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Redesigning the Engineering First-Year Seminar: A Holistic Approach to Enhancing Student Transition and Success

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Introduction

The first year of college is a pivotal period for engineering students, laying the groundwork for their academic and professional trajectories. First-year seminar (FYS) courses are designed to support this transition by fostering essential skills and knowledge. Research indicates that well-structured FYS courses can significantly enhance student retention, motivation, academic performance, and engagement [1-7]. This is particularly crucial in the field of engineering, where retention rates have historically been lower compared to other disciplines [8-9]. The challenges are even more pronounced for underrepresented student populations, such as women, African Americans, Hispanic-Latino, and Native-American students, who face unique barriers including socio-economic disparities, inadequate K-12 preparation, and social isolation [8-9]. Studies have shown that these students often experience lower self-efficacy and a weaker sense of belonging, which can negatively impact their persistence in engineering programs [10-11]. According to researchers, well-structured first-year seminar courses permit students to experience a better transition from high school to college, understanding the new expectations and work demands, developing time-management and study skills, particularly for students at risk [12]. Besides, small group seminars facilitate the interaction with faculty and peers creating a community of support leading to a better outcome of persistence and performance [13]. First-year seminars offer also an opportunity to introduce students to professional skills, lifelong learning skills, teamwork, and ethical responsibilities [13-14].

As previously noted, the transition to college is a significant step for engineering students, laying the foundation for their academic and professional journeys. Consequently, the FYS course can play a pivotal role in facilitating this transition and ensuring students' success. The subject institution for this paper is Penn State University, a large, public, land-grant institution in the United State. At Penn State, the lack of a standardized curriculum for FYS courses within the institution's College of Engineering (COE) which has not been formally reviewed in over two decades (a consequence loose sociological coupling [17]) has led to non-uniform first year experiences for students and has also posed challenges for instructors. This absence of standardization means first-year engineering students are not exposed to similar FYS experiences, and new instructors lacked access to minimum standard learning objectives and enduring content for the course.

Recognizing these issues, the Penn State COE established a task force to comprehensively review and redesign its FYS courses. The outcomes of this initiative, as detailed in this paper, resulted in the development of a new FYS model structured around 12 key modules organized into three core themes: identity, possibility, and community. By implementing this redesigned FYS model, the COE at Penn State seeks to provide a similar, enriching first-year experience that equips students with the tools and mindset necessary for long-term success. The pilot implementation of this model in the 2024-2025 academic year, along with subsequent assessments, will inform further refinement and ensure its effectiveness in meeting the needs of engineering students.

Background

The FYS program for engineering students in Penn State has long been a fundamental component of the college's curriculum, aimed at facilitating the transition from high school to university life. Historically, the program has encompassed 19 distinct FYS courses: one generic course for the entire college, 16 departmental courses tailored to specific engineering disciplines, and two special topics courses with varying content. These courses are offered across roughly 50 sections in the fall and 40 sections in the spring, engaging over 50 instructors and serving approximately 2,000 first-year engineering students annually. Despite its extensive reach, the program has faced challenges in providing comparable and cohesive experience for all students, necessitating a comprehensive review and overhaul.

Due to the multiple FYS courses, significant inconsistencies have been identified in the content and scope of these courses. The lack of a unified curriculum has resulted in varied experiences for students, depending on the specific FYS course they enrolled in. This disparity has highlighted the need for a more cohesive and standardized approach to ensure that all first-year engineering students receive a comparable and comprehensive introduction to their studies. The challenge has been to offer a more cohesive experience to the first-year engineering students while maintaining the focus of the discipline-specific courses. The inconsistencies in course content and delivery and the challenge to balance the overall needs of the first-year students and the desire of the programs to offer an experience closely related to the discipline required for a systematic review to address these gaps and enhance the overall educational experience for first-year engineering students.

In response to these challenges, the Penn State COE established a task force with the mandate to review and revamp the FYS program. The task force's objectives included updating the FYS courses to ensure relevance to first year engineering students, standardizing the curriculum to provide a uniform experience, and integrating key themes such as ethics; diversity, equity, and inclusion (DEI); and sustainability into the engineering curriculum. Additionally, the task force aimed to explore innovative teaching approaches and best practices to enhance the overall educational experience.

The task force operated under the guiding principle that first-year engineering students should be well-supported to succeed in their academic pursuits. The redesigned FYS courses were intended to foster engineering student development across five key domains: personal, academic, professional, engagement, and civic. To achieve these goals, the task force employed a systematic model of audit, evaluate, consult, redesign, and implement, ensuring a thorough and collaborative approach to the curriculum overhaul.

Redesign Framework

Task force approach

As illustrated in Fig. 1, The task force was invited to adopt a multi-phase approach to its work, encompassing auditing, evaluation, consultation, design (or redesign), and implementation planning. Each phase is elaborated further below.

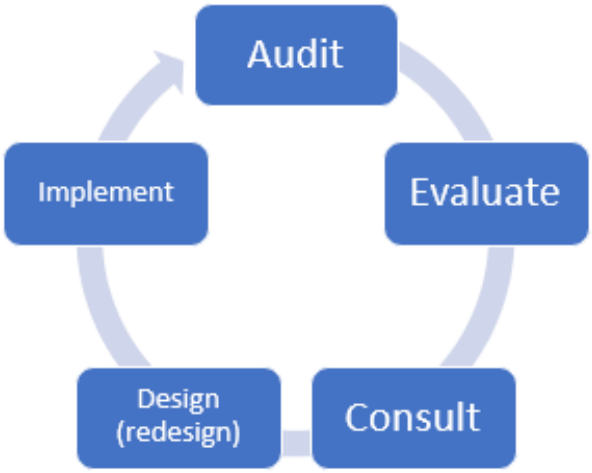

Figure 1. Approach for review process of the task force

- Audit: Conduct an examination of the current state of the FYS courses. Collect, review, categorize, and summarize information about the courses.
- Evaluate: Reflect on and analyze the information based on parameters defined for the evaluation.
- Consult: Gather information from different stakeholders and people with expertise in particular areas. Use surveys, focus groups, interviews, open meetings, and/or other appropriate means.
- Design (and/or Redesign): Create the curricular plan, map goals and learning objectives to course content; and develop course content proposed teaching approach, assessment strategies, exercises, activities, and other learning experiences.
- Implement: Execute the plan and create the proposed curricular modules.

Task Force Considerations

The success of first-year COE students at Penn State remains a top priority. To ensure that all students have equal opportunities, the resulting work products must be accessible and equitable. To achieve this, it is essential to solicit input from various stakeholders, including FYS instructors, administrators, subject matter experts, supportive units, and assessment specialists. By fostering collaboration and identifying necessary technological and operational infrastructure, the task force aimed to develop effective approaches to enhance student success. Additionally, by establishing clear metrics of success and recommending an ongoing assessment process, the task force sought to contribute to the continuous improvement of the FYS program.

First-Year Seminar Students Development Consideration

Understanding that the holistic development of students encompasses growth in different dimensions [15], for the redesign of the first-year seminar, the six dimensions of growth (cultural, physical, intellectual, emotional, social, and moral) were condensed under four dimensions: academic, personal, professional, and civic. In the context of this work, academic refers to the pedagogical experience to build a strong foundation of knowledge and skills essential for students' future careers but also awareness and use of resources to support the educational experience. Personal refers to the development of self-awareness, confidence, emotional intelligence, and resilience, which are crucial for navigating life's challenges. Professional refers to the development of technical knowledge and experiences, professional skills, and awareness of professional pathways. Civic refers to sense of belonging, engagement with their communities, social responsibility, ethical behavior, and good citizenship. Together, these dimensions ensure well-rounded development, preparing students for diverse roles in society.

Survey of the Current College of Engineering First-Year Engagement Environment

A scholarly program evaluation was conducted, and the results were published and presented at the ASEE 2024 Annual Conference [16]. Highlights of that work are presented herein to motivate and contextualize the task force's resulting final work products.

Syllabi Coding Analysis Results

An initial coding of FYS instructor syllabi was conducted by the COE's Leonhard Center for the Enhancement of Engineering Education in October 2021 and shared with the task force. Table 1 depicts the syllabus statements reviewed in the coding analysis and the percentage of instructors who included those topics in their course syllabus. This review found that faculty expectations in FYS sections varied greatly by instructor. It was determined that the extant FYS goals and objectives outlined by the College were not being consistently communicated to students via FYS instructor syllabi. The Engineering Passport to Success, a COE-sponsored collection of assignments which presently represent the only centralized content in FYS courses across all sections, were referenced in only half of the reviewed syllabi. The most common components across most FYS sections included attendance, participation, and at least one out-of-class assignment, which contributed to students' overall grades. The task force recognized these discrepancies as an opportunity to establish a uniform and inclusive exemplar syllabus that FYS instructors could adapt and adopt for their sections in future iterations of the FYS program.

Table 1. Coding of Syllabus Statements Across 26 Instructors

Syllabus Element	Frequency
Included FYS Goal # 1: To engage students in learning and orient them to the scholarly community from the outset of their undergraduate studies in a way that will bridge to later experiences in their chosen majors	4%
Included FYS Goal # 2: To facilitate students' adjustment to the expectations, demanding workload, increased liberties, and other aspects of the transition to college	8%

Included FYS Objective # 1: To introduce students to university study	27%
Included FYS Objective # 2: To introduce students to Penn State as an academic community, including fields of study and areas of interest available to students	46%
Included FYS Objective # 3: To acquaint students with the learning tools and resources available at Penn State	58%
Included FYS Objective # 4: To provide an opportunity for students to develop relationships with full-time faculty and other students in an academic area of interest	46%
Included FYS Objective # 5: To introduce students to their responsibilities as part of the University community	12%
Included reference to the Engineering Passport for Success	54%
Engineering Passport for Success integrated into the syllabus	46%
Grade based in part on attendance	81%
Grade based in part on participation	85%
Grade included at least one out-of-class assignment	88%

FYS Students Survey Results

Experience

In the Spring 2022 semester, COE undergraduate students were surveyed to better understand their experiences in the current FYS program. Students largely rated their FYS course as a satisfying experience. Many students reported experiencing positive personal growth and confidence in their decision to pursue degrees in engineering and computer science. In the open response questions, many students commented that good instructors, guest speakers, field trips, groupwork, résumé development assistance, learning about career paths, and learning about campus resources contributed to a positive learning experience. Extant critiques included a lack of information across all engineering majors and fields, lack of information on future careers (especially those outside of research), and a lack of opportunities for student collaboration.

Workload

To gain the student perspective of workload, the survey asked about the number of hours spent weekly on tasks and assignments for their FYS. The average amount of time spent on assignments was estimated at 1.5 hours per week.

Learning Activities

To explore student engagement within their FYS course, the survey asked students about their participation in various learning activities. Students mostly engaged in discussions, followed by engagement with guest speakers, interactions with peers outside of class time, and groupwork. Some students also attended a student organization meeting or other sponsored events. The smallest number of students reported interacting with their instructor, a faculty member outside of class, or meeting with an academic advisor.

FYS Objectives

Students were asked to rate their satisfaction with their FYS meeting the objectives outlined by the College and their connection to resources related to student success. The students' responses are presented as Fig. 2. Most students agreed or strongly agreed that their FYS helped them to meet these objectives. These results suggested that even if instructors were not explicitly listing the FYS program objectives in their syllabi, students were still achieving the program objectives through FYS course activities.

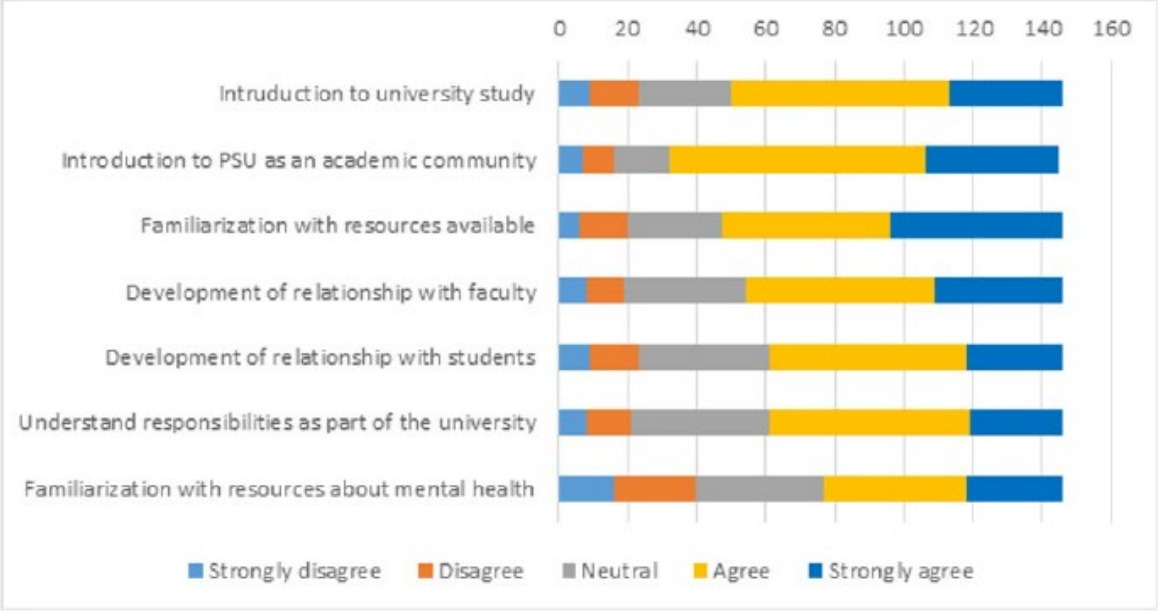

Figure 2. Student agreement for FYS course meeting FYS program objectives (n=146)

The Selected Approach

After due and reflective consideration of proposals for several FYS models (see [16]), the task force chose to adopt a recommendation considered with the foregoing commentary for a continued, albeit reformed, 1 credit FYS mode. Considering the four key dimensions of student development—academic, personal, professional, and civic—and recognizing the pivotal role of student engagement in program success, the task force proposed the development of 12 modules. These modules will focus on core competencies within three crucial areas: Community, Identity, and Possibility, as depicted in Fig. 3.

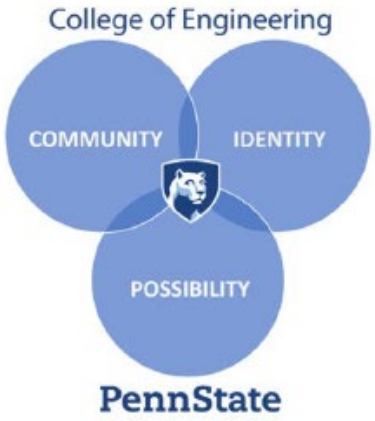

Figure 3. Thematic Components for the Conceived 1-Credit FYS Model

To ensure quality and expertise, the modules were developed by current course instructors and/or subject matter experts. A phased approach is suggested, with 7 modules to be completed by the end of FY24 and the remaining 5 to be developed in FY25. In collaboration with the COE's instructional design unit, these modules will be integrated into the learning management system through a quiz format, streamlining the process for first-year instructors to access and implement shared content.

The modules were structured to provide asynchronous content that can be achieved as an independent activity or pre-lesson to an in-person follow-up class. This allows flexibility for each instructor to implement the content as best suited for their classroom and teaching style while also ensuring the core content is delivered in a clear and consistent format. Additionally, shared resources and in-class suggested follow-up lessons and/or follow-up activities will be available as suggested content for instructors to adopt.

The task force also recommended the creation of a COE Community of Practice centered around FYS courses. This FYS Community of Practice was envisioned not only to support onboarding new FYS instructors but also to foster a community to continue to evaluate, assess, and evolve the created shared curricular content. At a minimum, it was anticipated that the FYS Community of Practice should have a shared resource space and an annual in-person connection event. Finally, a bespoke COE version of World-in-Conversation, facilitated discussions previously offered by another Penn State unit and to be given the name Viewpoints, was proposed for inclusion in the new FYS program.

Implementation Recommendations

To ensure a smooth rollout of the shared curriculum, the task force recommended the following:

- Shared Syllabus Language: The FYS program administrator should provide standardized language to be included in all FYS syllabi. This language will introduce the modules and their importance to student success.

- Standardized Grading: A suggested grading recommendation should be shared with FYS instructors. This recommendation will ensure that students successfully complete the required work in each assessment category, including the Viewpoints conversations, and engineering modules, to pass the course.

- Syllabus Template: A standardized syllabus template should be developed to include the administrator's message and a template for the coursework. This template will serve as a valuable resource for all FYS instructors, particularly new ones.

- Kick-off Event: A "kick-off event" should be organized to introduce the course content and foster a community of practice among FYS instructors. This event will provide an opportunity for instructors to share ideas, ask questions, and collaborate on best practices.

Revised Program Learning Objectives:

The program learning objectives for the revised COE FYS are as follows –

- Identity Learning Objective: As a result of learning about identity, students will be able to describe different aspects of their identity and how those aspects contribute to being a successful college student, healthy adult, and future engineer/scientist.

- Community Learning Objective: As a result of learning about community, students will be able to explore different opportunities to identify spaces and resources where the students feel a sense of community and belonging and begin to create a support network that will contribute to their success at State University and beyond.

- Possibility Learning Objective: As a result of learning about possibility, students will be able to identify their short- and long-term goals and find resources that are available to help them meet those goals.

Module Format

Implementation details for the conceived learning modules are as follows –

Content: Orienting Overview

- Action item
- Reflection question
- Reading/activity
- Quiz
- Back to reflection on outcomes

Content: Elucidation

To ensure a cohesive and engaging experience for each module, the task force recommended structuring the content in a standardized format that includes action items,

reflection questions, reading materials or activities, quizzes, and a final reflective exercise on learning outcomes.

- Action Item: The student should interact with the module in some way. The action item should be a short activity that makes the student interact with the module and briefly introduce them to the topic and associated content.

- Reflection Question: The student should be asked to provide an action or reflection on the first action item built into the module. This reflection item should cause students to pause and briefly reflect on the action item they just completed.

- Reading/Activity: An activity will be selected to facilitate students deepening their learning on the topic. This could be an activity within the module (e.g., a reading) or it could be an activity that causes them to leave the module (for example, visiting a University website, to meet with their academic advisor, etc.)

- Quiz: The quiz is included to cause the student to reflect on the reading/activity they completed and start to demonstrate their learning/understanding of the topic.

- Reflection on Outcomes: The module should conclude with a short reflection question that students complete to demonstrate their current understanding of the module topic. The intent is that course instructors may wish to review the final reflection question to have a snapshot of where students end the module so that the course instructor can tailor their in-person lesson on the topic appropriately.

Module content creators were to write a learning objective for their module (ensuring that it connects with the stated FYS program learning objectives) and to build standardized content modules to facilitate students meeting those objectives. Module completion time was estimated at and targeted for about 30-45 minutes of out-of-class work.

Finally, the twelve learning modules proposed under the three crucial areas of Community, Identity, and Possibility are designed to support first-year engineering students in their transition to college. These modules help students build a strong foundation by fostering a sense of belonging, developing an engineering mindset, and exploring future career pathways.

Module Topics:

Community

- Connecting to Resources – Introduces students to essential academic and personal support services, including tutoring, advising, and mental health resources.
- Student Organizations – Highlights opportunities to engage with engineering clubs, professional societies, and extracurricular activities that enhance leadership and teamwork skills.

- Formative Penn State Experiences – Showcases unique campus traditions, events, and opportunities that contribute to a well-rounded college experience.
- Engineering Library – Familiarizes students with library resources, research tools, and strategies for effectively finding and using technical information.

Identity

- Academic Integrity – Emphasizes ethical academic practices, including avoiding plagiarism, proper citation methods, and responsible collaboration.
- Growth Mindset – Encourages resilience and adaptability by fostering a belief in continuous learning and the ability to improve through effort and persistence.
- Global Engineering – Explores the impact of engineering on a global scale, including cross-cultural collaboration, international challenges, and sustainable development.
- Study Skills – Provides strategies for effective time management, note-taking, test preparation, and balancing coursework with extracurricular activities.

Possibility

- Major Exploration – Guides students in understanding different engineering disciplines, helping them make informed decisions about their major and career path.
- Undergraduate Research – Introduces opportunities for hands-on research experiences, including how to get involved in faculty-led projects and independent studies.
- Career Exploration – Helps students connect coursework with career pathways, including internships, co-op programs, and networking with industry professionals.
- Engineering Ethics – Discusses ethical responsibilities in engineering, covering topics such as professional conduct, societal impact, and technological accountability.

Facilitated Dialogues

Concurrently with the work of the task force, the College worked to create the new Viewpoints curriculum. Viewpoints conversations were envisioned to be high impact facilitated dialogue created *by* engineering students *for* engineering students. Viewpoints conversations will be facilitated dialogues that ask students to consider their identities and allyship through the lens of engineering case studies based on real world contemporary industry examples.

Viewpoints will be a curriculum that continues to evolve to better serve the students' and industry's needs. As such it will be housed in the COE to provide program oversight, evaluation, and continued program improvement. Long-term goals would be that the program eventually has industry and corporate sponsors, to be self-sustaining, and to continually evolving to meet the changing demands of industry. The task force supported the integration of the Viewpoints program into the redesigned FYS as a replacement for the current World-in-Conversation

programming.

Implementation

The COE ran a pilot of seven FYS modules in the Fall 2024 semester. Modules were created in online course management system quizzes shared in a common location. Each quiz was designed to have an action, reflection, and assessment for students to complete within approximately 30 mins. Instructors were able to import shared content to their individual courses and assign sequence of due dates, follow up activities, and course discussions on their own. The 7 available modules and their learning objectives are listed in Table 2.

Table 2. FYS Pilot Modules and Learning Objectives

Category	Module Title	Upon Module Completion, Students Will Be Able To…
Possibility	Professional Engineering Ethics	Identify the primary differences between ethics and integrity, as well as understand role ethics as a part of your professional career.
	Engineering Major Exploration	Realize the variety of engineering majors and minors available at Penn State, create affinity to a specific major(s) or minor(s) of interest, and imagine the possibility of a future career in their specified major.
	Undergraduate Research	Understand the role of research at Penn State. Students will begin to know some of the key areas of research happening in an engineering field of their interest.
Identity	Fundamental Values of Academic Integrity	Identify the *Fundamental Values of Academic Integrity,* as defined by the International Center for Academic Integrity
	Growth Mindset	Define growth mindset, recognize how mindset influences your learning, and utilize at least three strategies to develop or maintain and growth mindset.
	Study Skills	Evaluate the effectiveness of their current study skills and consider additional practices for improving their study habits, understand the importance of metacognition in the learning process, and identify locations on campus that can provide study support.
Community	Student Resources	Research student support resources to understand provided services, align student support resources with need and desired outcomes, build a community of support resources available to access in pursuit of degree.

To introduce the modules and content to FYS instructors across the COE, the FYS task force co-chairs created the FYS Community of Practice and hosted a kickoff meeting. The gathering was to introduce instructors to one another face to face, present the progress and implementation suggestions for the FYS modules, and to share best practices amongst instructors of activities and discussions that have shown success when introducing module topics. The Community of Practice continued to communicate through the semester via a virtual teaming tool which included all instructors teaching FYS for the COE.

Assessment

Upon completion of the Fall 2024 semester, the FYS Community of Practice convened to collect feedback on the pilot's implementation. In small groups, instructors were asked to discuss their experiences integrating the modules into their courses. The feedback can be categorized into the themes of successes, opportunities, and areas of improvement, as seen in Tables 3-5.

Successes

Table 3. FYS Community of Practice Instructor Feedback of FYS Module Successes

Group 1	Group 2	Group 3
Relating topics to real-life examples/experiences	Topics are easy to fit in throughout the semester	Having the modules provided structure
Collaborating within the Community of Practice	Good format as pre-work before starting class	Being able to engage students in these topics
Modules provided structure to class	Gave a good foundation for class discussion	The modules were done well
Versatility of modules to use as precursor or follow-up		Flexibility for use in individual classrooms

The generalized feedback in the module implementation success can be categorized into three main themes of real-world relevance and practical application, structure and flexibility of the modules, and collaboration and community building.

1. Real-World Relevance and Practical Application: Instructors emphasized that the real-world connections of the module content to their classroom make the content more relatable and practical for students. The ability to connect the topics to students' own experiences enhanced their engagement and participation in the modules and classroom discussion, highlighting student shared experiences to enhance community building.

2. Structure and Flexibility of the Modules: Instructors enjoyed that the modules help provide a clear and organized framework to follow. The modules were reported to be effective as either prep work before class begins or as a follow up assignment to reinforce lecture content in a reflective manner. Instructors appreciated that the modules were designed to be completed individually outside of class time so that instructors had flexibility in how they spent their time together in class discussing the topic in their own community settings.

3. Collaboration and Community Building: Instructors enjoyed the modules connecting them to areas of the COE outside of their normal areas. Additionally, the FYS Community of Practice process to launch the modules allowed for connection and community among the COE FYS instructors as they sought to collaborate and improve upon the course materials together.

Opportunities

Table 4. Community of Practice Instructor Feedback of FYS Module Opportunities

Group 1	Group 2	Group 3
Creating additional modules allows for more instructor flexibility	Include alumni in creating module content about future careers	Exploring more 'gray' areas within the modules with topics that are not just 'black and white'
Develop modules/content related to the Kern Entrepreneurial Engineering Network	Craft class assignments that segue from the modules	Collect feedback from students around their experience using the modules
Collect data on pre/post module assessment to measure impact	Create a module topic around teamwork/teaming	Share this feedback broadly across the COE
	Engage fourth year capstone students in module creation	

The generalized feedback in the module implementation area for opportunities could be categorized into 3 main themes of expansion and flexibility of module content, engagement and collaboration in module creation and data collection, and feedback for continuous improvement.

1. Expansion and Flexibility of Module Content: Instructors were interested in further expansion and flexibility of module content. There was a desire for more modules to allow instructors to have greater flexibility in customizing the content to fit their individual classroom needs. Suggestions included developing modules and content that align to the Kern Entrepreneurial Engineering Network and a module centered around the topic of teamwork/teaming. Instructors also expressed appreciation for more direction in how to segue the modules into additional class discussions and assignments to be used in their individual classrooms.

2. Engagement and Collaboration in Module Creation: Instructors recommended new stakeholders to engage in module collaboration and creation. It was suggested to reach out to the alumni network to capture firsthand experiences to share with students on what future careers in their majors of interest could be. It was also suggested that FYS instructors collaborate with graduating students involved in their capstone design projects, creating an opportunity to introduce first-year students to the scope and impact of culminating team design work.

3. Feedback for Continuous Improvement: Instructors were interested in collecting feedback directly from students around their experiencing using the modules. A pre/post module assessment could be considered to track the impact of content delivery and retention. It was recommended to share this feedback within the FYS Community of Practice and broadly across the COE to benefit a wider community and lead to more inclusive learning outcomes.

Areas for Improvement

Table 5. Community of Practice Instructor Feedback of FYS Module Areas for Improvement

Group 1	Group 2	Group 3
Not much direction given prior to teaching for the first time	Functionality within course management system	Content may be repetitive to information provided in other courses and through student affairs
Some student responses for free response were shallow	Ensure course still provides opportunity for community building vs. being too 'scripted'	Encourage participation more strongly across all departments within the COE
Grading of modules was labor intensive	Occasional quality control issues to be fixed by instructors	

The generalized feedback in the module areas for improvement can be categorized into three main themes of course preparation and clarity, content and engagement, and collaboration and participation.

1. Course Preparation and Clarity: Instructors felt there should be additional guidance and support provided for incorporating their modules into their FYS courses for the first time. Grading of the modules in the initial pilot was found to be labor intensive on individual instructors due to the limitations within the course management system. There were occasional quality control issues within the modules that needed to be fixed by individual instructors within their own course implementations.

2. Content and Engagement: Instructors expressed slight concern that some content may be repetitive to information provided in other coursework or campus engagement through student affairs programming. Some student responses for free response prompts were shallow and FYS instructors articulated a need for deeper reflection or analysis in student assignment submissions. Instructors wanted to ensure that one of the FYS foci revolves around community building and engagement rather than standardized content delivery in a "scripted" fashion.

3. Collaboration and Participation: Instructors that participated in the pilot expressed hope that the COE would encourage more widespread implementation of the modules across all units within the COE.

Conclusion

The redesign of FYS courses at the Penn State COE represents a significant step towards enhancing the overall student experience. By introducing a structured curriculum focused on identity, possibility, and community, the new model aims to provide a cohesive and enriching foundation for engineering students. The 12 core modules, carefully selected to address critical aspects of student development, will equip students with essential skills, knowledge, and a sense

of belonging. Additionally, the integration of the Viewpoints facilitated dialogues program will allow students to engage in meaningful dialogues on relevant topics of engineering and society. This will enhance their awareness of varied perspectives, promote respect for differing viewpoints, and encourage the open exchange of ideas. Furthermore, it will facilitate critical discussions on sustainability and other critical issues.

As the FYS curricular implementation pilot implementation continues unfolding in the 2024-25 academic year, assessment and evaluation will continue to be conducted to refine the FYS model and to further ensure its effectiveness. Ultimately, the redesigned FYS aims to provide a transformative first-year experience, empowering engineering students to excel academically, professionally, and personally, and setting the stage for a successful and fulfilling college journey.

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