1. **Title/Department/College: Master of Science in Product and Service Design, School of Design, College of Imaging Arts and Sciences**

**II. Goals and Justification**

*Goal #1: Academic Excellence and Competitiveness:* The proposed M.S. in Product and Service Design will build on the tradition of academic excellence and strength in RIT’s design programs. RIT’s graduate design programs are consistently ranked among the world’s best and recognized for the integration of design theory with design communication and technical skills in fabrication and prototyping. The proposed program will build on these academic strengths with an emphasis on project oriented design practice. Whereas the MFA is viewed as a terminal degree in the field of design, with an associated thesis, the proposed program will focus on excellence in professional design practice. RIT does not currently offer a complementary graduate level alternative to the MFA. However, many design schools (schools without our reputation and rank) have responded to the demand for design professionals by introducing highly successful Master of Science degrees in industrial design—including the so called MDes degrees and other variants—as a way of providing an educational pathway to design careers that do not require the terminal degree. Universities such as Georgia Institute of Technology[[1]](#footnote-1) , Arizona State University [[2]](#footnote-2), and Carnegie Mellon[[3]](#footnote-3) , among others, offer MS degrees in design. Most of these programs are 3-4 semesters in length and many are project-based rather than thesis-based programs. The proposed program will be unique among these programs by explicitly addressing service design and by focusing on the integration of design thinking with design practice. We also believe it will be unique because of the RIT context in which it resides. A graduate degree of this type, within the context of RIT, opens opportunities for students to combine and integrate many of RIT’s core academic strengths into a design focused degree. To ensure a strong educational continuum, we intend to explore BFA/MS and BS/MS options, and develop pathways for students from the MS to continue into other RIT terminal degree programs, including Ph.D. programs and the MFA.

*Goal #2: Expand opportunities for unique interdisciplinary learning and teaching:* Design is an inherently interdisciplinary field of study and this program is intentionally structured to engage students from diverse academic backgrounds with broadly defined undergraduate experiences in design and related fields. Potential students could have backgrounds in engineering and other technical disciplines with strong disciplinary foundations in “engineering” design or, they may come from more traditional creative arts and design fields. In addition, students with appropriate design management experience could also qualify for the program. The program will expand the practice and impact of design into new fields by building on the foundational knowledge of students from design and other disciplines. Integrating students with diverse disciplinary backgrounds will create a context for interdisciplinary learning that will be developed by actively engaging faculty from equally diverse backgrounds. The service design dimension will naturally engage faculty from business and other service oriented disciplines, such as health care/health sciences, human computer interaction, bio-informatics, industrial engineering, and hospitality management. We believe the service foci, and associated projects, will foster collaboration that currently does not naturally occur at RIT. The product design dimension may be more traditionally familiar in the RIT context and there is already good interdisciplinary collaboration between the school of design and other programs at RIT. The evolution of new processes (such as 3-D printing) and the development of new materials used in product design will create incentive for further expanding interdisciplinary collaboration across a range of RIT programs.

The project orientation of the program will require faculty and program administration to seek out industrial partners to sponsor student projects. We anticipate continuing the School of Design’s rich tradition of engaging industry partners in the development of projects for students in its graduate programs. In fact, we believe the program may appeal to certain industry partners as a vehicle for developing internal design teams who are focused on a particular product or service design challenge. In summary, the program’s focus on project-based professional practice will further foster interdisciplinary collaboration across RIT and with a range of industrial and government partners.

*Goal #3: Expand opportunities for international collaboration and teaching:* As previously noted, programs in the School of Design are among RIT’s highest ranked programs—both nationally and internationally. This reputation has resulted in numerous opportunities to engage and partner with other leading schools of design and with international design firms. In many cases, the academic partners seek to develop joint and/or dual degree programs outside of the MFA. Thus, these international collaborations and partnerships would be better enabled by having an MS degree option that would dovetail with similar MS degrees offered by schools throughout Asia and Europe. International industry partners are increasingly seeking RIT for professional development and continuing education in the field. The time-shortened and flexible format of the proposed program would enable us to engage these opportunities and explore ways to better serve the international design community.

*Goal #4: Enrollment Growth:* Applications to the Industrial Design MFA program currently substantially exceed the number of available openings in the program. A large number of applicants are not sufficiently qualified, nor necessarily truly interested in, a terminal degree such as the MFA. However, many would be qualified for, and would benefit from, the type of professional degree we are proposing. In addition, we believe the new program will expand options for groups of students who are not currently being served by the MFA program. For example, people who are not themselves designers, but who are working in the field of design, could take advantage of the time-shortened and flexible format to attain a career enhancing graduate degree.

**III. New Program Description**

The proposed Master of Science degree in Product and Service Design places emphasis on design practice and the development of the cognitive skills associated with modern design thinking. Through studio and project intensive coursework, students will develop an understanding of the theory, methods, and process of design and its application in product and service development and problem solving. A variety of creative techniques in systems thinking, brainstorming, immersions, storytelling, contextual relevance and empathy, collectively “Design Thinking”, will be used to develop an in depth understanding of the design process, the product/service life cycle, product/service feasibility, branding, and the integration of social responsibility in product/service design. The program will enable students with artistic, technical, engineering, and management backgrounds to study and develop the skills necessary to work in the design field (and related fields) and to successfully engage with designers and the design process.

The general program goals and outcomes include the following:

1. Provide students the opportunity to obtain hands-on experience in design processes, methods and thinking
2. Develop technical and aesthetic competence relevant to the field of product and service design
3. Develop social and environmental awareness
4. Understand the role of design in culture and commerce.

Specific competencies to be developed in the program include:

1. The ability to understand and incorporate a wide range of potential solutions / multiple alternatives in product and service design
2. Develop a comfort with ambiguity (visualize a solution before all elements/info is available)
3. The ability to think abstractly
4. Design thinking, design process (es) with application to products and services
5. Maintain a broad understanding of the whole/ context, as details and elements are added, lost and or rearranged
6. Understand relationships, context and solutions throughout product life cycle(s), from manufacturing, to distribution, use, and end of life.
7. Communicate ideas/solutions in appropriate media
8. Create deliverables that embody their “value” use

The thirty-semester credit hour program is structured around a core of six courses (18 semester credit hours) aligned in three two-course sequences.

1. **Design Studio I & II Sequence:** The Design Studios sequence provides a forum for the analysis of current design (demographic) trends, project centered design experiences, and an applied (hands-on) approach to Design Thinking. Studio projects (assignments) are used as a means to define the practice of design and to apply research methodologies, conceptual development, and contextual relevance of design.
2. **Visualization Communication Sequence:** The visualization communication sequence focuses on developing the skill to generate, visualize and present design concepts, in both analog and digital formats. Assignments will include visual and verbal presentations that synthesize and communicate design development and solutions. Presentations may include various media such as video, print, digital, and verbal.
3. **Elements and Tools Sequence:** This sequence is places emphasis on “thinking and making” and includes an “Elements and Principles” course and a “Tools and Implementation” course. The “Elements and Principles” course is an introductory experience building the visual, verbal and cognitive understanding of three-dimensional design elements and principles. Projects focus on the design processes through the study of abstraction and developing the ability to see, organize, and manipulate (explore) elements to achieve the desired sensory responses. The “Tools and Implementation” course builds from the elements course and focuses on the relationship of materials, manufacturing processes, products and the user. Projects develop the tools and technical skills necessary for hands-on problem solving and three-dimensional communication of design intent. Material selection, engineering, environmental requirements and appropriate production processes are introduced.

**Design Studio I & II Sequence**

*Design Studio 1*: Theoretical and pragmatic approaches to product and service design are analyzed and developed through processes of iteration, re-iteration and empathic exploration. Physical artifacts are created as a means of product and service evaluation. Product/service categories may include: consumer goods, medical devices, equipment, furniture, packaging, health care services, banking and financial services, and information and data services.

*Design Studio II*: Design Studio II continues the design processes of studio I, but extends the scope to human-centered approaches and contextual relevance of concepts, products and systems. Design processes are utilized and concentrate on responsible design practices. Course culminates in a capstone project and presentation. Supporting projects (exercises) may include universal design, and environmental sensibility, project management and product production.

**Visualization Communication Sequence**

*Visual development:* This course is an introduction to drawing objects, three-dimensional space and two-dimensional design principles. Students will understand and use the basics of perspective sketching, mechanical perspective, grids and orthogonal views in both analog and digital formats.

*Design Communication:* Design Communications continues developing visualization techniques, while expanding and utilizing the use of cad, graphic layout (composition, grid systems) and presentation components for effective communication of design concepts and solutions.

**Elements and Tools Sequence**

*Elements and Principles*: Elements and Principles is an introductory experience building the visual, verbal and cognitive understanding of three-dimensional design elements and principles. Projects focus on the design processes through the study of abstraction and developing the ability to see, organize, and manipulate (explore) elements to achieve the desired sensory responses.

*Tools and Implementation:* This course builds from the elements course and focuses on the relationship of materials, manufacturing processes, products and the user. Projects develop the tools and technical skills necessary for hands-on problem solving and three-dimensional communication of design intent. Material selection, engineering, environmental requirements and appropriate production processes are introduced.

The balance of the program is comprised of 12 credits of elective or concentration coursework. Students seeking to develop in-depth understanding of a particular dimension of product or service design would be guided toward a concentration; whereas students seeking to develop breadth would be guided toward series of intentionally selected elective courses.

**IV. Fit With Academic Portfolio Blueprint**

The proposed Master’s program meets the objective of RIT and its goals for new academic programs. As a creative enterprise, the field of design is fundamentally aligned with the University’s goals for expanding scholarship, research and creativity. The proposed program is intended to be a professional degree and will necessarily contribute to applied scholarly and creative work in the domains associated with product and service design. Though initially envisioned as a full-time program offered at the RIT campus, it is our intention to develop flexible and online options that will contribute to the University’s goals for innovative teaching and learning. For example, both the *Visualization and Communication Sequence*, and the *Tools and Implementation Sequence*, would serve as excellent foundations for advanced certificate programs in “Design Thinking” and “Design Management”. Further, we are interested in exploring the development of modularized approaches to the studio sequence structured around focused “workshop-style” intensive sessions delivered at remote sites. The sessions could be mentored through a combination of face-to-face and remote instruction, thereby enabling working professionals to engage in a non-traditional studio experience. The project intensive orientation, and the professional nature, of the program ensure it is grounded in our university goals for experiential learning.

Design thinking and the process of design are inclusive endeavors that strive to incorporate cultural and ethical considerations in problem solving. Thus, the proposed program creates a context for multicultural dialog applied to product and service design problems and will advance RIT goals both for inclusive excellence and international and global education by demonstrating the inherent value of integrating cultural considerations in course and studio instruction. Further, as we have noted, the proposed program will enable unique and exciting international partnerships and collaborations.

The proposed program will build upon existing curricular strengths across a number of programs and will thereby support RIT’s goals for synergy and interdisciplinarity. It is our intention to actively seek faculty collaborations from domain experts to support both projects and the proposed electives and concentrations. Integrating students with diverse backgrounds will create a context for interdisciplinary learning that will be developed by engaging faculty from equally diverse backgrounds. As previously stated, the service design dimension will naturally engage faculty from business and other service oriented disciplines, such as health care/health sciences, human computer interaction, bio-informatics, industrial engineering, and hospitality management. We believe this particular foci, and associated projects, will foster interdisciplinary collaboration that currently does not naturally occur at RIT.

**V. Synergy with Other Programs**

The M.S. in Product and Service Design is synergistic with other programs and activities both within the College of Imaging Arts and Science and in other colleges. Within the college, collaboration with graphic design, new media, crafts and fine arts will be necessary to fully realize our program goals and outcomes. Developing student knowledge of the intangible dimensions of product and service design—such as those associated with brand development and service concept development—will require collaboration with faculty colleagues and programs with domain expertise in these areas. Students seeking to focus on these dimensions of design will be encouraged to take electives in areas such as communications, public relations, marketing, psychology and graphic design, among others. Students with a more tangible product design orientation might seek concentrations and electives in packaging science, sustainable engineering, mechanical engineering, industrial and systems engineering, and manufacturing management. Further, students would be encouraged to develop domain expertise and end-user knowledge by taking coursework in a number of potential disciplines including, but not limited to, hospitality, health care and business. We also anticipate attracting students who are seeking to work in the field of design management who would benefit from coursework in project management and organizational behavior, among others.

**VI. Administrative Structure for New Program**

The graduate program in Product and Service Design would be housed in the School of Design in the College of Imaging Arts and Sciences. It would be administered by the School of Design and initially chaired by Professor Stan Rickel.

**VII. Enrollment Management Expectation:** Enrollment Management has reviewed the proposal and provided estimates of enrollment and statements regarding the impact of the program on enrollment in other programs within the department and college. The following is a direct response from Dr. James Miller, Senior Vice President for Enrollment Management and Career Services:

*Dear Lorraine,*

*Thanks for sharing the concept draft for product design.  As I have advised previously, I believe adding an MS in product design strengthens RIT’s portfolio of graduate programs and enhances brand. Adding a Product Design MS also has far reaching possibilities for future intercollege collaboration that will increase RIT’s appeal globally.*

*Please understand this response is based on a 30 hour campus-based program with a one year completion, a predominantly full-time target population, an assumption of RIT funded aid at 25%.*

*It is unclear whether portfolio will be a part of the admission process for all, or whether portfolio will be required for specific concentrations.  It is clear that there will be some demand from within the existing applicant groups for RIT’s other graduate design programs.  However, introducing this program will not result in a reduction in selectivity or reduction in enrollments in these existing MFA programs.  Future addition of concentrations and effectively coupling with other colleges such as engineering and computing can only drive future demand and enrollments higher than reported here.*

*We do expect demand for admission to come significantly from international markets.* ***Our initial estimate is that 30 full-time students /year******could be expected.  It is possible that this number could be as high as 45-50.****Adding concentrations in future, creating articulations for RIT BS and BFA students to enter the MS program directly, introducing a globally delivered model will only increase future demand and resulting enrollment beyond what is estimated above.*

*Finally for purposes of planning, I suggest using 30 FTE in year one, with 35 FTE  used for each year thereafter.*

*Thanks for sharing this initial draft.  Please feel free to contact Diane Ellison or me if we can be of further assistance.*

*Sincerely,*

*Jim Miller*

**VIII. Impact on Resources including Utilization of Existing Resources and Cost Model Analysis**

The new graduate degree will require additional teaching resources and staff support but the most pressing needs are that of a shop expansion/renovation in the School of Design. Since the design programs have grown, all shops in CIAS are at maximum usage. Adding more students without more shop space would pose a safety risk.

**IX. Conclusion**

We have product design programs that are nationally ranked and are turning away students who have an interest in learning content in this area that would culminate in a degree. These students will be highly employable in many areas of product development with their extended knowledge in the field after obtaining this degree. This degree will provide a fit with our programs as well as with other disciplines across campus. We will need to provide additional space and resources but the overall program will operate at a profit. This degree will help us to raise RIT’s visibility nationally and internationally and offer the degree in the US as well as other countries where RIT has interests.

1. http://www.id.gatech.edu/academics/graduate/mastersid [↑](#footnote-ref-1)
2. http://design.asu.edu/degrees/grad/msd/ [↑](#footnote-ref-2)
3. <http://design.cmu.edu/content/master-design> [↑](#footnote-ref-3)