\)](#)
- [Arch 702B - Computational Design Studio II: Fabrication and Robotics \(SP 24\)](#)

PLO 12: Students completing the MS.ACT Program will be able to activate evidence-based design in relation to health through innovation

in materials, spatial quality, interactive design through sensing and feedback in relation to wellbeing spaces and healthy materials; activate an evidence-based design in material design including 4d printing, biomaterials, and synthetic materials

- [Arch 702B - Computational Design Studio II: Fabrication and Robotics \(SP 24\)](#)
- [Arch 776 - Seminar II: Fabrication Optimization and Material Simulation \(SP 24\)](#)

PLO13: Students completing the MS.ACT Program will be able to develop skills in activating evidence based environmental design

- [Arch 701B - Computational Design Studio I: Computational Design \(FA 23\)](#)
- [Arch 702B - Computational Design Studio II: Fabrication and Robotics \(SP 24\)](#)
- [Arch 776 - Seminar II: Fabrication Optimization and Material Simulation \(SP 24\)](#)

PLO14: Students completing the MS.ACT Program will be able to develop skills in evidence based structural design

- [Arch 776 - Seminar II: Fabrication Optimization and Material Simulation \(SP 24\)](#)
- [Arch 702B - Computational Design Studio II: Fabrication and Robotics \(SP 24\)](#)

PLO15: Students completing the MS.ACT program will be able to integrate the skills acquired in the MS ACT Program to develop a design that is based on automation and that is robotically fabricated as a full scale prototype either individually or as a group project

- [Arch 702B - Computational Design Studio II: Fabrication and Robotics \(SP 24\)](#)

PLO16: Students completing the MS.ACT program will be able to contribute as future leaders of the professional practice and to their cultural background, communities, and organization by identifying means to advance society in architecture and urbanism through systems of representation and fabrication

- [Arch 775 - Seminar I: History and Theory of Representation and Technologies \(FA 23\)](#)

PLO17: Students completing the MS.ACT program will be able to in their lifelong career attempt at developing a disruptive technology that is able to change means to understand architecture

- [Arch 775 - Seminar I: History and Theory of Representation and Technologies \(FA 23\)](#)

2. **METHOD:** Describe the method of assessment and attach measurement instruments (e.g., rubric, exam items, scoring guide for a particular task, supervisor evaluation form, survey instrument, and other assessment tools).

PLO. 1: Students completing the MS.ACT Program will be able to study, read and identify new insights in histories and theories of architecture and urbanism through systems of representation and technology

Arch 775 (FA 23)

Direct methods of assessment_ course assignment (textual paper and oral/ visual presentations); capstone course work (including Reading and Class Discussions)

Indirect Methods of Assessment_ student survey; interview; alumni survey; students' reflection

Grade Rubric: 30% summary texts with image illustrations for each session; 30% Data Analysis and Survey; 30% Research Paper; 10% Participation

PLO.2 Students completing the MS.ACT program will be able to activate computational design implementing aspects of Data Science and Computer Science and innovate in systems of representation; students will be able to innovate in digital fabrication and interactive ecological and healthy space-environments, innovate in digital fabrication at full scale prototypes, and innovate in materials research and design/development.

Arch 701B (FA 23)

Direct methods of assessment_ course assignment (including data surveys, simulations and presentation, digital and physical models); capstone course work (including reading and class discussions); portfolios; rubrics shared with the invited guest reviewers;

Indirect Methods of Assessment_ student survey; interview; alumni survey; students' reflection

Grade Rubric: 20% Big Data Gathering, Processing and Simulation; 20% Emergent Geometry Study and Development; 20% Environmental Simulation; 40% Interface, Program or Software Development

Arch 702B (SP 24)

Direct methods of assessment_ course assignment (including data surveys, simulations and presentation, digital and physical models); capstone course work (including reading and class discussions); portfolios; rubrics shared with the invited guest reviewers;

Indirect Methods of Assessment_ student survey; interview; alumni survey; students' reflection

Grade Rubric: 20% Graphic presentation and digital submission of digital model and animation files; 40% Graphic presentation and digital submission of digital model and animation files; photos of all physical models; 40% Large Format Presentation to panel of critics including graphic presentation of robotic digital model and animation files; photos of physical models;

PLO3: Students completing the MS.ACT program will be able to analyze dynamic systems and understand and innovate in ecology and health implementing evidence-based Data Science and computational design;

Arch 702B (SP 24)

See previous description

Arch 776 (SP 24)

Direct methods of assessment_ course assignment (including data surveys, simulations and presentation, digital and physical models); capstone course work (including reading and class discussions); portfolios; rubrics shared with the invited guest reviewers;

Indirect Methods of Assessment_ student survey; interview; alumni survey; students' reflection

Grade Rubric: 40% Graphic presentation and digital submission of digital models and animation files; photos of all physical models; 20% Large Format Presentation to panel of critics including photos of all physical experiments and scale models; 40% Scaled models Format Presentation to panel of critics; 3D Print models, CNC, Robotic Fabrication experiments, and sensors and robotics experiments, Graphic presentation and digital submission of digital model and animation files; photos of all physical experiments and scale models;

PLO.4: students will be able to apply evidence-based design and advance architecture design in relation to representation, computation, fabrication and materials being able to conceptually address new paradigms in design informed by new technologies and new cultural projects through simulation, computational design and data science;

Arch 701B - (FA 23)

See previous description

Arch 702B - (SP 24)

See previous description

Arch 776 - (SP 24)

See previous description

PLO 5: Students completing the MS.ACT program will be able to identify conflicts of interests, benefits and disadvantages of the multiple information technologies and identify means to overcome biases in informing physical and social contexts; students will be able to identify means to address the current ecological crises in relation to equity through affordability and inclusion.

Arch 775 - (FA 23)

See previous description

PLO.6: Students completing the MS.ACT Program will be able to identify a range of career options that best match their aspiration, abilities, goals, and values as learned in this program but will also have the opportunity to develop their own career path aiming at expanding frontiers in the practice of the discipline.

Arch 701B - (FA 23)

See previous description

Arch 702B - (SP 24)

See previous description

PLO7: Students completing the MS.ACT program will be able to creatively identify insights in history, theory and cultural criticism developing a range of projects including survey of historical heritage and their role in an architecture of information implementing aspects of Data Science and Computer Science.

Arch 775 - (FA 23)

See previous description

PLO 8: Students completing the MS.ACT Program will be able to analyze, read and innovate in systems of representation that affect computational design and robotic fabrication and diverse forms of digital technologies

Arch 701B - (FA 23)

See previous description

Arch 702B - (SP 24)

See previous description

Arch 775 - (FA 23)

See previous description

PLO 9: Students completing the MS.ACT Program will be able to analyze, read and develop skills in computer science and data science by developing techniques in technology through algorithms and Artificial Intelligence

Arch 701B - (FA 23)

See previous description

Arch 781 - (FA 23)

Direct methods of assessment_ course assignment (including mapping and presentation); capstone course work (including reading and class discussions);

Indirect Methods of Assessment_ student survey; interview; alumni survey; students' reflection

Grade Rubric: 20% comprehensive graphic set of data mapping, interaction and algorithm development involving the use of Python and TensorFlow frameworks; 20% virtual augmented environment; 30% executable file program which involves the application of Computer Science in relation to Data Science through Machine Learning, Neural Networks, GAN's activating Artificial Intelligence.

Arch 782 - (SP 24)

Direct methods of assessment_ course assignments; reading and class discussions;

Indirect Methods of Assessment_ student survey; interview; alumni survey; students' reflection

Grade Rubric: 40% development of an algorithm and presentation to a group of critics; 60% development of a program prototype and presentation to a group of critics;

PLO 10: Students completing the MS.ACT Program will be able to analyze, read and develop skills in physical computation in relation to interactivity and robotic fabrication analyzing and developing robotic fabrication add-ons or full systems; develop virtual reality navigation and interactivity

Arch 783 - (FA 23)

Direct methods of assessment_ course assignments; class discussions; rubric shared with guest critics;

Indirect Methods of Assessment_ student survey; interview; alumni survey; students' reflection

Grade Rubric: 20% presentation of a physical computation prototype activating sensors and interactivity to a panel of critics; 20% presentation of a project to a panel of critics; 30% 3D Print models and CNC, all recorded and summarized in photographs and portfolio; 30% 3D Print models and CNC, all recorded and summarized in photographs and portfolio;

Arch 784 - (SP 24)

Direct methods of assessment_ course assignments; class discussions; rubric shared with guest critics;
Indirect Methods of Assessment_ student survey; interview; alumni survey; students' reflection

Grade Rubric: 60% 3D Print models and CNC, all recorded and summarized in photographs and portfolio; 40% presentation of AI implementation for Robotic Fabrication, including 3d Printing and Robotic Systems;

PLO 11: Students completing the MS.ACT Program will be able to analyze, read and develop skills in CAM, tool paths, robotic routines and simulations and diverse methods of robotic fabrication including 3d printing and robotic fabrication and in relation to material behavior following an evidence-based scientific approach

Arch 783 - (FA 23)

See previous description

Arch 784 - (SP 24)

See previous description

Arch 702B - (SP 24)

See previous description

PLO 12: Students completing the MS.ACT Program will be able to activate evidence-based design in relation to health through innovation in materials, spatial quality, interactive design through sensing and feedback in relation to wellbeing spaces and healthy materials; activate an evidence-based design in material design including 4d printing, biomaterials, and synthetic materials

Arch 702B - (SP 24)

See previous description

Arch 776 - (SP 24)

See previous description

PLO13: Students completing the MS.ACT Program will be able to develop skills in activating evidence based environmental design

Arch 701B - (FA 23)

See previous description

Arch 702B - (SP 24)

See previous description

Arch 776 - (SP 24)

See previous description

PLO14: Students completing the MS.ACT Program will be able to develop skills in evidence based structural design

Arch 776 - (SP 24)

See previous description

Arch 702B - (SP 24)

See previous description

PLO15: Students completing the MS.ACT program will be able to integrate the skills acquired in the MS ACT Program to develop a design that is based on automation and that is robotically fabricated as a full-scale prototype either individually or as a group project

Arch 702B - (SP 24)

See previous description

PLO16: Students completing the MS.ACT program will be able to contribute as future leaders of the professional practice and to their cultural background, communities, and organization by identifying means to advance society in architecture and urbanism through systems of representation and fabrication

Arch 775 - (FA 23)

See previous description

PLO17: Students completing the MS.ACT program will be able to in their lifelong career attempt at developing a disruptive technology that is able to change means to understand architecture

Arch 775 - (FA 23)

See previous description

3. ANALYSIS of the assessment results: provide criteria based disaggregate and aggregate data analysis.

In all of the classes (seminars and studios) indicated above and included into the first assessment period (FA 23- SP 24) each component determining the final grade was evaluated out of 100 (points or %). The grade assigned to the student's work was evaluated as follows:

Superior Work (A, A-): 90-100

Very Good Work (B+): 80-89

Satisfactory Work (B, B-): 70-79

Poor Work (C+, C, C-): 60-69

Failing (F): below 60

PLO. 1: Students completing the MS.ACT Program will be able to study, read and identify new insights in histories and theories of architecture and urbanism through systems of representation and technology

Arch 775 (assignments collected from 10 students)

Superior Work: 100%

Very Good Work: 0%

Satisfactory Work: 0%

Poor Work: 0%

Failing: 0%

PLO.2 Students completing the MS.ACT program will be able to activate computational design implementing aspects of Data Science and Computer Science and innovate in systems of representation; students will be able to innovate in digital fabrication and interactive ecological and healthy space-environments, innovate in digital fabrication at full scale prototypes, and innovate in materials research and design/development.

Arch 701B (assignments collected from 10 students)

Superior Work: 90 %
Very Good Work: 0 %
Satisfactory Work: 10 %
Poor Work: 0 %
Failing: 0 %

Arch 702B (assignments collected from 10 students)

Superior Work: 100%
Very Good Work: 0%
Satisfactory Work: 0%
Poor Work: 0%
Failing: 0%

PLO3: Students completing the MS.ACT program will be able to analyze dynamic systems and understand and innovate in ecology and health implementing evidence-based Data Science and computational design;

Arch 702B (assignments collected from 10 students)

Superior Work: 100%
Very Good Work: 0%
Satisfactory Work: 0%
Poor Work: 0%
Failing: 0%

Arch 776 (assignments collected from 10 students)

Superior Work: 90 %
Very Good Work: 10 %
Satisfactory Work: 0 %
Poor Work: 0 %
Failing: 0 %

PLO.4: students will be able to apply evidence-based design and advance architecture design in relation to representation, computation, fabrication and materials being able to conceptually address new paradigms in design informed by new technologies and new cultural

projects through simulation, computational design and data science;

Arch 701B Fall 2023 (assignments collected from 10 students)

Superior Work: 90 %
Very Good Work: 0 %
Satisfactory Work: 10 %
Poor Work: 0 %
Failing: 0 %

Arch 702B (assignments collected from 10 students)

Superior Work: 100%
Very Good Work: 0%
Satisfactory Work: 0%
Poor Work: 0%
Failing: 0%

Arch 776 (assignments collected from 10 students)

Superior Work: 90 %
Very Good Work: 10 %
Satisfactory Work: 0 %
Poor Work: 0 %
Failing: 0 %

PLO 5: Students completing the MS.ACT program will be able to identify conflicts of interests, benefits and disadvantages of the multiple information technologies and identify means to overcome biases in informing physical and social contexts; students will be able to identify means to address the current ecological crises in relation to equity through affordability and inclusion.

Arch 775 (assignments collected from 10 students)

Superior Work: 100%
Very Good Work: 0%
Satisfactory Work: 0%

Poor Work: 0%

Failing: 0%

PLO.6: Students completing the MS.ACT Program will be able to identify a range of career options that best match their aspiration, abilities, goals, and values as learned in this program but will also have the opportunity to develop their own career path aiming at expanding frontiers in the practice of the discipline.

Arch 701B Fall 2023 (assignments collected from 10 students)

Superior Work: 90 %

Very Good Work: 0 %

Satisfactory Work: 10 %

Poor Work: 0 %

Failing: 0 %

Arch 702B (assignments collected from 10 students)

Superior Work: 100%

Very Good Work: 0%

Satisfactory Work: 0%

Poor Work: 0%

Failing: 0%

PLO7: Students completing the MS.ACT program will be able to creatively identify insights in history, theory and cultural criticism developing a range of projects including survey of historical heritage and their role in an architecture of information implementing aspects of Data Science and Computer Science.

Arch 775 (assignments collected from 10 students)

Superior Work: 100%

Very Good Work: 0%

Satisfactory Work: 0%

Poor Work: 0%

Failing: 0%

PLO 8: Students completing the MS.ACT Program will be able to analyze, read and innovate in systems of representation that affect computational design and robotic fabrication and diverse forms of digital technologies;

Arch 701B Fall 2023 (assignments collected from 10 students)

Superior Work: 90 %
Very Good Work: 0 %
Satisfactory Work: 10 %
Poor Work: 0 %
Failing: 0 %

Arch 702B (assignments collected from 10 students)

Superior Work: 100%
Very Good Work: 0%
Satisfactory Work: 0%
Poor Work: 0%
Failing: 0%

Arch 775 (assignments collected from 10 students)

Superior Work: 100%
Very Good Work: 0%
Satisfactory Work: 0%
Poor Work: 0%
Failing: 0%

PLO 9: Students completing the MS.ACT Program will be able to analyze, read and develop skills in computer science and data science by developing techniques in technology through algorithms and Artificial Intelligence

Arch 701B Fall 2023 (assignments collected from 10 students)

Superior Work: 90 %
Very Good Work: 0 %
Satisfactory Work: 10 %

Poor Work: 0 %

Failing: 0 %

Arch 782 (assignments collected from 10 students)

Superior Work: 60 %

Very Good Work: 40 %

Satisfactory Work: 0 %

Poor Work: 0 %

Failing: 0 %

PLO 10: Students completing the MS.ACT Program will be able to analyze, read and develop skills in physical computation in relation to interactivity and robotic fabrication analyzing and developing robotic fabrication add-ons or full systems; develop virtual reality navigation and interactivity

Arch 783 (assignments collected from 10 students)

Superior Work: 50%

Very Good Work: 30%

Satisfactory Work: 20%

Poor Work: 0%

Failing: 0 %

Arch 784 (assignments collected from 10 students)

Superior Work: 90%

Very Good Work: 0%

Satisfactory Work: 10%

Poor Work: 0%

Failing: 0 %

PLO 11: Students completing the MS.ACT Program will be able to analyze, read and develop skills in CAM, tool paths, robotic routines and simulations and diverse methods of robotic fabrication including 3d printing and robotic fabrication and in relation to material behavior following an evidence-based scientific approach

Arch 783 (assignments collected from 10 students)

Superior Work: 50%
Very Good Work: 30%
Satisfactory Work: 20%
Poor Work: 0%
Failing: 0 %

Arch 784 (assignments collected from 10 students)

Superior Work: 90%
Very Good Work: 0%
Satisfactory Work: 10%
Poor Work: 0%

Arch 702B (assignments collected from 10 students)

Superior Work: 100%
Very Good Work: 0%
Satisfactory Work: 0%
Poor Work: 0%
Failing: 0%

PLO 12: Students completing the MS.ACT Program will be able to activate evidence-based design in relation to health through innovation in materials, spatial quality, interactive design through sensing and feedback in relation to wellbeing spaces and healthy materials; activate an evidence-based design in material design including 4d printing, biomaterials, and synthetic materials

Arch 702B (assignments collected from 10 students)

Superior Work: 100%
Very Good Work: 0%
Satisfactory Work: 0%
Poor Work: 0%
Failing: 0%

Arch 776 (assignments collected from 10 students)

Superior Work: 90 %
Very Good Work: 10 %
Satisfactory Work: 0 %
Poor Work: 0 %
Failing = 0 %

PLO13: Students completing the MS.ACT Program will be able to develop skills in activating evidence based environmental design

Arch 701B Fall 2023 (assignments collected from 10 students)

Superior Work: 90 %
Very Good Work: 0 %
Satisfactory Work: 10 %
Poor Work: 0 %
Failing: 0 %

Arch 702B (assignments collected from 10 students)

Superior Work: 100%
Very Good Work: 0%
Satisfactory Work: 0%
Poor Work: 0%
Failing: 0%

Arch 776 (assignments collected from 10 students)

Superior Work: 90 %
Very Good Work: 10 %
Satisfactory Work: 0 %
Poor Work: 0 %
Failing: 0 %

PLO14: Students completing the MS.ACT Program will be able to develop skills in evidence based structural design

Arch 776 (assignments collected from 10 students)

Superior Work: 90 %

Very Good Work: 10 %

Satisfactory Work: 0 %

Poor Work: 0 %

Failing: 0 %

Arch 702B (assignments collected from 10 students)

Superior Work: 100%

Very Good Work: 0%

Satisfactory Work: 0%

Poor Work: 0%

Failing: 0%

PLO15: Students completing the MS.ACT program will be able to integrate the skills acquired in the MS ACT Program to develop a design that is based on automation and that is robotically fabricated as a full scale prototype either individually or as a group project

Arch 702B (assignments collected from 10 students)

Superior Work: 100%

Very Good Work: 0%

Satisfactory Work: 0%

Poor Work: 0%

Failing: 0%

PLO16: Students completing the MS.ACT program will be able to contribute as future leaders of the professional practice and to their cultural background, communities, and organization by identifying means to advance society in architecture and urbanism through systems of representation and fabrication

Arch 775 (assignments collected from 10 students)

Superior Work: 100%

Very Good Work: 0%
Satisfactory Work: 0%
Poor Work: 0%
Failing: 0%

PLO17: Students completing the MS.ACT program will be able to in their lifelong career attempt at developing a disruptive technology that is able to change means to understand architecture

Arch 775 (assignments collected from 10 students)

Superior Work: 100%
Very Good Work: 0%
Satisfactory Work: 0%
Poor Work: 0%
Failing: 0%

4. **INTERPRETATION:** to what degree did students achieve the program learning outcomes based on your data analysis and expected learning outcomes?

-We are encouraged by the outcomes of **PLO 1** for Arch 775, which reaffirm the positive trajectory established in the previous academic year. The results underscore the strength of the course, demonstrating that our students are not merely absorbing but also skillfully applying the essential principles of architectural and urbanistic histories and theories. With 100% of students producing work of superior quality (up from 86% last year), it is clear that they are mastering foundational knowledge and are well-prepared to excel in their future professional endeavors.

-We are delighted with the outcomes observed in the courses aligned with **PLO 2**. These results affirm the MS.ACT program's commitment to integrating computational design with key aspects of Data Science and Computer Science. In Arch 701B, the fact that 90% of our students produced superior or very good work highlights their ability not only to grasp but also to expertly implement the principles of computational design and digital fabrication. This course has successfully harnessed their potential, guiding them toward innovation in materials research and enhancing their proficiency in design and development.

-Once again, this year, we believe that the outcomes of **PLO 3** for Arch 702B and Arch 776 provide compelling evidence of the dedication and capability of students within the MS.ACT program. PLO 3 plays a pivotal role: it aims to equip students with the skills to decode

dynamic systems and to foster innovation in ecology and health through the integration of evidence-based Data Science and computational design. Our students have undeniably risen to this challenge, demonstrating mastery of this complex discipline. Notably, the fact that every student in Arch 702B achieved a superior level of work underscores their deep understanding of dynamic system analysis, their commitment to leveraging data science, and their expertise in computational design to advance ecological and health innovations.

-We are encouraged by the positive trend in results from the courses aligned with **PLO 4**, which outline a demanding path—the fusion of evidence-based design practices with the technological and cultural facets of the architectural profession. The performance metrics from Arch 701B, Arch 702B, and Arch 776 affirm our students' proficiency in navigating this complex integration.

-We are pleased with the outcomes of **PLO 5** for Arch 775, which reflect the strong commitment of our students. PLO 5 focuses on cultivating a discerning perspective, empowering students to navigate the complexities of technology's role in architecture while fostering a socially and ecologically conscious approach to design. The results from Arch 775 showcase their progress in this advanced area of study. With 90% of students delivering superior work, it's clear that our curriculum is effectively enabling them to identify and address conflicts of interest arising from various information technologies.

-We are satisfied with the outcomes for **PLO 6**. The results from Arch 701B and Arch 702B confirm that our students, having fully embraced the essence of the MS.ACT program, are well-prepared to explore diverse career options or create unique paths that push the boundaries of architectural practice.

-We are pleased with the results of **PLO 7** from Arch 775. These outcomes demonstrate our students' growing ability to blend historical insights with cutting-edge data and computational methods. By integrating cultural criticism and history with Data Science and Computer Science, our students are uniquely positioned to reshape the narrative of architectural heritage in the digital age. With the majority showcasing superior and very good work, they exhibit great potential in innovating the architecture of information, deeply rooted in historical perspectives.

-We are impressed by the results from Arch 701B, Arch 702B, and Arch 775 for **PLO 8**. This PLO emphasizes the complex convergence of representation systems, computational design, robotic fabrication, and digital technologies, setting a high standard. Our students, with a majority consistently delivering superior and very good work, demonstrate not just understanding but also a talent for innovation in this multifaceted domain. Particularly noteworthy is the performance in Arch 702B, where every student achieved superior work.

-We find the results for **PLO 9**, which focuses on synthesizing computer science, data science, algorithms, and artificial intelligence within the architectural field, to be outstanding. Arch 701B showcases a solid foundation, with most students achieving superior and very good grades. The performance in Arch 781, where every student attained superior work, also highlights the faculty's commitment to expanding

the teaching boundaries between technology and architectural design.

-The outcomes for **PLO 10** from Arch 783 and Arch 784 highlight the opportunities our students have to engage with the realms of physical computation, robotic fabrication, and virtual reality interactivity through professional practice. With the majority of students delivering superior work, these results underscore the positive impact of involving them in practical activities in our fab labs.

-We are very pleased with the outcomes from Arch 783, Arch 784, and Arch 702B in relation to **PLO 11**. We believe that advanced techniques such as CAM, tool paths, robotic routines, simulations, and diverse robotic fabrication methods, including 3D printing, will shape the future of the architectural profession. Our students' ability to incorporate an evidence-based scientific approach to material behavior ensures they are at the forefront of architectural fabrication and practice. The faculty's commitment to providing practical, hands-on experiences, such as the exhibitions at the Salone del Mobile Milano and "Hoperaperta" (Milano and Martinafranca), has been particularly effective.

-The outcomes from Arch 702B and Arch 776 related to **PLO 12** highlight the competencies our students have achieved in evidence-based design concerning health, materials, spatial quality, and interactive environments. A key factor enriching their learning experience has been exposure to real-world tools and technologies during studio sessions.

-We are pleased with the results observed in Arch 701B, Arch 702B, and Arch 776, aligned with **PLO 13**. These results underscore our students' adeptness in applying evidence-based environmental design techniques. The majority of students, particularly in Arch 702B, have demonstrated superior work, reflecting their deep understanding of environmental design principles rooted in evidence and research.

-The performance metrics from Arch 776 and Arch 702B, reflecting the objectives of **PLO 14**, show our students' strong interest in evidence-based structural design. With 100% of students in Arch 702B delivering superior work and a significant majority in Arch 776 achieving the same distinction, we are confident in their ability to master the complex balance between theoretical knowledge and practical application in computational design. These metrics reassure us that our curriculum, combined with hands-on assignments, effectively prepares students to integrate and apply evidence and research methodologies in their structural designs.

-We are gratified by the performance of our students in Arch 702B, aligned with the objectives of **PLO 15**. These outcomes demonstrate their readiness to make meaningful contributions to modern architecture beyond the academic environment. The capability to develop designs based on automation and transform them into robotically fabricated full-scale prototypes showcases an advanced level of proficiency. This expertise is not only academically commendable but also poised to have a transformative impact on the industry.

-We are particularly proud of the outcomes demonstrated by our students in Arch 775, which align with the goals of **PLO 16**. These results

confirm that our students are not merely absorbing academic knowledge; they are being prepared to serve as the next generation of leaders in architectural practice and within their cultural contexts. The high percentage of superior and very good work indicates a strong commitment to nurturing an ethos that recognizes the importance of cultural context, community engagement, and organizational contribution.

-The promising results from Arch 775 are evidence of the MS.ACT program's dedication to fostering a forward-thinking approach in its students. **PLO 17** goes beyond traditional learning metrics, inspiring students to not only master current architectural technologies but also to envision and pioneer disruptive innovations. The significant number of students producing very good and superior work highlights their potential to challenge existing paradigms and drive transformative change in architectural understanding. Their time in the program has equipped them with the skills, mindset, and ambition to make groundbreaking contributions throughout their careers.

5. CLOSE THE LOOP – If the expected program learning outcomes were successfully met, describe how the program will keep or expand the good practices, if not, refine or create the next cycle of PDSA
Closing the Loop:

The program successfully met the established benchmarks and will continue to assess its performance consistently throughout and at the end of each term. To ensure that the desired standards are maintained during both Fall '24 and Spring '25, we will conduct planning sessions with coordinators and hold evaluation discussions with all faculty members. Our goal moving forward is not only to sustain these outcomes but also to enhance and broaden our practices. Here's our plan for achieving this:

- 1) Consolidation of Best Practices:** We will identify the specific teaching methods, tools, and practices that have been most effective in driving student success. By pinpointing what works best, we can ensure these strategies are consistently integrated into our core curriculum.
- 2) Ongoing Faculty Development:** Recognizing the crucial role faculty play in achieving learning outcomes, we will leverage the expertise of specialists to keep our teaching methodologies and tools current. This will empower our faculty to guide students more effectively.
- 3) Enhanced Student Feedback:** Regular feedback from students has provided valuable insights into areas of strength and improvement. We plan to expand our feedback mechanisms to gather more in-depth qualitative data, allowing us to refine our approaches based on students' direct experiences.

- 4) **Increased Real-world Exposure:** Building on the success of initiatives like hands-on experience with robotic models and participation in international exhibitions such as the Salone del Mobile Milano, we will prioritize creating more opportunities for real-world exposure. These experiences significantly enrich classroom learning.
- 5) **Innovative Technology Integration:** We are committed to continuously updating our curriculum to incorporate the latest technological advancements, particularly in 3D printing. This will ensure our students remain at the cutting edge of industry developments.
- 6) **Collaborative Projects:** We will foster more group-based projects that encourage collaboration, promoting a culture of teamwork, peer learning, and collective innovation among students.
- 7) **Alumni Engagement:** We plan to involve our alumni, who are now professionals, in providing mentorship, conducting workshops, and sharing their experiences. This will help bridge the gap between academic learning and practical application.

II. Brief Description of Faculty Engagement in the Current Annual Assessment Report:

Faculty engagement has been a crucial element in the ongoing refinement of our educational approach, as outlined in this report. Through regular coordination meetings with all educators involved in the program's courses and studios, we have thoroughly reviewed student feedback, identified practical opportunities to better prepare students for real-world challenges, and brainstormed potential curriculum enhancements. Our faculty also played a key role in developing the metrics used in this report, ensuring a well-informed and comprehensive evaluation process.

Moreover, our engagement efforts extended beyond the immediate teaching circle. We benefited from the valuable insights of guest critics, who provided external perspectives that enriched our program's approach. Additionally, a shared passion for computational technology research further strengthened the connection between faculty members, even those not directly involved in course instruction. This collaborative spirit ensures our program stays at the cutting edge of architectural education, offering students a contemporary and impactful learning experience.

Last updated 8/21/24