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Fostering interdisciplinarity in engineering capstone projects: A faculty perspective

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Patricia Verdines works as Engineering Librarian at Ohio State University Libraries since January 2024, building partnerships and collaborations between libraries and Faculty, students and staff at the College of Engineering. In her previous roles, she served during 25 years as a Faculty member at the College of Engineering in a private technical university in Mexico, supervising undergraduate and graduate students' Capstone Projects. Her academic interests include Information Seeking Models, Project-Based Learning, Hybrid Learning Environments and Qualitative Research Methods.

Fostering interdisciplinarity in engineering capstone projects: A faculty perspective

Abstract

The Information Literacy Competency Standards for Higher Education define information literacy as a set of basic skills for lifelong learning, in all academic disciplines, all learning environments, and all levels of education. Several studies suggest that Science, Technology, Engineering, and Math (STEM) majors in higher education must also prepare students to access, explore and incorporate concepts and information from other disciplines as part of senior design capstone courses.

Based on interviews with faculty and the analysis of course syllabi across academic departments at the College of Engineering in a public university, this study describes the need to incorporate relevant information resources and tools to foster the students' learning experiences and professional skills while conducting interdisciplinary capstone projects. It also describes faculty perceptions regarding the nature of successful capstone projects sponsored by industry, and their suggestions to improve the overall assessment process of the capstone projects they supervise.

These results are relevant to guide the design and selection of library resources that enhance access and discovery across disciplines, including patents, engineering standards, project management and technical writing best practices; biomedical, bioengineering and health information; and business information related to entrepreneurship, company, industry and market research. Subject librarians must facilitate access to resources across disciplines and academic departments to help engineering students enrolled in capstone courses to move seamlessly from brainstorming to market research, and from preliminary designs to prototyping, by promoting access to information resources as interdisciplinary as the challenges and perspectives they strive to support.

Keywords: Information Literacy, Interdisciplinary Capstone Courses, Professional Skills, Engineering Education

1. Introduction

Traditional senior design capstone projects in engineering suggest specific phases for a robust design process, such as problem definition, concept generation, preliminary design, detailed design, proof of concept and documentation [1], [2], [3]. Few authors provide guidelines in relation to design standards, fabrication, commercialization and intellectual property regarding the resulting designs and procedures [4]. More recent research suggests that STEM majors in higher education must also prepare students to access, explore and incorporate concepts and information from several disciplines as part of capstone projects [5].

This study was conducted to explore the nature of successful capstone course projects across academic departments. Based on interviews with faculty at the College of Engineering in a public university, the study describes relevant strategies to incorporate information sources and tools across disciplines as part of a preliminary course knowledge base developed to support interdisciplinary capstone courses. It also describes the benefits for engineering students in terms of building partnerships and collaborations with corporate project sponsors from several industries.

These results are relevant to guide the design of information services to enhance access and discovery while creating opportunities to better support faculty and students' information needs related to capstone projects across engineering disciplines.

2. Literature Review

Research on the implementation of Project-Based Learning *(PBL)* has reported improvements on students' learning outcomes in engineering [6], describing PBL as a highly suitable learning method that promotes direct immersion in the field to formulate and conduct real-world projects guided by specific goals, applied across engineering disciplines [7]. Additional benefits related to the implementation of PBL within the engineering curriculum include the development of connections across disciplines while enhancing the development of professional skills [8], [9].

Several studies suggest that STEM majors in higher education must also prepare students to access, explore and incorporate concepts and information across disciplines as part of capstone projects, using PBL [5], [10], [11]:

- Several models for senior design capstone projects in engineering suggest specific phases for a robust design process, such as problem definition, concept generation, preliminary design, detailed design, proof of concept and documentation [1], [2], [3]. Few authors provide guidelines in relation to design standards, fabrication, commercialization, and intellectual property regarding the resulting designs and procedures [4].
- The STEM-Oriented Alliance for Research (SOAR) model, which is an educational model for interdisciplinary project-based learning, suggests collaborations among science, technology, engineering, mathematics, business, and liberal arts curricula, to prepare engineering students for an environment where each can benefit from the knowledge of all [12]. Several studies have also reported the importance of promoting innovation and entrepreneurship in engineering curricula [13].

Previous studies on information literacy have addressed the perspectives of faculty, students, and librarians [14], [15]. Other studies have addressed faculty perspectives on diverse dimensions of their academic endeavors, including research and productivity [16], [17] or selection of course resources [18], [19]. However, there is a need to further explore faculty perspectives regarding the students' information needs and learning experiences as they formulate and develop capstone projects across engineering disciplines.

3. Procedures

There is a tendency in academic libraries to use qualitative research designs to address issues related to information seeking, information use, and communication behavior by information users in natural settings [20]. This study is based upon a descriptive, multiple-case approach focusing on the perspectives and individual experiences of faculty supervising capstone project courses across engineering disciplines; it received an exempt determination from the host university IRB (Study Number 2024E0519, Qualifying Exempt Category: #2b).

The research questions addressed in this study are:

- What is the nature of interdisciplinary capstone projects across engineering disciplines?
- What kind of resources and tools enhance access and discovery of information across disciplines?

The unit of analysis was a capstone course section for undergraduate students supervised by a faculty member at the College of Engineering in a public university. The study included 6 course sections in a descriptive, multiple-case design, where each section included capstone projects conducted from Fall 2024 through Spring 2025. Only faculty members assigned to teach specific course sections offered as capstone projects across academic departments were invited to the study. Faculty accepted the invitation by signing an Informed Consent Form describing the nature of the study, the participation timeline, together with the risks and benefits associated with the study.

The data gathering process included a bibliographic review of previous research, analysis of the syllabus from each course section, and faculty interviews. All interviews were conducted by the researcher using a virtual meeting environment, guided by a qualitative interview protocol (Appendix A). Each interview lasted approximately 45 minutes; both video and audio were recorded and transcribed following standard interview guidelines for qualitative research [21], [22].

The data analysis process included content analysis. The researcher carefully read and manually coded the answers from faculty interviews and information about each course section, to identify emerging themes, descriptions, and assertions relevant to the research questions, based on standard analytic coding procedures for qualitative research [23].

4. Results

4.1 Exploring capstone projects across engineering disciplines

Based on the data gathered in the study, it seems that there are similar capstone course characteristics across sections, while other characteristics seem to be inherent to each engineering discipline (Table 4.1).

All faculty participants supervise capstone courses, collaborate with sponsors from industry or government agencies, and apply diverse project management models, depending on the goal and scope of each project. However, as diverse as those sections can be across academic departments, all faculty participants expressed that a successful capstone project encompasses these criteria:

- It explores and builds on connections across disciplines, combining knowledge from multiple areas.
- It creates value for the project sponsor by improving a system, process, or product.
- It follows all steps in the design and development process, as defined by the course project management model.

- It documents all the steps in experimental designs, modelling, and testing, describing the rationale of expected or unexpected results.

Several course characteristics described by faculty participants and the course syllabi are shared across disciplines. All capstone projects are conducted in collaboration with private industry and/or Federal Government Agencies, including a description of how the Capstone Course Learning Outcomes are mapped with related General Education Bookend Outcomes as defined by the host university, and the ABET Criterion Learning Outcomes [24]. All sections in the study included learning activities promoting the principles of the Kern Entrepreneurial Engineering Network *(KEEN)* initiative at the College of Engineering, including constant curiosity, connections across disciplines and opportunities to create value [25]. Regarding intellectual property and copyright management, all sections described in their syllabi that the materials used in connection with the course may be subject to copyright protection and are only for the use of students for educational purposes, also including an Intellectual Property Ownership Notice, stating that all rights, titles and interests created during or as a direct result of the course are potentially the sole property of the host university.

Faculty participants described diverse course characteristics which are inherent to each academic department or discipline. For example, the number of students enrolled in a course section depends on the type of projects; one section is focused on designing, developing and commercializing biomedical devices in a sequence of two years, resulting in a long-term commitment for biomedical engineering students and a small size for this section. In contrast, another section formulates individual projects related to process improvement initiatives, resulting in a large number of student-lead projects per section.

Faculty F, supervising biomedical engineering students conducting capstone projects during a sequence of four-semesters said: *"I came up with the idea of creating a particular section for capstone projects, and it is called now the Medical Product Development Program. I adapted and created a more robust capstone program that includes senior biomedical engineering students and master's degree students, in a two-year program. So, I do something like a four-semester capstone sequence. This program allows me to go deeper into the Design Process."*

The overall goals and scope of all sections in the study assume the creation of value and innovations for the project sponsors; however, each section applies different approaches regarding the methodology and tools relevant for each discipline. One section conducts experiments with specific materials, other sections conduct interviews and observations in clinical contexts, while others analyze the sponsor current practices on site to identify opportunities for process optimization in the context of a specific industry.

Faculty B, supervising engineering and business students conducting capstone projects during a sequence of two-semesters expressed that: *"Our projects range and scope. We have a few legacy clients that come back year over year and that's centered around consumer product goods. I'm always looking for projects that have both an engineering and a business component to them. Sometimes they weigh a bit heavier on the engineering side. Sometimes they weigh a bit heavier on the business side but always looking for the intersection of those disciplines."*

The phases and milestones to assess the level of progress depends on the goals and scope of each project; one faculty guides students through a Define, Measure, Analyze, Improve and Control (DMAIC) model for process optimization, including measurements and full implementation, while another faculty supervises students guided by an Agile Project Management approach to iterate and finish with a preliminary prototype as a proof of concept. Finally, the criteria used by faculty to assess student performance depends on the Project Management Model guiding the project development within each section; however, all course sections include progress review meetings, client reports, team reports, project documentation, project posters and oral presentations as main evaluation criteria.

Faculty A, supervising individual capstone projects during a sequence of two-semesters asserted that: *"This is a <solo project>, I ask for at least 10 hours per week, it is high profile, it is tough, weekly contact on site, so I ask the students about their course load as well"*.

	Faculty A	**Faculty B**	**Faculty C**	**Faculty D**	**Faculty E**	**Faculty F**
Type of Capstone Course	1 year	1 year	1 year	1 year	1 year	2 years
Type of Capstone Project	Individual projects	Team projects	Team projects	Team projects	Team projects	Team projects
Number of projects per section	25	6	10	15	8	4
Number of students per project	1	5	2-4	5-6	3-4	3
Background of students enrolled in capstone course	Integrated Systems Engineering majors	Honors Engineering majors and Business majors	Electrical Engineering, Mechanical Engineering, Material Science Engineering majors	Aerospace Engineering majors	Biomedical Engineering and Mechanical Engineering – undergraduate	Biomedical Engineering – undergraduate and graduate
Overall project goals and scope	Process optimization in the context of a specific industry	Engineering and business components for a specific company	Experimental design and development for specific materials	Research-based capstone project	Medical device design and proof of concept	Medical device design, development, and testing
Project Sponsor	Private industry Federal Government Agencies	Private industry Federal Government Agencies	Private industry	Private industry Federal Government Agencies Projects suggested by Faculty	Private industry	Private industry
Project Management Model	DMAIC: *Define, Measure, Analyze, Improve, Control*	Value creation process / product development cycle	DMAIC: *Define, Measure, Analyze, Improve, Control*	The CDIO process: *Conceive Design Implement Operate*	Lean Product Design Process: *Identify Invent Implement*	Lean Product Design Process *Identify Invent Implement*

Table 4.1: General description of capstone courses supervised by faculty participants.

4.2 Capstone project strengths, challenges and suggestions by faculty

Based on the data gathered in the study, it seems that capstone courses across engineering disciplines share similar strengths and challenges for faculty and students, while other issues and suggestions for improvement seem to be inherent to each discipline.

All faculty participants emphasized that one of the main benefits of capstone courses in engineering is the opportunity for students to be part of real world, open-ended problems in the context of private industry or federal government agencies, developing close collaborations with their project sponsors, and fostering an interdisciplinary approach to formulating and solving problems. Some faculty mentioned the importance of supervising and coaching students to also develop professional skills, such as leadership, teamwork, project management, and effective communication, while other faculty emphasized lifelong learning skills, advanced group problem-solving, critical thinking skills, and the application of knowledge, research and creativity. All faculty participants also described the importance for students to access, explore, discover and use information relevant to their projects, fostering constant curiosity, connections across disciplines and opportunities to create value, as described by the principles of the Kern Entrepreneurial Engineering Network (KEEN) initiative at the College of Engineering [25].

Faculty D, supervising mechanical and aerospace engineering students conducting capstone projects during a sequence of two-semesters, asserted: *"A hands-on approach to problem-solving is especially true in mechanical and aerospace engineering. It is their chance to actually get hands on and have to deal with all the practical details. It is very easy for my students to solve equations, do the analysis of projects, but having to design a device and actually build it and figure out the details is all new to them. So there's a tremendous amount of learning on the practical side of capstone projects.*

It seems that several challenges for faculty and students in relation to capstone projects are shared across disciplines. All faculty participants described situations in which, for external reasons beyond their control, a project formulated by the sponsor gets cancelled even before the start of the semester. Fortunately, faculty always have back-up projects to overcome such situations. Sometimes it is necessary to redefine and/or reformulate a project goal or scope, which can directly impact the students' and the sponsor's project expectations. Time management and teamwork were also mentioned as professional skills which are very important for students, therefore they constantly encourage and supervise each project in terms of deadlines. In the case of faculty supervising two-year projects, additional challenges were identified, since they include the design, development, and testing of biomedical devices, requiring full commitment and motivation from all participants, both students and sponsors, for two years.

Faculty E, supervising biomedical engineering students conducting capstone projects during a sequence of two-semesters, using the Lean Product Design Process model, considers that the most important benefit regarding capstone projects is: *"The open-ended aspect of the projects, at least for our students. That's the most challenging, but I think it's also the most rewarding. Mainly because our students are typically trained in specific procedures, like "this is what you* *do, this is what you have to do to get the A". They're not so accustomed to real-world, fully open-ended problems that have multiple solutions."*

All faculty participants shared their personal satisfaction at supervising capstone projects and shared the following suggestions to improve the student learning experiences:

- Include an information gateway *(LibGuide)* to access resources across disciplines
- Schedule sessions for in-class review of information resources relevant to capstone projects, including not only access to engineering content such as patents and technical standards, but also access to company research, industry research, market research, leadership and project management.
- Identify AI tools to explore and discover information relevant to capstone projects, to help students connect theories, models, and concepts across disciplines.
- Incorporate information literacy and research skills early in the engineering curriculum.
- Identify information discovery tools for medical device innovation and development.
- Incorporate tools and rubrics to develop and assess student professional skills.
- Incorporate a lifelong learning assignment to comply with ABET certification criteria.
- Additional funding for materials required for experiments and tests.
- Develop stronger and more significant collaborations among faculty and capstone course coordinators to share best practices across disciplines.

Faculty C, supervising engineering students across disciplines conducting capstone projects during a sequence of two-semesters said: *"I wish there was sort of colloquium or something like that either once a semester or once a year where all of those people coordinating and supervising capstone courses got together to exchange ideas. I'm heavily involved in capstone courses, so I would enjoy going to a colloquium like that. I would be willing to bet that we do a few things really well, but I think we probably do some things poorly that could be improved and maybe another department does those things really well and we could learn from them. I think that would be a very valuable way to learn from each other."*

4.3 Towards an interdisciplinary capstone course knowledge base

A summary of the information resources suggested as relevant by faculty supervising capstone courses and their students include:

- **Business news:** provide access to selected sources for financial and business news.
- **Corporate websites:** provide access to websites from companies and/or federal government agencies that will be sponsoring capstone projects for a given academic period. It will provide access to their history, mission, vision, leadership, divisions, services, products, newsroom, events and main clients.
- **Data sets and visualization tools:** provide access to basic definitions, data profiles, statistics, demographics and trends for market research, including national data sets, international data sets and trends, and data visualization tools.
- **Company research tools:** provide access to basic definitions, databases for company research, and tutorials on basic/advanced search strategies.
- **Industry research tools:** provide access to basic definitions, databases for industry research, and tutorials on basic/advanced search strategies.

- **Market research tools:** provide access to basic definitions, databases for market research, and tutorials on basic/advanced search strategies.
- **North American Industry Classification System (NAICS) code search tools:** provide access to basic definitions, its role in collecting, analyzing, and publishing statistical data related to the U.S. business economy, together with search engines to explore by keyword or by classification code.
- **Patents and preprints:** provide access to basic definitions, the role of patents and preprints for research and innovation in engineering, the role of patents and preprints for business, with access to search engines to explore and discover the state of the art in specific areas of interest.
- **Entrepreneurship resources and tools:** provide access to basic definitions, fundamentals of business plans, business models, types of funding, social entrepreneurship, and the role of intellectual property protection for business.
- **Project management models and tools:** provide access to basic definitions, fundamentals of project management models, project priority calculators, effective project management guidelines, tips and tricks for project management in the real world, and best practices for inclusive leadership.

Appendix B shows a sample of information resources and tools approved by faculty participants. Depending on the goal and scope of a capstone course section, a set of information sources and tools can be selected and included in a gateway *(LibGuide)* for faculty and students, enhancing their ability to explore and discover information as an extension of the resources related to engineering disciplines. Appendix C shows a sample of LibGuides with information resources approved as relevant by faculty participants.

Engineering faculty and students pursuing interdisciplinary capstone projects already have the support of the researcher as an Engineering Librarian, but as the goals and scope of their projects evolve, they might need additional support and consultations with librarians across subjects, regarding:

- Advanced search strategies when using business information databases and AI tools
- Training and access to visualization tools for complex data sets and demographics
- Integrating and making sense of search results across business databases regarding company, industry and/or market research
- Conducting company and market research in relation to emerging industry partners and start-up companies

Previous research has reported the interest of subject librarians to participate in diverse programs and initiatives [26], by forming partnerships and collaborations across disciplines [27]. It would be interesting to explore opportunities to identify new library services and tools that further support and enhance the learning experiences of engineering students enrolled in interdisciplinary capstone projects.

5. Conclusions and future research

Project-Based Learning (PBL) has been described as a highly suitable learning method that promotes direct immersion in the field to formulate and conduct real-world projects across engineering disciplines [7], fostering the development of connections across disciplines and enhancing the development of professional skills as great benefits within the engineering curriculum [8, 9]. The main characteristics of PBL are consistent with the nature of successful capstone projects described by all faculty participants, where students explore connections across disciplines, combining knowledge from multiple areas while creating value for the project sponsor by improving a system, process, or product. However, because of the interdisciplinary knowledge and professional skills being developed, assessment of the learning efficacy of PBL as a strategy to design capstone courses will depend not only on the type of projects, but also on the inherent characteristics of each engineering discipline.

Based on the data gathered in the study, a set of information resources and tools has been identified as a knowledge base to further support and enhance the learning experiences of students enrolled in capstone courses. These resources and tools suggested by faculty participants are relevant to guide the design and selection of library resources across disciplines, including patents, technical standards and project management; biomedical, bioengineering and health information; and business information related to entrepreneurship, company, industry and market research (Appendix B).

Subject librarians are key stakeholders in supporting the teaching/learning process and in fostering collaborations by sharing their expertise across disciplines and academic departments. There is a need to facilitate access to relevant information resources so that students conducting interdisciplinary capstone projects move seamlessly from brainstorming to market research, and from preliminary designs to prototyping. Academic libraries must adapt and provide access to information resources as interdisciplinary as the courses, projects, programs, initiatives and perspectives they strive to support [28].

This study describes the nature of interdisciplinary capstone projects across engineering disciplines from the perspective of faculty participants. It is not meant to suggest more general conclusions. Next steps in this study will extend the number of participants to include faculty from other engineering disciplines, and to explore the information needs of faculty participating at the Humanitarian Global Engineering Capstone Course developed in collaboration between the College of Engineering and the Office of International Affairs at the host university.

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Appendix A: Faculty Interview Protocol

Estimated time for interview session: 45-50 minutes.

I. Academic Background

- Can you tell us about your Academic Background?
- Which Academic Department are you affiliated with?
- Do you teach any other classes at the College of Engineering?

II. Experience supervising Capstone Projects

- What kind of Capstone Projects do you supervise?
- Have you supervised Capstone Projects with Faculty across disciplines? How was it?

III. Perception of Capstone Projects

- In your opinion, what are the strengths and challenges of Capstone Projects in Engineering?
- In your opinion, what are the challenges of Capstone Projects in Engineering?
- If you could change something about the current Capstone Projects, what would that be?

IV. Selection and Formulation of Project Goals

- How is the selection process of the topics and goals for each project?
- What resources are available to support the selection and/or formulation of each project?
- Do the students have access to “Previous Research” or “Prior Art” information?
- Do you prefer the formulation of Individual Projects? Why?
- Do you prefer the formulation of Team Projects? Why?

V. Assessment of Capstone Projects

- What are the overall Course Goals and Student Learning Goals in a Capstone Project Course?
- What criteria are generally used to assess student participation and performance in Capstone Projects?
- Do you have specific guidelines for Deliverables or Progress Reports in Capstone Projects?

VI. Other topics

- Is there anything else you want to discuss about Capstone Projects in Engineering?

Appendix B: A sample of information resources and vendors approved by faculty participants

<table>
<tr><th>Topic of Interest</th><th>Business News</th></tr>
<tr><td>Information Type</td><td>Access to selected sources for financial and business news.</td></tr>
<tr><td>Suggested Resources</td><td>Harvard Business Review
EBSCO – Business Source Complete – Harvard Business Review

The Wall Street Journal
ProQuest – Recent Newspapers – The Wall Street Journal

The Washington Post
ProQuest – Recent Newspapers – The Washington Post</td></tr>
</table>

<table>
<tr><th>Topic of Interest</th><th>Corporate Websites</th></tr>
<tr><td>Information Type</td><td>Websites from companies and/or federal government agencies that will be sponsoring capstone projects for a given academic period.
Access to their history, mission, vision, leadership, divisions, services, products, newsroom, events and main clients.</td></tr>
<tr><td>Suggested Resources</td><td>GE Aerospace
https://www.geaerospace.com

Honda Motor Co. Ltd
https://global.honda/en/

Honda Aircraft Company
https://hondajet.com

StarLab Space
https://starlab-space.com

US Air Force
https://www.af.mil</td></tr>
</table>

Topic of Interest	Data Sets and Visualization Tools
Information Type	• Basic definitions • Data profiles • Statistics • Demographics and trends for market research • Data visualization tools.
Suggested Resources	Policy Map https://www.policymap.com The Global Economy https://www.theglobaleconomy.com The World Bank Open Data https://data.worldbank.org US Census Bureau http://data,census.gov

Topic of Interest	Company, Industry and Market research tools
Information Type	• Basic definitions • Databases for company, industry and market research • Tutorials on basic/advanced search strategies.
Suggested Resources	BCC Research https://www.bccresearch..com D&B Hoover's Online https://www.dnb.com/en-us/products/dnb-hoovers.html Mergent Market Atlas https://marketatlas.mergent.com North American Industry Classification System (NAICS) https://www.census.gov/naics

Topic of Interest	North American Industry Classification System (NAICS)
Information Type	• Basic definitions • Collecting, analyzing, and publishing statistical data related to the U.S. business economy • Search engines to explore by keyword or by classification code.
Suggested Resources	North American Industry Classification System (NAICS) https://www.census.gov/naics NAICS Code Identification Tools https://www.naics.com/search

Topic of Interest	Patents and Preprints
Information Type	• Basic definitions • The role of patents and preprints for research and innovation in engineering • The role of patents and preprints for business • Search engines to explore and discover the state of the art in specific areas of interest.
Suggested Resources	Goggle Patents https://patents.google.com Why Intellectual Property is essential for your business https://www.wipo.int/en/web/business The United States Patents and Trademarks Office (USPTO) https://www.uspto.gov/patents Web of Science – Core Collection – Preprint Citation Index https://access.clarivate.com/login

Topic of Interest	Entrepreneurship resources and tools
Information Type	• Access to basic definitions • Fundamentals of Business Plans • Business Models • Types of Funding • Social Entrepreneurship • Intellectual Property Protection for Business
Suggested Resources	Schwab Foundation for Social Entrepreneurship https://schwabfound.org/home Stanford Social Innovation Review: Informing and Inspiring Leaders of Change https://ssir.org/articles/entry/corporate-resposibility-multiracial-democracy# Write your business plan https://www.sba.gov/business-guide/plan-your-business/write-your-business-plan Why Intellectual Property is essential for your business https://www.wipo.int/en/web/business

Topic of Interest	Project Management Models and Tools
Information Type	• Basic definitions • Fundamentals of project management models • Project priority calculators • Effective project management guidelines • Tips and tricks for project management in the real world • Best practices for inclusive leadership.
Suggested Resources	ASEE Engineering Libraries Division – Open Textbooks – General Education https://libguides.lib.fit.edu/OEREng/home BioDesign: The Process of Innovating Medical technology https://ebiodesign.org DMAIC Model Definitions and Tools https://www.morestream.com/toolbox Project Priority Calculator https://www.morestream.com/toolbox/project-priority-calculator

Appendix C: LibGuides with information resources approved by faculty participants

Integrated Systems Engineering majors
https://guides.osu.edu/integrated-lean-sigma-capstone-certification-experience

Honors Engineering majors and Business majors
https://guides.osu.edu/multidisciplinary-engineering-capstone-design-IBE-honors

Electrical Engineering, Mechanical Engineering, and Material Science Engineering majors
https://guides.osu.edu/materials-science-design-and-professional-practice

Aerospace Engineering majors
https://guides.osu.edu/aerospace-engineering-experimental-projects-I-and-II

Biomedical Engineering and Mechanical Engineering – undergraduate students (1 year projects)
https://guides.osu.edu/biomedical-engineering-design-I

Biomedical Engineering – undergraduate and graduate students (2 year projects)
https://guides.osu.edu/medical-product-development-capstone