Purdue's Engineer of 2020

2009-2010 Seed Grant Program – Request for Proposals
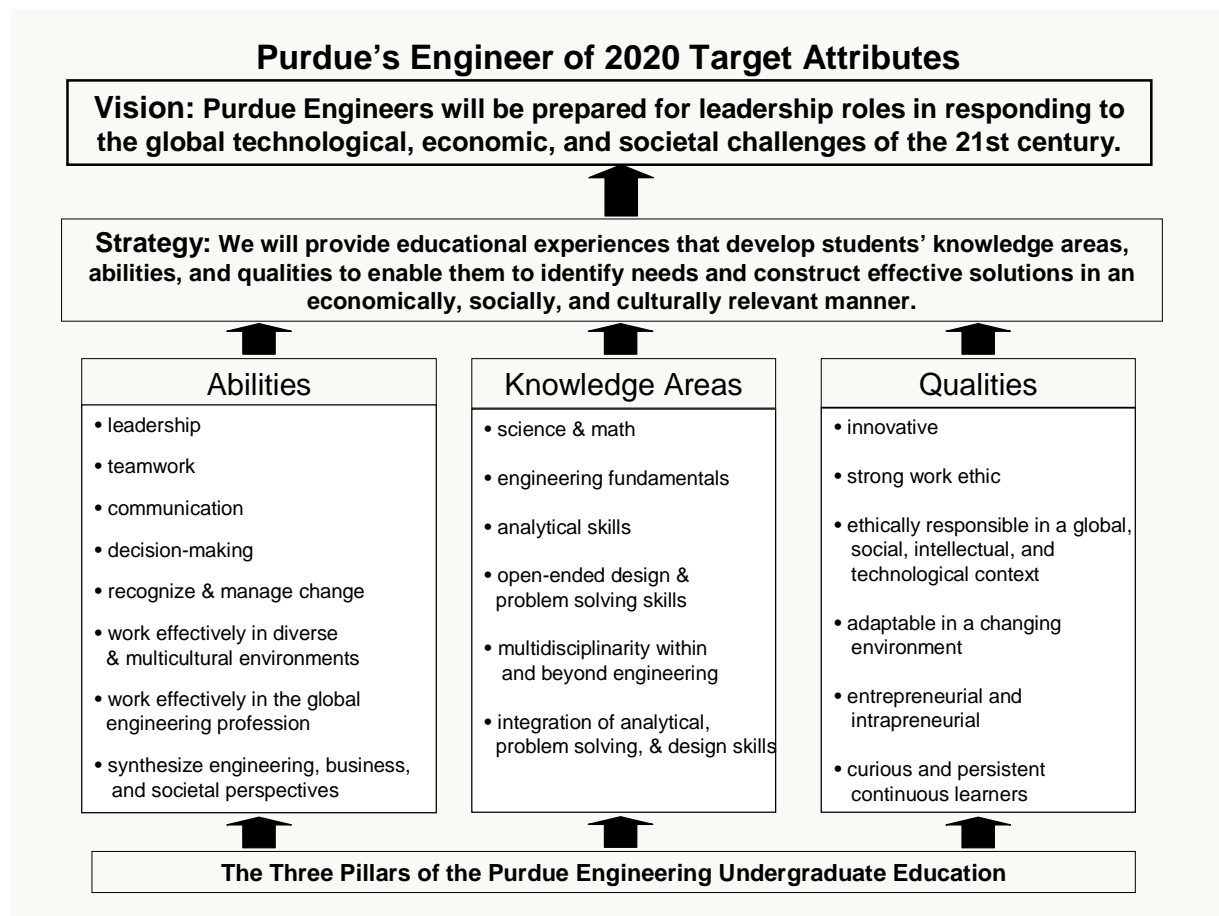
Submission Deadline: December 8, 2008.

Motivation

Purdue has a long and widely recognized tradition of educating high quality engineers, and intends to sustain that tradition. Recent national and international trends, validated by surveys of our own graduates, indicate that what is required of an excellent engineer now has evolved from past expectations (primarily solid technical skills). The attributes that characterized industry and alumni demands of engineering education in the 1970s-1980s (when Purdue was an unquestioned leader in undergraduate engineering education) have changed substantially in the past two decades. In essence, industry is seeking "renaissance engineers" who not only are technically competent, but who also have wide interests and are experts in several areas.

Objectives and Program Philosophy

Our primary program objectives are to solicit innovative proposals that will: 1) accelerate the effective and sustainable development of the target attributes of the Purdue's Engineer of 2020 in our graduates (see target attributes listed below), and 2) to foster collaboration across the College in this endeavor including broad dissemination and uptake of effective teaching and learning strategies that will achieve the goals of the Purdue Engineer of 2020.

Purdue's Engineer of 2020 Target Attributes

Vision: Purdue Engineers will be prepared for leadership roles in responding to the global technological, economic, and societal challenges of the 21st century.

Strategy: We will provide educational experiences that develop students' knowledge areas, abilities, and qualities to enable them to identify needs and construct effective solutions in an economically, socially, and culturally relevant manner.

Abilities

- leadership
- teamwork
- communication
- decision-making
- recognize & manage change
- work effectively in diverse & multicultural environments
- work effectively in the global engineering profession
- synthesize engineering, business, and societal perspectives

Knowledge Areas

- science & math
- engineering fundamentals
- analytical skills
- open-ended design & problem solving skills
- multidisciplinarity within and beyond engineering
- integration of analytical, problem solving, & design skills

Qualities

- innovative
- strong work ethic
- ethically responsible in a global, social, intellectual, and technological context
- adaptable in a changing environment
- entrepreneurial and intrapreneurial
- curious and persistent continuous learners

The Three Pillars of the Purdue Engineering Undergraduate Education

Proposal Invitation: We are pleased to invite proposals for the 2009-2010 Seed Grant Program to conduct pilot studies in any areas related to the development of one or more of the target attributes. Funding amounts up to a maximum of $40,000 for one year can be requested. We anticipate funding five grants to help launch new initiatives to achieve the goals of the Engineer of 2020. These grants will not be extended past the one year anniversary of the award acceptance date.

It is planned that a new competition at a similar level will be held each year for the next several years.

Proposal Requirements: A 5-page (maximum including figures) project description (11 pt. font or larger) that includes:

- Objective of study
- Background literature to establish the need for and significance of the proposed project
- Evaluation plan including approach, implementation methods, expected results and assessment methods
- Plan for dissemination of findings within College of Engineering

In addition, the proposal must include (not included in the 5-page limit):

- Literature cited
- Budget and Budget justification
- 1-2 page Biosketch for each PI similar to NSF's format requirements
- A complete list of Current and Pending grants for each PI

Criteria for Assessing Proposals:

- Significance of the proposed project in relation to current knowledge
- Grounding of the proposal in current theories and knowledge on teaching and learning
- Potential impact of the work (its ability to embed the new attributes in all CoE graduates)
- Potential to gain significant funding beyond the seed grant

If you have previously received an Engineer of 2020 Seed Grant, please state the impact of that work and the funding subsequently sought.

Reporting Expectations: Awardees will be expected to submit a short mid-year report (typically in the form of a poster at next year's Workshop), a final report (due by the end of May 2010), and present results at a relevant conference and on campus. Applicants are strongly encouraged to use the results from this pilot study to seek more substantive funding to continue their work on a broader scale.

Submission Deadline is December 8, 2008. Electronic submissions can be sent to lhiggins@purdue.edu or hardcopies send to Associate Dean Mike Harris, attn. Engineer of 2020 Committee, ARMS 3007.

Announcement of Winners will be on or before January 23, 2008. The proposals will be reviewed by the Engineer of 2020 Committee and selections will be made on projects with potential for future funding or high risk projects that identify novel and important directions in this field of study. The proposals will be judged on their intellectual merit and their broader impact.

Purdue's Engineer of 2020
2009-2010 Seed Grant Program
Purdue University

Project Title:

Total Budget Requested:

Target Attribute(s) to be studied/implemented:

PI Information:
Name:
Email:
Department:
School:
Campus address:
Phone number:
Fax:
Department Head Name:
Department Head email:

Co-PI Information:
(Duplication information for each supporting faculty member)

Name:
Email:
Department:
Campus Address:
Campus Phone:

Essential Elements of the Proposal:
Your proposal must include/address each of the elements (A-H) described below.

A. Project Description:
The goals of these seed grants are to conduct foundational research that can lead to longer term projects. Below, please insert a project description (5 pages maximum including figures and tables) that outlines a long term research objective and how the outcomes of this project support the progress toward that objective. In your project description you should include:

- Objective of study
- Background literature to establish the need for and significance of the proposed research
- Evaluation plan including approach, implementation methods, expected results and assessment methods
- Plan for dissemination of findings within College of Engineering

B. Timeline and Implementation Strategy
Insert summary of your implementation strategy as well as a timeline that specifies major milestones for the project, a midpoint and an end date for its completion (~1/2 to 1 page)

C. Personnel Requirements
Please indicate the portion of FTE that each faculty member will dedicate to the project

Faculty member	Summer 08	Fall 08	Spring 09

D. Budget
The budget worksheet is provided to assist you in developing your budget. You may fill this out and paste it directly into your proposal.

Faculty/Staff Member Funding Please indicate the funding (dollars and time) you are requesting for the grant for this project)			
		Grant funds requested	
Faculty/Staff Name:	% Time	Fringe Benefits	$$
Subtotal Faculty/Staff Funding		$ 0.00	$ 0.00

Graduate Students				
		Grant funds requested		
Type of position	% Time	Insurance + Fee Remit	Fringe Benefits	$$
Subtotal Graduate Student Personnel		$ 0.00	$ 0.00	$ 0.00

Undergraduate Student Funding *Please indicate the student resources (funding and time) you are requesting from the grant for this project.*			
		Grant funds requested	
Type of position	Hrs/week	Fringe Benefits	$$

Subtotal Undergraduate Student Personnel			

Equipment $ Software Funding
Please list all specialized equipment and software required for the project. (Do not include standard computer equipment and commonly-available software, e.g. Microsoft Office, Microsoft Windows). Mark whether any of the equipment or software is provided by the department. (Note that only 10% of the funds can be used to purchase equipment and it needs to be dedicated to the goals of the project.

Name of Equipment	Funds Requested
Subtotal Equipment	$0.00
Name of Software	
Subtotal Software	$0.00
Other miscellaneous items (Computer media, cables, etc)	
Subtotal miscellaneous	$0.00
Other expenses	
Subtotal other expenses	

E. Budget Justification

F. References

G. PI Biosketch (1-2 pages following similar format used for NSF grants)

Submission Deadline is December 8, 2008. Send this application along with the biographical sketches by either an electronic submissions to **lhiggins@purdue.edu** or hardcopies send to

Associate Dean Michael T. Harris,
attn. Engineer of 2020 Committee,
CoE Dean's Office, ARMS 3007

You will receive an email confirming receipt of your application materials.