https://engineering.jhu.edu/doctor-of-engineering/admissions/proposal-guidelines/

Research Proposal Guidelines

Doctor of Engineering applicants are required to submit a Research Proposal as part of their application. The research laid out in the proposal needs to be of importance to the applicant' s employer as it forms the basis for the collaboration between Johns Hopkins Engineering and your company/agency.

The research proposals are evaluated both by your prospective advisor (who will have expertise in your subject) as well as the Doctor of Engineering Oversight Committee (who have backgrounds spanning many different areas). You need to write a proposal that is appropriate for both audiences. That is, you need to provide an overview of your research goals that is broadly understandable to someone who is not knowledgeable in your field and also a deeper discussion for someone with the appropriate expertise.

Please use this Research Proposal Template for your application.

1. SPECIFIC AIMS

1 page maximum

- Start with a hook
- State the problem and its significance
- Describe your new idea or novel approach to solve the problem in sentences
- Describe specific research aims that allow you to enable your approach (typically 2-3 aims)
- State impact of this thesis if aims are successful

2. RESEARCH STRATEGY

6 pages maximum

A. SIGNIFICANCE (1/2-1 page)

Does the project address an important problem or a critical barrier to progress in the field? Is there a strong scientific premise for the project? If the aims of the project are achieved, how will scientific knowledge, technical capability, and/or engineering practice be improved? How will successful completion of the aims change the concepts, methods, technologies, services, state of the arts, practices or implementations that drive this field?

- State background of the problem and significance in more details
- Make the reader appreciate the challenge of the problem you wish to solve
- Describe prior art and its limitations
- Describe how a solution will have high impact in the field

(Good practice to summarize or bullet the reasons for significance at the end of section)

B. INNOVATION (1/2-1 page)

Does the application challenge and seek to shift current research or engineering paradigms by utilizing novel theoretical concepts, approaches or methodologies, instrumentation, or practices? Are the concepts, approaches or methodologies, instrumentation, or practices novel to one field of research or novel in a broad sense? Is a refinement, improvement, or new application of theoretical concepts, approaches or methodologies, instrumentation proposed?

- State the innovation or innovations of your study
- Make the reader appreciate that these are new ideas
- Show how your innovations address limitations of prior art (contrast with prior art)

(Good practice to summarize or bullet the innovations at the end of section)

C. APPROACH (4-5 pages)

Are the overall strategy, methodology, and proposed analyses well-reasoned and appropriate to accomplish the specific aims of the project? Provide initial thoughts on how to break the problem down in each aim. A detailed plan is not necessary. Answer the following questions:

What do you see as the significant technical challenges to this work?
What are your initial thoughts toward meeting those challenges?

REFERENCES

You may use this word document as a template

The project you propose should require depth and creativity. The results you plan to obtain should have impact beyond a narrowly focused problem.

We recommend that you use the questions articulated in the Heilmeier Catechism as a guide to creating an engaging, successful proposal.

1. What are you trying to do? Articulate your objectives using absolutely no jargon.
2. How is it done today, and what are the limits of current practice?
3. What' s new in your approach and why do you think it will be successful?
4. Who cares?
5. If you' re successful, what difference will it make?
6. What are the risks and the payoffs?
7. How much will it cost?
8. How long will it take?
9. What are the midterm and final "exams" to check for success?

Please note that you need not address all of these questions, but they provide a helpful framework for preparing your proposal.

Finally, we want to know about prior research experience and including that as an appendix to your proposal is most welcome.