

Program Description

Certificate in Design Thinking for Collaborative Innovation by the Herron School of Art and Design, IUPUI

1. Characteristics of the Program

- a. Campus (es) Offering Program: IUPUI
- b. Scope of Delivery (Specific Sites or Statewide): Statewide
- c. Mode of Delivery (Classroom, Blended or Online): Online
- d. Other Delivery Aspects (Co-ops, Internships, Clinicals, Practica, etc.): Practicum
(If student is in another academic program, they may substitute a related course in that program for 6 credits of practicum. This practicum course will be offered online or offline within their academic program.)
- e. Academic Unit(s) Offering Program: Herron School of Art and Design

2. Rationale for the Program

- a. **Institutional Rationale** (Alignment with Institutional Mission and Strengths)

Why is the institution proposing this program?

Complexity and uncertainty has been reality for millennials. In January 2015, the Liberal Education and America's Promise (LEAP) Challenge was initiated by the Association of American Colleges & Universities (AACU) as a way to prepare students to engage with open, unscripted problems.

Responding to transformative change in higher education, the Graduate Certificate in Design Thinking for Collaborative Innovation aims to provide a new model of problem-centered inquiry that enables students to actively apply, connect and produce knowledge through a process of collaborative creative problem solving.

The certificate provides graduate students pursuing degrees in a range of disciplines across IU and Purdue a training ground for collaborative creative problem solving in order to foster creative confidence and enable them to move beyond the boundaries of traditional academic disciplines. Graduates of this certificate will master skill sets needed to formulate insightful innovative solutions in a wide range of contexts. This will be achieved by providing individuals with both theories and methods on how to frame opportunities from complex problems, translate insights into actionable solutions, as well as facilitate collaborative inquiry process.

By teaching design process and process skills for creative problem solving, the certificate expands disciplinary boundaries and supports students who intend to tackle real world problems in order to create valuable solutions for society. Graduates of this certificate will be able to apply creative problem solving process knowledge and process skills to meaningful challenges. Graduates will be able to integrate their knowledge across a broad range of contexts in an effort to provide relevant solutions that address the underlying problems from a systematic point of view. Moreover, graduates will be able to cultivate creative confidence in their everyday work environments and communities. By completing this certificate, students will become part of a new workforce that acts as a catalyst for change and will drive innovation in their fields. In order to maximize the values of cross-disciplinary learning, students with interest in teamwork experience and a bachelor's degree will be candidates for this program.

How is it consistent with the mission of the institution?

The Certificate in Design Thinking for Collaborative Innovation is consistent with Indiana University's mission because it prepares students with the knowledge, skills, and mindsets that are needed to imagine, create and actualize creative solutions for challenges faced in the 21st century. Additionally, the certificate fulfills Principle 1 (An Excellent Education) in *the Principles of Excellence*, which states, " ... While employers consistently report that the core skills of a liberal education are the qualities they most value in current and prospective employees, all IU schools are pursuing opportunities to develop additional certificate and other qualifications that enable all IU students, regardless of their major fields of study, to obtain additional or targeted career skills..." by providing the core skills of a liberal education through inquiry based learning that enables students to use their rational power to become better creative problem solvers, as well as the career skills that enable students to adapt disciplinary knowledge and skills in real-problem settings.

This certificate is consistent with IUPUI's mission of " advancing the state of Indiana and the intellectual growth of its citizens to the highest levels nationally and internationally through research and creative activity, teaching and learning, and civic engagement" because graduates will 1) learn the nature of innovation in a contemporary context using methodical approaches to people-centered innovation; 2) perform their learning through real problem- solving in partnership with community members; 3) generate or improve new concepts, products, services, and solutions that will be a benefit for community partners and society; and 4) acquire process knowledge and skills that enable them to cultivate and influence a creative mindset in their local working and living environments.

How does this program fit into the institution's strategic and/or academic plan?

IUPUI as an anchor institution has always been deeply committed to the advancement of the city of Indianapolis, the state of Indiana, and the world. One of

the ways the university aims to keep this commitment is by fostering the concepts of innovation and entrepreneurship for students, faculty and staff. This is evident in the IUPUI Strategic Plan, *Our Commitment to Indiana and Beyond*, which states that enhancing student success, deepening our commitment to community engagement, and accelerating innovation and discovery through research and creative activity are all priorities. The IU-wide Bicentennial Strategic Plan supplements the IUPUI Strategic Plan in that it explicitly focuses on institution engagement, including economic development activities with an emphasis on the vital role of the institution in translating research into practical applications.

This certificate is perfectly aligned with IUPUI's strategic plan as well as the IU-wide Bicentennial Strategic Plans, specifically, it stems from one of IUPUI's goals of developing a culture of innovation and entrepreneurship in ***Student Learning***.

In January 2015, IUPUI hosted an event focusing on the culture of innovation and entrepreneurship with attendance from students, faculty, staff and community partners. The focus was to analyze needs in an effort to help develop a creative culture that focuses on innovation and entrepreneurship at the university. "**Student learning**" was identified as one of the essentials (along with faculty and staff engagement, infrastructure to support, as well as alumni and community engagement) to cultivating innovation and entrepreneurship on the campus.

In an effort to specify "Student Learning" in regards to innovation and entrepreneurship, IUPUI created a taskforce team consisting of faculty who are engaged in project-based learning with extensive experience. As part of the taskforce team, the planning member of the Certificate in Design Thinking for Collaborative Innovation attended the AAC&U Institute on Project-Based Learning in June of 2015. The certificate planning team, informed by the results of the project-based learning workshop, was able to identify the values of a Certificate in Design Thinking for Collaborative Innovation within the context of IUPUI in order to leverage the strengths of the institution, as well as the various forms of experiential learning at IUPUI.

The Certificate in Design Thinking for Collaborative Innovation will support the campus strategic plan for innovation and entrepreneurship by responding to the following critical questions.

- **How can all IUPUI or IU students, regardless of major, be exposed to innovative and entrepreneurial thinking and learning?**

Design Thinking is a transformative, cross-disciplinary way of thinking and acting. The Certificate in Design Thinking for Collaborative Innovation introduces a mindset and the core process skills of creative problem-solving that students can apply regardless of what discipline or field they pursue.

Design Thinking, as a methodology for collaborative innovation, is based on a human-centered approach, focusing on defining the root cause of problems, formulating insight opportunities, and ultimately, aiming to create appropriate solutions that meet complex human needs within their contexts. This human based approach leads students to reflect and align their disciplinary knowledge with purposeful problem-solving practice in larger context. An understanding of Design Thinking will enable students to be aware of impacts of their knowledge in real applications, and to evaluate value of disciplinary knowledge beyond for the betterment of individuals.

- **What types of learning outcomes and opportunities are needed to equip IUPUI students with the competence and confidence to be successful in innovation and entrepreneurship?**

The Certificate in Design Thinking for Collaborative Innovation supports the cross-disciplinary learning approach. Over three semesters, students will master basic concepts of Design Thinking, and learn its methods and inquiry process through experiential project-based learning. In practicum, students apply design thinking process and methods to engage with real world problems in partnership with community members. Students integrate disciplinary knowledge and skills throughout a problem solving process and deepen their domain knowledge in contexts.

Mentoring is a key component in the practicum class and will drive the success of students. The students will create a mentorship panel composed of a primary mentor, a content expert mentor from the same field of expertise as the mentee (student), and a community expert mentor with expertise in the context of the problem.

In designing the practicum project, students as a team will identify a community expert mentor, who will guide them in identifying “unframed” or “wicked” problems, and in securing relevancy of a proposed solution. Students are required to identify not only the community expert, but also stakeholders, who share interest in the identified problem space. Students are expected to recognize assets and the value of stakeholders, to define their roles throughout a creative problem solving process, and to engage actively with stakeholders in order to produce meaningful and impactful solutions.

This series of course activities, which are based on an actual problem setting with people, will generate opportunities for students to develop competence and confidence for change. Many scholars and experts agree that coping with today’s challenges calls for better development of individuals’ abilities to tackle complex mental tasks, going well beyond the basic reproduction of

accumulated knowledge. This certificate will provide opportunities for students to develop key competencies involving a mobilization of cognitive and practical skills, creative abilities and other psychosocial resources such as attitudes, motivation and values.

- **How can existing activities and interventions be leveraged and/or coordinated to support student engagement in innovation and entrepreneurship?**

The pedagogical approach of the certificate is based on collaborative project-based learning, real world challenges, and interdisciplinary research and practice.

The certificate provides *a methodological framework for students* to integrate learning initiatives, such as the LEAP Challenge, civic engagement, and project-based learning in order to solve problems that students identified.

Furthermore, the Certificate in Design Thinking for Collaborative Innovation will support IU's initiative in developing models of interprofessional health education and collaborative practice. Since Fall 2014, the graduate program in Design Thinking and Design Leadership and Center for Interprofessional Health Education have collaborated in developing the course, *Interprofessionanl Healthcare Challenges*, in partnerships with School of Nursing, Fairbanks School of Public Health, School of Informatics, School of Liberal Arts, Kelly School of Business, and Purdue School of Engineering and Technology. The Certificate in Design Thinking for Collaborative Innovation aims to be a valuable curriculum component in this endeavor by providing a methodological frame for interprofessional collaboration.

b. State Rationale

How does this program address state priorities as reflected in Reaching Higher, Achieving More and Indiana Vision 2025?

This program addresses the following state priorities:

Student-centered

The Visual Communication Design Department at Herron School of Art and Design launched a graduate program in Design Thinking and Design Leadership in 2007. The Certificate in Design Thinking for Collaborative Innovation, stemming from this graduate program, focuses on tailoring the curriculum for interdisciplinary learning.

The planning committee conducted a survey with alumni and found a wide spectrum of job placement among alumni: including start-up company founder, patient experience strategist, design researcher for Patient Centered Outcomes, and insight translator in a global consumer company. The record of job placement demonstrates transferability of design thinking in an expanding, new labor market while enhancing values of the existing domain practices across industry sectors.

The planning committee conducted interviews with 49 companies within diverse industrial sectors with the question, “How can we better prepare students for the contemporary professional practice in your domain?” We found widespread consensus among the respondents that individuals are expected to be adaptive, innovative, creative, self-directed and self-motivated in order to meet complex demands. In responding to this need, the certificate in Design Thinking for Collaborative Innovation provides a framework of mind and practice to cultivate three values in their learning: flexibility, entrepreneurship (as the ability to create new opportunities), and personal responsibility.

Workforce-Aligned

Based on the feedback we received from our survey and interviews, as well as considering current workforce trends, it is clear that the potential exists for high demand of practicing professionals with design thinking and innovation knowledge and skills. Design thinking and innovation are crucial knowledge areas for workers who have the ability to lead transformation into value-based and people-centered innovation in various sectors. Graduates have the option to continue working in their professional areas of expertise or create new career paths. Additionally, the certificate will contribute to developing a creative and innovative culture in the state of Indiana (Driver 4 in Indiana Vision 2025) by training a new breed of thinkers and providing professionals with the skill sets needed to initiate and implement innovation challenges.

Degree Production

The state of Indiana aims to double the number of college degrees and certificates currently produced by 2025; this will require increasing annual degree production from approximately 60,000 to 120,000 degrees. The Visual Communication Design Department at Herron School of Art and Design offers a graduate program in Design Thinking and Design Leadership, established in 2007. The program boasts a 60-credit curriculum, to be completed as a full-time student in two years. The 18-credit hour Certificate in Design Thinking for Collaborative Innovation responds to the demands of IU’s current and new students who would like to continue professional practice or other graduate study with the supplemental educational needs in the area of Design Thinking. By increasing access to the field of Design Thinking through the certificate program, the planning team aims to expand the current graduate program as an interdisciplinary learning community that enables students to integrate their disciplinary knowledge and skills to fulfill a shared mission or

challenge. In addition, the Certificate in Design Thinking for Collaborative Innovation, in aligning with the graduate program in Design Thinking and Design Leadership, will build a solid foundation for creating a PhD in Design Thinking for interdisciplinary innovation in the future.

Innovative Delivery Model

- **Interdisciplinary learning community**

The monolithic disciplinary framework of higher education has revealed its limitation in engaging complex societal challenges. Various observers have called for a more interdisciplinary approach for higher education over the last century.

Design Thinking is identified as an engaging process and a methodical framework that integrates diverse domains of knowledge to approach complex, cross-disciplinary problems. It consistently results in solutions that are successful and often creative in unpredictable ways. The certificate will be taught with emphasis on disciplinary diversity and provide a tremendous opportunity for students to integrate their domain knowledge into a collaborative problem solving process.

- **Product to Framework for Change through open-ended inquiry**

Current approaches to Design Thinking in student learning have heavily depended on professional practice that is closely aligned to product-oriented solutions. A number of schools in Business and Engineering have developed design thinking programs or courses by adopting design thinking as a process model for pre-defined outputs. In results, practicality tends to dominate in-depth understanding of human experience. The lack of deep and nuanced appreciation for the complexity of human existence creates a contradiction with the fundamental principle of human centeredness in design thinking practice. The opportunity for real and durable innovation is limited unless we can create an understanding of humanity – specifically in engaging complex and system level challenges such as climate, poverty, and health.

The Certificate in Design Thinking for Collaborative Innovation expands the scope of solution from product to framework – a new way to look at problems– through open-ended, inquiry-based exploration.

Developing the Certificate in Design Thinking for Collaborative Innovation for graduate students (and working professionals with advanced professional practice) will distinguish this program by providing a shared inquiry process in which humanists and scientists can work together on problems that need to be ***deeply understood*** and ***appropriately solved***.

c. Evidence of Labor Market Need

i. National, State, or Regional Need

Thought leading employers like IBM, IDEO, and Cisco are spearheading initiatives to hire “T-shaped professionals.” This concept contends that the ideal employee possesses deep skills in a specialty (the vertical axis of the T) as well as sufficient understanding of a broad range of related disciplines (the horizontal axis) to allow them to see contextual linkages. Thus, they can constructively participate in interdisciplinary teams and continually adapt their visions and their contributions to rapidly changing conditions and needs. Responding to the need for a new type of 21st- century knowledge and skills, Design Thinking has been gaining increasing interest across sectors from industry, and government, to education and has proven its value by producing reliable, innovative results in any field.

The sectors below demonstrate both high demand and growth for “design-led innovation” in job opportunities. The broad spectrum demonstrates the transferability of design thinking in people-centered innovation. Several areas, such as hospitality, education, and healthcare align well with the design thinking concepts of empathy, ideation, and implementation. Organizations in these areas increasingly dedicate resources meant to cultivate this type of thinking among their executives and other employees. The examples are as follows:

- **Government** In government, the federal agency United States Department of Agriculture (USDA) is currently utilizing human-centered design (HCD) to improve their National School Lunch program. The USDA responded to President Obama’s Strategy for American Innovation by partnering with the Office of Personnel Management’s (OPM) Innovation Lab. By creating a multidisciplinary team and implementing human-centered design methodology, the USDA redefined and revamped their application and process to better suit the needs of those who use the application. Additionally, the United Nations and World Bank adopted Design Thinking for Public Service Excellence.
- **Healthcare** Mayo Clinic is a well-known healthcare organization specializing in medical care, research and education. Created in June 2008, the Mayo Clinic Center for Innovation has become a bridge between the medical practice and human-centered design thinking. The primary goal of the Center of Innovation is to transform “the experience and delivery of health and healthcare.” The Center achieves that goal by using Design Thinking to understand the patient experience and by using multidisciplinary teams to make improvements.
- **Business industry** IBM recognizes that good design is good business, and a long tradition backs up that statement. Lately, IBM Design Thinking has gathered design practitioners to identify and ideate on aspects that make a

solution desirable to its users; the Who, the What and the Wow! These aspects become the mission for release(s) and the business requirements for the solution.

- **Social Entrepreneurship** There are active movements in integrating design thinking for social innovation. The Bill and Melinda Gates Foundation launched an online hub for Human-Centered Design for people who are taking a human-centered approach to poverty-related challenges around the world. University of Pennsylvania provides the Design Thinking for Social Innovation online program.

ii. Preparation for Graduate Programs or Other Benefits

The Graduate Certificate in Design Thinking for Collaborative Innovation targets the graduate students at IU and working professionals with several years of teamwork experience. For the IU graduate students, the certificate enhances their ability to engage complex challenges by collaborating across disciplines in a particular context. Thus, the certificate will benefit students who advance their graduate study by integrating new knowledge and skills.

The certificate will also provide working professionals opportunities to consider graduate level training in the current graduate program in Design Thinking and Design Leadership, which will accept graduate credit from this certificate.

iii. Summary of Indiana DWD and/or U.S. Department of Labor Data

- **Transferability of Design Thinking in service innovation**

Design Thinking does not have a specific occupational category. Instead, design thinking as a transferable competency and a cultural framework for innovation has reshaped existing professional practice and created new occupations in the service sector. The service sector or “service-providing industry” encompasses the industries of wholesale and retail trade, utilities, transportation, information, financial and business activities, professional and technical services, education, healthcare and social assistance, government, leisure and hospitality, and miscellaneous services. The Bureau of Labor Statistics (BLS) projects that by 2018, the service sector will employ 131.1 million people. This dominance is expected to increase, with 78.8 percent of total employment being in the service sector. At a global level, the service sector accounts for about 70 percent of employment in OECD economies and continues to grow. For domestic growth as well as for global competition, it is imperative that students are able to lead innovation and create new values in the service sector.

- **Recognition of the field**

Originating from the design methods movement of the 1960s, Design thinking as an emerging field for innovation has gained increasing attention over the decade. The following government initiatives demonstrate the recognized value of Design Thinking for system-level change as well as the future growth of design thinking practice.

The Workforce Innovation and Opportunity Act (WIOA) is a new law that represents a renewed commitment to workforce development with an eye on a future through innovation. The U.S. Department of Labor supports WIOA with \$50.7 million in Workforce Innovation Fund. The Act Now Series was designed to inspire innovation at the local and State levels in achieving customer-centered design (or design thinking) as part of implementing WIOA.

One of the core principles of the Indiana Department of Workforce Development (IDWD) is Innovation – IDWD promotes the spirit of creativity and new ideas that challenge the boundaries of current business practices to initiate improvement. The IDWD understands the importance of teaching creativity and innovation in education and has taken strides to incorporate those concepts as part of their State Plan for Career and Technical Education (FY 2009-2013). The Indiana Career Clusters Pathways is modeled after a national program that provides pathways to careers much like the 16 career clusters of the U.S. Government. One way to achieve this is by using “creative and innovative strategies in the classroom.” State leadership has earmarked funds and other resources to assist with training of educators to stress skills and knowledge in areas that require creative thinking and adaptation of knowledge.

iv. Surveys of Employers or Students and Analyses of Job Postings

The planning committee conducted interviews with 49 companies within diverse industrial sectors with the question, “How can we better prepare students for the contemporary professional practice in your domain?” We found widespread consensus among the respondents that individuals are expected to be adaptive, innovative, creative, self-directed and self-motivated in order to meet complex demands. In responding to this need, the certificate in Design Thinking for Collaborative Innovation provides a framework of mind and practice to cultivate three values in their learning: flexibility, entrepreneurship (as the ability to create new opportunities), and personal responsibility.

v. Letters of Support

N/A

3. Cost of and Support for the Program

a. Costs

i. Faculty and Staff

Adjuncts under the guidance of full-time faculty will be required to launch the program in Fall 2017. As the program grows, there would be a clerical and administrative support needed. After launching, the increase in faculty and staff needs will be covered by increase in revenues associated with new student enrollment.

ii. Facilities

No additional facilities required.

iii. Other Capital Costs (e.g. Equipment)

No additional costs required.

b. Support

i. Nature of Support (New, Existing, or Relocated)

The following university resources are necessary in order to develop, maintain and ensure the quality of the certificate program.

- eLearning Design and Services at University Information Technology Services.
- Learning technologies division of UITS and the campus teaching centers

ii. Special Fees above Baseline Tuition

Existing program and lab fees may apply in addition to Baseline Tuition.

4. Similar and Related Programs

a. List of Programs and Degrees Conferred

• **Similar Programs at Other Institutions**

Ball State University offers a course of design thinking (EMDD 620 - Visual Communication and Design Thinking) in their Master of Arts in Emerging Media Design and Development. Design thinking in this course is taught for media design solutions.

College of Arts and Letters at the University of Notre Dame will launch a collaborative innovation program focusing on product innovation.

There are no existing programs at the other universities in Indiana that are similar to the Graduate Certificate in Design Thinking for Collaborative Innovation.

• **Related Programs at the Proposing Institution**

The Business School at Indiana University South Bend offers a course in "Design Thinking for Managers." Design thinking in this course is taught for managerial decision-making.

There are no existing programs at Indiana University that are similar to the Graduate Certificate in Design Thinking for Collaborative Innovation.

b. List of Similar Programs Outside Indiana

There are four types of Design Thinking related programs or courses: 1. Interdisciplinary approach, 2. Design-led approach, 3. Business-led approach, 4. Engineering-led approach.

1. Interdisciplinary approach:

Stanford University

A leading institution in Design Thinking with offerings in various Courses, Workshops and Certificate Programs.

- **Hasso Plattner Institute of Design or d.school** does not offer any degree or major. Instead, students from any of Stanford's colleges are eligible to take classes at the d.school, which offers courses for graduate and undergraduate students and for visiting professionals.
- **School of Business** offers two online certificate programs for corporate executives: Stanford LEAD Certificate: Corporation Innovation and Stanford Innovation and Entrepreneurship
- **Center for Professional Development** offers four professional certificates. Students can take individual courses or complete 8 courses and earn a professional certificate.

The University of Maryland, The Academy for Innovation & Entrepreneurship

This program is for all 35,000 UMD students, collaborating with all 12 schools and colleges.

2. Design-led approach:

Institute of Design at Illinois Institute of Technology

Offers three master degrees: Master of Design, Master of Design + MBA, Master of Design Methods.

The Stamps Master of Design in Integrative Design at University of Michigan

3. Business-led approach:

The University of Virginia Darden School

Offers the Specialization in Design Thinking and Innovation online program for executives.

Harvard Business School

Offers the course of Design Thinking and Innovation.

School of Business, Portland State University

Offers the course, Design Thinking for Social Innovation and a cluster of Design Thinking/Innovation/Entrepreneurship coursework.

4. Engineering-led approach:

Industrial Liaison Program at MIT

Offers the course, Mastering Design Thinking and Innovation

Design and Engineering at Harvard University

Offers the two-year master program jointly taught by faculty from Harvard's Graduate School of Design and John A. Paulson School of Engineering and Applied Sciences.

c. Articulation of Associate/Baccalaureate Programs

N/A

d. Collaboration with Similar or Related Programs on Other Campuses

Since Fall 2014, the graduate program in Design Thinking and Design Leadership and Indiana University Center for Interprofessional Health Education have collaborated in developing the course, Interprofessional Healthcare Challenges, in partnerships with School of Nursing, Fairbanks School of Public Health, School of Informatics, School of Liberal Arts, Kelly School of Business, and Purdue School of Engineering and Technology. The Certificate in Design Thinking for Collaborative Innovation will be a valuable curriculum component in this endeavor by providing a methodological frame for interprofessional collaboration.

In addition, the certificate courses can be offered as electives in any other graduate program in the IU system and beyond with the approval of those programs and faculties.

5. Quality and Other Aspects of the Program

a. Credit Hours Required/Time to Completion

Credit hours required for the program and how long a full-time student will need to complete the program

The certificate will consist of 18 credit hours and will take three to four semesters to complete. Students must complete the certificate within two years from their admission date. If work or personal conflicts occur during the certificate program, the students may re-enter the program and will receive credit for the previously completed coursework.

Credit Hours Required/Time To Completion, Detail (This should contain the semester-by-semester, course-level detail on the program curriculum, including how long it will take to complete the program, assuming full-time study.)

The certificate will be offered to the current graduates students within the Indiana University System to supplement their disciplinary studies, and to working professionals with bachelor's degree for their professional development. No prerequisite is required.

Intro: Design Thinking for Tackling Wicked Problems/Sensemaking	3.0 credit hours	Fall	Online
Design Methods for Framing Problems	3.0 credit hours	Fall	Online
Design Methods for Ideating	3.0 credit hours	Spring	Online
Design Methods for Prototyping	3.0 credit hour	Spring	Online
Practicum	6.0 credit hours	Summer/Fall	Online or Offline

* If student is in another academic program, they may substitute a related course in that program for 6 credits of practicum. This practicum course will be offered online or offline within their academic program.

b. Exceeding the Standard Expectation of Credit Hours

N/A

c. Program Competencies or Learning Outcomes

List the significant competencies or learning outcomes that students completing this program are expected to master

A competency is “...more than just knowledge and skills. It involves the ability to meet complex demands, by drawing on and mobilizing psychosocial resources (including skills and attitudes) in a particular context.” (OECD, 2005, 4).

Defining “competency” based on the OECD definition, graduates of the Certificate in Design Thinking for Collaborative Innovation are required to demonstrate mastery of the following competencies.

1. Frame of Mind

- Students will be able to engage with ambiguity and uncertainty in a creative problem-solving process.
- Students will demonstrate creative confidence throughout a creative problem-solving process.
- Students will demonstrate keen sensitivity and empathy toward people and contexts, in which problems are situated.
- Students will demonstrate a positive approach to change and opportunity

2. Knowledge Application, Integration and Generation

- Students will demonstrate theoretical understanding of design thinking and be able to utilize their knowledge of design thinking in problem-solving process.
- Students will be able to integrate appropriate disciplinary knowledge and skills throughout a creative problem-solving process.
- Students will recognize values of tacit knowledge and leverage them for problem-solving process.
- Students will advance their disciplinary knowledge and skills through the application of knowledge in diverse problem settings.

3. Creative Problem Solving Process and Process Skills

- Students will be able to apply abductive reasoning to creative problem-solving process.
- Students will be able to lead a context-based problem-solving process with a proactive and adaptable approach.

- Students will be able to recognize and apply appropriate methods to frame problems, generate ideas, and evaluate solutions.
- Students will be able to perform a reflective practice.
- Students will be able to demonstrate effective oral, written, and visual communication skills for facilitating collaborative decision-making.

4. Leadership for Collaborative Innovation

- Students will recognize values of cultural and disciplinary diversity for collaborative innovation and be able to facilitate team processes.
- Students will develop facilitative leadership to empower stakeholders in implementing solutions.

5. Personal and Social Responsibilities

- Students will demonstrate ethical reasoning and action.
- Student will develop foundations and skills for lifelong learning anchored through active involvement with diverse communities and complex challenges.

d. Assessment

Summarize how the institution intends to assess students with respect to mastery of program competencies or learning outcomes.

Student learning evaluation will be competency-based. The certificate, focused on a project-based demonstration of student competencies, aims for mastery of innovative thinking and acting. In each course, the program learning goals will be broken down into smaller, more measurable course-specific learning outcomes that will be assessed through assignments, projects, and examinations. Ultimately, the certificate will implement the Quality Matters standards to assure the quality of the program.

Upon completion of the practicum, the skill assessment survey will be completed by instructor, along with additional questions, exploring the effectiveness of different learning pedagogies. Six months after graduation from the certificate program, a student satisfaction survey will be distributed to alumni with questions addressing how specific skills and knowledge have been applied in their practices.

The following program competencies will be assessed in the specific course with learning outcomes below.

Certificate Learning Goals	Course Evaluation	
1. Frame of Mind	a. Students will be able to engage with ambiguity and uncertainty in creative problem solving process.	<ul style="list-style-type: none"> • Design Methods for Framing Problems • Practicum
	b. Students will demonstrate creative confidence throughout creative problem solving process.	<ul style="list-style-type: none"> • Design Methods for Framing Problems • Design Methods for Ideating • Design Methods for Prototyping • Practicum
	c. Students will demonstrate keen sensitivity and empathy toward people and contexts, in which problems are situated.	<ul style="list-style-type: none"> • Design Methods for Framing Problems • Design Methods for Ideating • Design Methods for Prototyping • Practicum
	d. Students will demonstrate a positive approach to change and opportunity.	<ul style="list-style-type: none"> • Design Methods for Framing Problems • Design Methods for Ideating • Design Methods for Prototyping • Practicum
2. Knowledge Application, Integration and Generation	a. Students will demonstrate theoretical understanding of design thinking and be able to perform their knowledge of design thinking in problem-solving process.	<ul style="list-style-type: none"> • Design Thinking for Tackling Wicked Problems • Practicum
	b. Students will able to integrate appropriate disciplinary knowledge and skills throughout a creative problem-solving process.	<ul style="list-style-type: none"> • Design Methods for Framing Problems • Design Methods for Ideating • Design Methods for Prototyping • Practicum
	c. Students will recognize values of tacit knowledge and leverage them for real world problem-solving process.	<ul style="list-style-type: none"> • Design Methods for Framing Problems • Design Methods for Ideating • Design Methods for Prototyping • Practicum

	d. Students will advance their disciplinary knowledge and skills through the application of knowledge in diverse problem settings.	<ul style="list-style-type: none"> • Design Methods for Framing Problems • Design Methods for Ideating • Design Methods for Prototyping • Practicum
3. Creative Problem Solving Process and Process Skills	a. Students will be able to apply abductive reasoning to creative problem-solving process.	<ul style="list-style-type: none"> • Design Methods for Framing Problems • Design Methods for Ideating • Design Methods for Prototyping • Practicum
	b. Students will be able to lead a context-based problem-solving process with proactive and adaptable approach.	<ul style="list-style-type: none"> • Practicum
	c. Students will be able to recognize and apply appropriate methods to frame problems, generate ideas, and evaluate solutions.	<ul style="list-style-type: none"> • Practicum
	d. Students will be able to perform a reflective practice.	<ul style="list-style-type: none"> • Practicum
	e. Students will be able to demonstrate effective oral, written, and visual communication skills for facilitating collaborative decision-making.	<ul style="list-style-type: none"> • Sense Making and Insight Translation • Practicum
4. Leadership for Collaborative Innovation	a. Students will recognize values of cultural and disciplinary diversity for collaborative innovation and be able to facilitate team processes.	<ul style="list-style-type: none"> • Practicum
	b. Students will develop facilitative leadership to empower stakeholders in implementing solutions.	<ul style="list-style-type: none"> • Practicum
5. Personal and Social Responsibilities	a. Students will demonstrate ethical reasoning and action.	<ul style="list-style-type: none"> • Design Methods for Framing Problems • Design Methods for Ideating • Design Methods for

		Prototyping <ul style="list-style-type: none"> • Practicum
	b. Student will develop foundations and skills for lifelong learning <i>anchored</i> through active involvement with diverse communities and real-world challenges	<ul style="list-style-type: none"> • Practicum

e. Licensure and Certification

Graduates of this program will be prepared to earn the following:

- State License: N/A
- National Professional Certification: N/A
- Third-Party Industry Certification: N/A

f. Placement of Graduates

Describe the principle occupations and industries, in which the majority of graduates are expected to find employment.

Design Thinking does not have a specific occupational category. Instead, design thinking as a transferable competency and a cultural framework for innovation has reshaped existing professional practice and created new occupations. By completing this certificate, Graduates will have the option to continue working in their professional areas of expertise or create new career paths.

If the program is primarily a feeder for graduate programs, please describe the principle kinds of graduate programs, in which the majority of graduates are expected to be admitted.

Upon successful completion of the Graduate Certificate in Design Thinking for Collaborative Innovation, graduates can expect to be admitted into the Master in Design Thinking and Design Leadership. Certificate students will have the opportunity to earn graduate education credits from their successful course completion. The following courses will count towards the 60 credits needed for a Master’s degree.

- Intro: Design Thinking for Tackling Wicked Problems
- Design Methods for Framing Problems
- Design Methods for Ideating
- Design Methods for Prototyping

g. Accreditation

The program will fall under the purview of the National Association of Schools of Art and Design.