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Engineering at PSU [Project Proposal]

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PSU Integrated Cluster (IC) Project Funding Process & Proposal Form

Project Proposal Submittal Process: All IC projects requesting funding will require the completion and submittal of three (3) forms:

- ☒ **Project Proposal Form – project scope & outcomes** (*included in this document*)
- ☒ **Project Guidelines Form – reflective document outlining desirable IC project attributes**
- ☒ **Project Budget Form – Excel spreadsheet to facilitate budget planning**

Instructions for Submitting Project Proposals:

- ✓ Download the 3 forms to your computer
- ✓ Complete the forms and save them; including the title of your project in the file name
- ✓ Forward the 3 files via email to the IC Project Manager, Ross Humer rhumer@plymouth.edu
- ✓ Project Proposal will be logged & forwarded to the appropriate IC Guide Team

If not reviewed in advance of the submission, it is important to discuss the Project with the IC Guides to review, refine, and rework (if necessary) to obtain funding approval.

Project Funding Review Process: All proposed projects will be reviewed by the Cluster Guide team. Depending on the level of funding amounts being requested, the proposal request will follow the process outlined as follows:

- **Level 1:** Any project with a proposed budget of less than or equal to \$1,000 can be approved by the Cluster without additional review
- **Level 2:** Any project with a proposed budget of \$1,000 but less than \$5,000 can be approved by the IC Project Review Team, which is made up of representatives from each of the 7 Clusters (*see release time exception directly below*)
- **Level 3:** Any project with a proposed budget of \$5,000 or greater **or** requires faculty release time, must be first endorsed by the IC Project Review Team and submitted to the Academic Deans for review and approval

The project funding approvals are limited to one academic year; projects which require additional funding in subsequent years will need to be resubmitted annually for review and approval.

Deliverables: At the conclusion of the academic year, a deliverable to the Integrated Cluster Proposal Review Team and Academic Deans is required in order for the project director/coordinator, artist, or author and collaborator(s) to be eligible for future funding. This reporting requirement may be met by numerous means which will be identified as this process matures. It is anticipated that awardees will present their works before a wide public gathering to be scheduled during the upcoming Academic Year.

Instructions for the PSU Integrated Cluster Project Proposal Form: Please complete all of the elements of the following form in the spaces provided before saving and then submitting the document.

PSU Integrated Cluster Project Proposal Form

Title: Engineering at PSU

Project Leadership: (Identify Project Director/Manager or Co-Manager/s Paul Wilson

Project Description: This project seeks funding to develop an Introduction to Engineering course to offer at PSU. We envision a three phase process; **the first phase seeks funding through this request.**

PHASE ONE: The Math Department will host this course, although we expect the course to be highly interdisciplinary in nature. A part-time faculty member will develop and formally propose the course, most probably as what is currently categorized as a Scientific Inquiry Directions course. We have connected with an Engineer in the near community who is willing to work on the course. (THIS FUNDING REQUEST FOCUSES ON PHASE ONE.)

PHASE TWO: We will pilot and assess an Introduction to Engineering course within the Exploration and Discovery cluster. Potential connections with environment, meteorology, business, mathematics, history, and philosophy are probable. These will be developed depending on the particular background of the course developer and the preference of the disciplines involved.

PHASE THREE: We will assess and seek permanent status—if appropriate—for an Intro to Engineering course within Gen Ed, perhaps offering multiple sections.

Project Goals and Outcomes:

- 1. Project Goals – Briefly identify and describe the objectives of this project**
Offer PSU undergraduates an Introduction to Engineering course as part of Gen Ed.
- 2. Student Learning Outcomes – Outline the expected student learning outcomes**
 - Learn how engineering integrates knowledge and practice across disciplines
 - Engage a specific engineering challenge, perhaps in an open lab setting
 - Work with multiple disciplines and external partners to show knowledge applied to work
 - Help students draw connections between existing PSU disciplines and courses

Rationale and Impact:

Considering the questions below, please write your project rationale and impact statement.

Include how this project will further the Mission and Vision of PSU with respect to 1) fostering collaboration across disciplines; 2) addressing a relevant societal issue, and 3) establishing relationships with community partners, external institutions, companies, non-profits, schools, government agencies, etc. and 4) Making an impact

Commented [CC1]: While #1 is well-addressed below, #'s 2-4 are not please do address below.

How does this proposed project advance the Integrated Cluster mission and vision? How does this project facilitate high impact teaching and learning, cross disciplinary collaboration, student engagement and partnership involvement, and real world problem exploration? What are the anticipated impacts of this project?

Is this project an extension of work already in progress, or an entirely new endeavor? Does it integrate with areas that team leaders are already teaching or is it an opportunity to delve into unfamiliar content or a bit of both?

Commented [CC2]: Please address some of these below

Project Rationale and Impact Statement: Engineering, broadly thought of, is applying knowledge to practice across disciplines. Though Plymouth does not have an Engineering major or department, many disciplines address engineering challenges in mathematics, business, computer science, chemistry, biology, physics, meteorology, society, politics, history, literature, theater arts, and the environment—to name just a few existing fields at PSU with a connection to engineering. An understanding of the “Engineering Thought Process” and what “Engineers” do would add a necessary dimension to the depth and breadth of the education we offer. This course would add depth by providing an opportunity to explore in some detail what “engineering” means as both an academic and applied field. The proposed course would add breadth to the curriculum by expanding the horizons of PSU students beyond existing majors in a way that is demonstrably connected to a variety of disciplines. What’s more, Engineering could be an exciting and sought-after piece of the “certificate” plan for better connecting and organizing General Education courses. This initial “Phase One” funding would allow us to hire a part-time faculty with partnership and practical connections to allow PSU students new opportunities in their education, in business, and in the community. Project will also provide a unique opportunity for PSU to apply for and attain STEM funding grants and support. Engineering is an important and relevant aspect of societal development. How and why certain projects and problems are addressed (from an Engineering standpoint) remain at the heart of many solutions. For example, the Engineering challenges and costs of Northern Pass have become inextricably bound up in the politics of the project

Commented [CC3]: I can see how this addresses the “interdisciplinary” aspects but do not see rationale for “societal issues, establishing community partners, and specific “impacts”. Please provide just a little bit of rationale on these, as appropriate.

itself (buried or above ground). Just in the energy market alone, we could also look at the Engineering challenges associated with wind power: siting issues, construction issues, maintenance, power production (differing across designs), relation of design to environment (aesthetics, environmental impact—threat to wildlife alone-- , and footprint). Note the aesthetic and societal connections fostered by the sculptures of the late Kenneth Snelson, who “fused art, science and engineering.” One could also look at design, practice, siting, and architecture in light construction, the single largest industry in PSU’s part of NH. It would be hard to think of an industry, when taken as a whole, with more of an impact on lakes, tourism, politics, economics (think tax base disparities), and justice. How we engineer and govern engineering has a direct and long-term impact on how societies and environments (and, in particular, New Hampshire) thrives or does not. Every architectural firm, every septic design company, every light construction endeavor, every state civil engineering project, every university building project is a potential partner. PSU engineering students in this first humble offering will not solve all these problems—but this course will introduce PSU students, for the first time in many cases, to the engineering thought processes involved no matter what their major or ultimate occupation. We honestly cannot think of a higher impact technical course we could offer when thinking of our most convenient and closest regional partnerships.

Project Team PSU Project Participants (essential core team participants including faculty and staff)

Name	Position/ Title	Project Role	Discipline/ Specialty	Email
Paul Wilson	Mathematics Faculty	PI	Math/Engineering	pcwilson@plymouth.edu

Elliott Gruner	English Professor	AI	Aero Engineering/Statics	eggruner@plymouth.edu
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Commented [CC4]: Dr. Gruner is not listed on the Budget Request from – please list him as AI there as well; also please provide emails here.

Non-PSU Project Participants (stakeholders; partners; academic institution; etc.)

Name	Organization	Project Role	Discipline/ Specialty	Email
New Hampshire Society of Professional Engineers	NHSPE	Consulting Partner	Engineering	
UNH	Departments of Mechanical Engineering, and Civil and Environmental Engineering	Consulting Partner	Mechanical, Civil, and Environmental Engineering	
Selected Partner	Engineering Firm	Teaching/lab opportunity	Engineering	

Student Participant Profile (Identify the student population/s to be engaged in the project. Identify if this has been or is planned to be incorporated into curricula)

Class/ Student Organization/ Individuals	Role in Project	Academic Level (Undergraduate or Graduate)	Academic Discipline	Total Student Population
Cohort of interested students	Enrolled in Gen Ed	Undergraduate	Varied/Interdisciplinary	30 for pilot, Potentially many more if brought to scale

IRB (Institutional Review Board) Compliance

IRB Compliance: <http://www.plymouth.edu/office/institutional-review-board/>

- This project DOES NOT require IRB compliance
- This project DOES require IRB compliance (*complete below*)

IRB Approval Status:

IRB Approval Date:

Any funding approvals of IRB-required projects are contingent on obtaining IRB approval.

Project Management: Timeline and Milestones

Identify the timeline for the project including start, completion, and major project milestones. A closing report will be required as a part of the project funding process.

Project Start Date: 1/23/2017

Project Complete Date: 5/12/2017

Project Milestone	Milestone Description	Target Completion Date
Phase one	Course Development	5/12/2017
Phase two	Course Pilot	12/15/2017
Phase three	Course adoption and scaling	5/18/2018