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# 1. Program Overview

## *1.1. Program Description*

Today's engineers face complex problems that require interdisciplinary approaches. Industries are particularly interested in interdisciplinary graduate education that emphasizes both breadth of knowledge and depth in a particular field. The Ph.D. in Interdisciplinary Engineering (PhD.IE) is a unique thematic doctoral program designed specifically to meet these needs.

As compared to traditional engineering doctoral programs, which specialize students in one engineering area, the PhD.IE transcends the boundaries of traditional engineering disciplines, creating an educational experience that serves as a strong foundation for exciting, rewarding research and development careers in industry, government, and academia.

The program takes advantage of unique resources and strengths from all six departments in the Southern Polytechnic College of Engineering and Engineering Technology to provide students with opportunities to work on interdisciplinary research in Intelligent Robotic Systems, Smart Infrastructure, Biomedical and Health Systems, and Innovative Materials, and to contribute to groundbreaking research, new technologies, and innovative solutions that can transform lives.

## *1.2. Program Mission and Highlights*

The PhD.IE provides students with opportunities to work across multiple disciplines in a subject area that extends their knowledge base outside their core undergraduate expertise to equip them with a well-defined research expertise in a subject area and a broad-based expertise in technological innovation.

This program differs from other doctoral engineering programs in four ways:

i.

# 3. Admission

## *3.1. Admission Requirements*

3.1.1.

Systems or Smart Infrastructure or Biomedical and Health Systems or Innovative Materials).

iv. **Resume** – Documented relevant engineering or project management experience (preferably research focused) after earning B.S. degree or Professional Engineering license will strengthen the application.

v. **Letters of recommendation** – Three (3) letters of recommendation from academic or professional contacts; at least two (2) recommendation letters must be from an academic contact.

vi. **English proficiency (International students only)** – Official TOEFL or IELTS Scores (exemption of the TOEFL or IELTS test is determined by the

iii. The Program Director reviews the Program Committee recommendation and provides the final decision on admission to the Office of Graduate Admissions.

# 4. Financial Aid

## *4.1. Overview*

The PhD.IE program is primarily an externally funded program. Students enrolled in the PhD.IE program conduct meaningful research with societal impact at the forefront of engineering innovation and technology. Most projects are externally funded through federal grants and contracts, and provide most admitted eligible students with a Graduate Research Assistantship (GRA) consisting of a stipend and a tuition waiver. Doctoral students are also encouraged to apply to externally funded grants and fellowships.

## *4.2. Graduate Research Assistantship*

### 4.2.1. Description

4.2.1.

GRA is the term used at KSU to refer to graduate assistantships that work on campus in research-related positions. GRA students gain the experience of working alongside faculty members on cutting edge research. Gate Ri -0.034 A,<1.tu9en15 Td [( 0.006n)10 ( nund)9.

### 4.2.3. Graduate School Policy

To continue the assistantship, the student must maintain good academic standing and an acceptable job performance. However, should a student's grade point average (GPA) fall below 3.0 (academic warning), the student will have one semester to improve and return to academic good standing before the assistantship is terminated. Ss tercm (er) (c)13.9

# 5. Program Requirements

## *5.1. Dissertation Committee*

The Dissertation Committee is responsible for administering the Candidacy Exam, Dissertation Proposal Defense, and Dissertation Defense.

By the end of the first year of study, the student, in consultation with the Dissertation Advisor, should select a Dissertation Committee of at least five members, including the Dissertation Advisor, who will serve as the Dissertation Committee Chair.

### 5.1.1. Dissertation Advisor

The Dissertation Advisor serves as Chair of the student's Dissertation Committee and directs

### 5.1.3. Dissertation Committee Approval Procedure

i. As soon as the members have been identified iw 12 Dissertation Committee, the Dissertation Ad12sor the stu[(t)2 ent should p48.040pa48.040 a Gra.7h2 (uat)12 (e F)5 (ac2)691ulty Ap7h2 (poi)6.1 (nt)12 (m)-3.1040nt form for all Disser without this status (including the external members of the Dissertation Committee). On the Gra.u[(t)2ate Fac2691ulty [(t)2Status for Exte[(t)2 ent 2691ulty Cdate form (https2//www.kennes2.edu/gra.uate/.7h2 (oc)4 (s)4 (/)2 (ex)14 (t)2 (er)7 (na notifi [(t)2 can[(t)2 cin12691ite dissertation Dissertation Committee Appro12691al Form **Dissertation Committee Appro12691al Form** **e12691ent member can no longer ser12691e on the Dissertation Comm** **unforeseen circumstances,a suitate replacement must be fou[t)2nd,a[** **student must submit a new** Dissertation Committee Appro12691al Form

## *5.2. Recommended Timelines*

Stud[(t)2ents [(t)2a0[(t)2 ca[(t)2 12691isors [9.9 (ar)7 (e s)3.9 (t)2 (r)7 (o0[(t)2gl)6 (y)4 ( enc)14 (our)7 meeting prograt milestones (see **A- 1 Rec2-5 (om)8 (m)-2 (e)-5 (nde)-5 (d )-10 (E)-4 (x)5 (a)-5 (m)-2**

x **Milestone 3 –** Within completion of 60 credit hours in residence*, the student is required to present the Dissertation Defense.

### 5.2.3. Consequences of not meeting Milestone Deadlines

If a student fails to meet a milestone:

i. financial support, including GRA and tuition waiver, from any University source may be stopped;
ii. in the following summer, the student may not be permitted to register for graduate or dissertation research hours;

until the student is in compliance with the objective of the milestone.

For any exceptions that would delay the required program milestones, the student may petition to the Program Committee.

## *5.3. Program of Study*

Students must complete the Program of Study Form (see **B-2 Program of Study**) under the supervision of their Dissertation Advisor and in coordination with their Dissertation Committee. The purpose of the Program of Study is to design an appropriate program to meet the specific needs of a given student in his or her chosen research area as determined by the Dissertation Committee. Ideally, a tentative plan should be formulated by the end of the first semester of study. Failure to comply with this requirement may jeopardize further course registration.

After being signed by the student and Dissertation Advisor, the form must be submitted to the PhD.IE Program Director for final signature. Once the form has been approved and signed by all parties, the student is responsible for entering their program of study in DegreeWorks (

- The thesis relates to work conducted in an engineering field

# 6. Degree Coursework Requirements

## *6.1. Program of Study*

To obtain the Ph.D. in Interdisciplinary

including engineering education, patents, intellectual property, self-awareness and personal SWOT, and entrepreneurship.

**ENGR 8120 Advanced Engineering Mathematics** (3 credit hours)
Prerequisite: admission to the Ph.D. in Interdisciplinary Engineering
This course covers analytical and numerical analysis methods that can be used to solve engineering problems. Topics may include linear algebra, systems of ordinary differential equations, complex analysis, Laplace transforms, numerical methods, partial differential equations, and probability and statistics.

## *6.3. Elective Course Requirement*

Elective credit, selected with the Dissertation Advisor, is required to ensure depth and breadth of an interdisciplinary engineering degree. Elective courses may consist of any graduate-level courses offered at Kennesaw State University or another accredited graduate-level institution.

Note: Credits from a graduate-level directed study (ENGR 8850) may count toward elective credits if the content or topic of the directed study involves research or work that is substantially different from the regular dissertation work. The content or topic can be adjacent or related to that of the dissertation but cannot be the same. The content must be determined jointly by the instructor and student prior to being submitted by the instructor to the Registrar for approval at: https://www.kennesaw.edu/registrar/faculty-resources/index.php

## *6.4. Research Credit Requirement*

To satisfy the research requirement, the student must complete a minimum of 36 credit hours of research, among which at least 15 credit hours must be from ENGR 9900. Prior to passing the Candidacy Exam, the student may register for Graduate Research credits. After being admitted as a Ph.D. Candidate, the student may register for Dissertation Research credits.

**ENGR 8860 Graduate Research**
Prerequisite: Permission of the advisor
This course will result in a research paper, grant proposal, or scholarly project developed under the guidance of a graduate engineering faculty.

**ENGR 9900 Ph.D. Dissertation Research**
Prerequisite: Admission to the Ph.D. in Interdisciplinary Engineering, and permission of the Program Director
This course includes dissertation writing under the direction of the Dissertation Advisor. The course is taught using a non-traditional format of independent research and preparation of the doctoral dissertation.

Notes:

- ENGR 8860 is encouraged from the first semester to develop research skills that will be applied to the student's dissertation research.
- Students should register for ENGR 9900 only after admission to candidacy.

- Students must have taken at least 15 credit hours of ENGR 9900 in order to schedule their Dissertation Defense

## *6.5. Concentration Course Requirement*

The purpose of the concentration course requirement is to provide the student with a strong and interdisciplinary technical skillset in the chosen research concentration area. To satisfy this requirement, the student must complete the sequence of four courses listed below for his/her concentration area:

### 6.5.1. Intelligent Robotic Systems

**MTRE 810**

integrates the classical fundamentals of dynamics and state-of-the-art engineering applications.

### 6.5.2. Smart Infrastructure

**CE 8201 Advanced Transportation Planning** (3 credit hours)

physiological modeling, and the science and engineering concepts associated with these topics. The course also provides a glimpse of emerging trends in biomedical and health systems engineering such as neural engineering, data-driven healthcare and drug delivery systems.

**ENGR 8310 Biomedical and Health Systems Modeling** (3 credit hours)
Prerequisite: admission to the Ph.D. in Interdisciplinary Engineering
The course introduces the student to a representative set of models used to study biological, medical, and health systems phenomena. Topics covered may include computational fluid dynamics (CFD), finite element analysis (FEA), fluid-structure interaction (FSI) modeling, statistical regression and Monte Carlo simulation.

**ENGR 8320 Systems Pathology and Pathophysiology** (3 credit hours)
Prerequisite: admission to the Ph.D. in Interdisciplinary Engineering
The course provides an overview of the physiology and pathophysiology of various systems in the human body, and describes the implementation of engineering approaches and techniques for understanding function, disease and therapeutic design. It covers the basic terminology of the disease process and disease etiology, and provides basic descriptions of diagnostic methods and treatment modalities. The topics and systems covered may include cellular processes, musculoskeletal function and disease (osteoporosis, joint disease), aging, inflammation, cancer biology and treatments, cardiovascular physiology and pathology (atherosclerosis, thrombosis, aneurysm, heart valve disease, congenital heart disease), and neurobiology, degenerative diseases and neuropathies.

**ENGR 8330 Biomedical Device Design and Development** (3 credit hours)
Prerequisite: admission to the Ph.D. in Interdisciplinary Engineering
For decades, biomedical products and devices have been an enormous aid in saving and improving patients' lives and are vital components of any healthcare system. Nonetheless, biomedical product design and development is a complex process that involves the interplay of science, design principles, and FDA design regulation. This course introduces structured integrative methods focusing on biomedical product design and development activities from entrepreneurship and interdisciplinary perspectives. The integrative methods facilitate problem-solving and decision making among people with different disciplinary perspectives, reflecting the current industry toward designing and developing products in cross-functional teams. The course will cover biomedical product design and development steps, from conceptualization to design to manufacturing to regulatory approval and commercialization.

### 6.5.4. Innovative Materials

**ENGR 8400 Electronic and Optical Properties of Materials** (3 credit hours)
Prerequisite: admission to the Ph.D. in Interdisciplinary Engineering
This course describes how electronic and optical properties of materials originate from their crystal structure, molecular structure, interatomic bonding, and defect structures. It also covers how these properties can be designed for electronic and

## 6.6. Course Schedule

Doctoral courses are typically offered in the Fall and Spring semesters. The typical course schedule is given below*.

| Course number | Name | Fall (odd) | Spring (even) | Fall (even) | Spring (odd) |
|---|---|---|---|---|---|
| | **Core Courses** | | | | |
| ENGR 8001 | Research Seminar | 9 | | 9 | |
| ENGR 8002 | Research Methods | 9 | | 9 | 9 |
| ENGR 8004 | Proposal Development Workshop | 9 | | 9 | |

# 7. Degree Research Requirements

## 7.1. Overview

In addition to the coursework requirements described in Section 6, the student must also pass a number of research milestones and examinations consisting of: 1) the program qualifying review (only for students entering the program with a B.Sc.), 2) the candidacy examination, 3) the proposal defense, and 4) the dissertation defense.

## 7.2. Program Qualifying Review

### 7.2.1. Purpose

The objective of the Program Qualification Review is to evaluate the student's knowledge and skills acquired in the early stage of the doctoral studies, and the student's progress toward its dissertation research.

Note: The Program Qualification Review is required for all students entering the program with a B.Sc. Students entering the program with a M.Sc. are exempt.

### 7.2.2. Eligibility

Before registering for the Program Qualification Review, the student must have:

i. an approved Program of Study on file;
ii. an approved Dissertation Committee Approval form on file;
iii. an approved Request for Program Qualification Review Form on file;
iv. completed at least six (6) credit hours of graduate research and twelve (12) credit hours of coursework in the PhD.IE program

### 7.2.3. Examination Format

#### 7.2.3.1. Program Qualifying Review Committee

The Program Qualifying Review Committee is comprised of the Dissertation Advisor, one member of the Program Committee and is chaired by the Program Director.

#### 7.2.3.2. Examination Content

The Program Qualifying Review consists of an assessment of the student's early academic performance and research progress as documented by the completion and approval of program documents, the submission of a Research Progress document and a Coursework Progress document, and an assessment from the Dissertation Advisor.

### 7.2.4. Required Action

The student must complete and submit a Request for Program Qualification Review Form (see **B-4 Request for Program Qualifying Review**)

### 7.3.2. Eligibility

Eligibility criteria differ for students entering the program with a B.Sc. and those entering with a M.Sc. Usually, students entering with a B.Sc. will register for the Candidacy Examination before the end of the second year of study. Students entering with a M.Sc. and who transfer graduate credits will typically register for this Examination before the end of the first year of study.

Before registering for the Candidacy Examination, the student must have:

i. an approved Program of Study on file
ii. an approved Dissertation Committee Approval form on file
iii. an approved Request for Candidacy Examination Form on file
iv. a Record of Program Qualifying Review on file (Qualifying Review waived for students with a M.Sc. degree in engineering or closely related field).
v. completed at least two (2) concentration courses and twelve (

#### 7.3.3.4. Oral Exam

The oral exam takes place approximately two weeks after the written exam. The duration of the oral exam is determined by the Candidacy Examination Committee. No presentation is prepared by the candidate, rather the committee members immediately begin with questioning. Questions asked are in regards to the written answers prepared by the candidate, the synopsis of the proposed research area, and/or the coursework completed by the student.

#### 7.3.3.5. Committee Attendance

While all committee members are expected to attend the oral examination on site, members who are external to KSU may attend remotely. In this case, it is the responsibility of the student to arrange for the streaming of the oral examination and provide online access to the remote committee member.

In the event that a committee member becomes unexpectedly unable to attend the oral portion of the examination, the oral examination should take place on the initially scheduled date with the other committee members. The student should then arrange a one-on-one meeting at a later date with the committee member who did not attend the oral examination. The committee member will then communicate their vote to the Dissertation Advisor.

#### 7.3.3.6. Examination Deadlines

The student submits a request for the Candidacy Examination to the Dissertation Advisor for submittal to the Program Director. This should be done at least 6 weeks prior to the expected oral examination date. Along with the request, the student will submit a five-page, double-spaced description of a proposed area of research.

Within one week after the request, the student's description of the proposed area of research will be distributed to the Candidacy Examination Committee by the student's Dissertation Advisor.

Committee members have until three weeks prior to the oral examination date to construct a series of questions and submit them to the Dissertation Advisor.

Three weeks prior to the scheduled oral examination, the Dissertation Advisor assigns three selected questions to the student.

Two weeks prior to the scheduled oral examination, the student submits his responses to the Dissertation Advisor, who distributes them to the members of the Candidacy Examination Committee.

### 7.3.4. Required Action

The candidate must complete and submit a Request for Candidacy Examination Form (see **B-6 Request for Candidacy Examination**) to the Program Director no later than 6 weeks before the scheduled oral examination. The dissertation advisor and Program Director must sign this form. Along with this form, the candidate must submit a five-page double-

### 7.3.5. Examination Outcome

Based on a composite evaluation of the student's written and oral components of the examination, the Candidacy Examination Committee determines the student's capability to continue his or her doctoral studies.

At the conclusion of the oral component, the committee will decide on one of three outcomes:

- pass
- did not pass, repeat exam or part thereof after strengthening specific areas of weakness
- fail

The deliberations and vote concerning the outcome of the exam take place immediately following the oral exam. The examination outcome requires a two-third (2/3) majority of all members of the examination committee for pass and fail. Any other vote results in a repeat of the exam or part thereof.

When the Candidacy Examination is completed, a Record of Candidacy Examination Form (see **B-7 Record of Candidacy Examination**) is signed by all members of the examination committee and forwarded to the Program Director.

Committee members must provide personalized feedback to the student by completing a feedback form (see **B-8 Candidacy Feedback Form**). The completed forms should be collected by the Dissertation Advisor and emailed to the student and the Program Director, along with the completed Record of Candidacy Examination within one week after the examination.

### 7.3.6. Repeat of Candidacy Examination

If the outcome of the first Candidacy Examination was "repeat exam or part thereof after strengthening specific areas of weakness," the student may submit another request for a Candidacy Examination. This request is to be submitted no earlier than three months and usually no later than one semester after completion of the first attempt. Only one repeat of the Candidacy Examination is permitted.

## *7.4.*

iii. completed at least three (3) concentration courses and fifteen (15) credit hours of graduate/dissertation research (for students entering with a B.Sc.); at least two (2) concentration courses and twelve (12) credit hours of graduate/dissertation research (for students entering with a M.Sc. and with 12 hours of graduate transfer credits)

### 7.4.3. Required Actions

The candidate must complete and submit a Request for Proposal Defense Form (see **B-9 Request for Research Proposal Defense**) to the Program Director no later than 30 days before the scheduled defense. The Dissertation Advisor and Program Director must sign this form. Along with this form, the candidate must submit a one-page Microsoft Word document including the following information:

i. Student's name
ii. Advisor's name
iii. Dissertation title
iv. Date and time of Proposal Defense
v. Loc <</MCID 19 >>e. (a)gTj 0 Tc  0 Td [(A)-3 (d)-4 ()-4 (l)cpefense/MCID 11 (e)] (t)2 (R0u6

Reqe36(91B)(7 s)4087 (m)7 (,)22 8Ÿa1.5h2Ä12½+,B Œ çß&dæn ¦ ÄÀÿò¢ A ÖÀiSá ! § ƒ

7.4.4.4. Oral Exam

The defense is a scheduled and announced public event. Any person may attend. However, the deliberations of the Dissertation Committee are private. On the day of the defense, the examination begins with a short presentation by the candidate outlining the problem chosen, the procedures and methods to be used, the work already completed, and the additional work proposed to be completed for the Ph.D. degree. This part is open to the public. At the end of the presentation, the Chair of the Dissertation Committee moderates questions from the audience. Following the public portion of the examination, the Chair of the Dissertation Committee asks the audience to leave the room.

responsibility of the student to arrange for the streaming of the oral examination and provide online access to the remote committee member.

In the event that a committee member becomes unexpectedly unable to attend the oral portion of the examination, the oral examination should take place on the initially scheduled date with the other committee members. The student should then arrange a one-on-one meeting at a later date with the committee member who did not attend the oral examination. The committee member will then communicate their vote to the Dissertation Advisor.

#### 7.5.5. Dissertation Defense Outcome

At the conclusion of the private examination, the committee excuses the candidate and deliberates on the results of the defense in private. The members of the Dissertation Committee sign a Record of Dissertation Defense Form (see **B-13 Record of Dissertation Defense**) and the Dissertation Advisor announces one of four decisions:

- **x** The candidate passed the final examination and the dissertation is accepted as submitted.
- x The candidate passed the final examination, but the dissertation will not be accepted and signed by the committee unless various specified corrections and revisions have been made.
- x The examination is temporarily adjourned. The candidate must revise the dissertation, complete any additional independent study or research required by the Dissertation Committee, and be examined again. The second examination must take place within six months of the first.
- x The candidate failed and will not be readmitted to another examination.

Committee members must provide personalized feedback to the student by completing a feedback form (see **B-14 Dissertation Assessment Form**). The completed forms should be collected by the Dissertation Advisor and emailed to the student and the Program Director, along with the completed Record of Dissertation Defense within one week after the examination.

## *7.6. Dissertation Submission*

Students are responsible for the formatting and submission of their final dissertation to the Digital Commons by final g4 (om)7 (ple )]TJ
dissn.si gbw (a)-6 (l )]TJ 0 0 Tc (ef)2 ()10 l4.6 (b)4 (mi)-4.3 (ssi)i

# 8. Dissertation Format Guidelines

## 8.1. Overview

To graduate in any given semester, the doctoral dissertation must be submitted electronically to Digital Commons by the grade submission deadline. This section sets forth minimum requirements to be followed to ensure that the dissertation is consistent in both style employed and format selected. All dissertations must pass a format check and receive program approval at least two weeks prior to being submitted to Digital Commons. Failure to follow the formatting guidelines may result in graduation delays.

Microsoft Word templates and pre-formatted pages are available in a different document titled “Dissertation Pages” available in the Team-PhD.IE Student Portal on Microsoft Teams.

## 8.2. Sections of the Dissertation

The prescribed order is given below. Dissertations that do not follow the prescribed order will be rejected for improper format.

Preliminary pages:

- Title page
- Approval sheet
- Dedication (optional)
- Preface (optional)
- Acknowledgements
- Table of contents
- List of tables
- List of figures
- List of symbols or abbreviations
- Summary

Body:

- Parts
- Chapters
- Sections and subsections

End pages:

- Appendices (optional)
- Bibliography (or references)
- Vita (optional)

## *8.3. Preliminary Pages*

### 8.3.1. Title page

Dissertation titles containing formulas, symbols, superscripts, Greek letters, or other nonalphabetical symbols should use word substitutes for those symbols Id

- Leave three blank lines. Type listings and page numbers.
- Page numbers should line up flush right. For example, the “9” in page “79” should line up with the “9” in page “129.”
- The titles of the chapters or sections, and at least the primary and secondary subdivisions should be listed. They must be worded exactly as they appear in the body of the dissertation.
- Leave one blank line between all main title entries (e.g., Dedication, Acknowledgment, List of Tables, Chapter Headings). For subsections, it is allowable to use either zero or one blank line between entries, so long as the work is easily readable.
- Any wrap-around text should be single-spaced.
- All materials that follow the table of contents must be listed in the table of contents, including lists of tables and figures, appendices, and references. Do not list the table of contents and its corresponding page number on the table of contents.

### 8.3.6. List of Tables

- Continue numbering all pages consecutively.
- The appendices may be divided into APPENDIX A, APPENDIX B, etc., depending on the type and amount of material used.
- Each appendix may have its own cover sheet.
    - For each cover sheet type “APPENDIX A,” “APPENDIX B,” etc., centered at the top of the page.
    - Leave one blank line and type the title of the material.
- Appendices must meet paper and margin guidelines.
- Each appendix and its title should be listed separately in the table of contents.
- Tables and figures in the appendices must be numbered, captioned, and listed in the list of tables or list of figures.
- All materials used in the appendices must be distinct, legible, of professional quality, and conform to margin guidelines.
- Include letters of permission for use of copyrighted materials in a separate appendix.

### 8.5.2. References

Any thesis/dissertation that makes use of other works, either in direct quotation or by reference, must contain a reference listing of these sources.

- Type the heading “REFERENCES,” centered at the top of the page.
- You may use LITERATURE CITED or BIBLIOGRAPHY instead of REFERENCES, if that is the convention in your discipline. Whichever you use, use the same terminology in the table of contents.
- Leave three blank lines. Type the list of sources single-spaced within, and double-spaced between entries.
- If you are using the “journal-style” format, references come at the end of each chapter. List the references as a subsection for each chapter (i.e., “3.5 References”).
- All hyperlinks (that will appear in blue automatically with Microsoft Word) must be changed to appear black with no underline. When websites are used as references, the URL, author if known, title if there is one, and the date the URL was accessed by the thesis author should be listed in the references.

### 8.8.5. Pagination

- Page numbers should be centered at the bottom of the page within the 1” margin but no less than 1/2” from the bottom of the page.
- The pages before chapter I are numbered consecutively using small Roman numerals.
- Although the title page and approval page count as pages i and ii, respectively, numbers should not appear on these pages.
- The first page to bear a Roman numeral is the acknowledgments, which will be numbered page iii unless there is a dedication or epigraph preceding it. Numbering with Roman numerals continues through the summary, which is the last page with a Roman numeral.
- Arabic numbers begin at the first page of chapter I. The numbering begins at 1 and

# Recommended Example Timeline

| Semester | Course work (credits) | Degree Milestones |
|---|---|---|
| **Year 1 Fall** | ENGR 8001 Research Seminar (3)<br>ENGR 8002 Research Methods (3)<br>ENGR 8860 Graduate Research (3)<br>**Total: 9 credits** | xSubmit a Program of Study |
| **Year 1 Spring** | ENGR 8120 Advanced Engineering Mathematics (3)<br>Concentration Course 1 (3)<br>ENGR 8860 Graduate Research (3) | xForm a Dissertation Committee<br>xPass the Qualifying Review |

# Recommended Example Timeline (Students with 12 Graduate Transfer Credit Hours)

| Semester | Course work (credits) | Degree Milestones |
|---|---|---|
| **Year 1 Fall** | ENGR 8001 Research Seminar (3)<br>ENGR 8002 Research Methods (3)<br>ENGR 8860 Graduate Research (3)<br>**Total: 9 credits** | xSubmit a Program of Study |
| **Year 1 Spring** | ENGR 8120 Advanced Engineering Mathematics (3)<br>Concentration Course 1 (3)<br>ENGR 8860 Graduate Research (3)<br>**Total: 9 credits** | xForm a Dissertation Committee |
| **Year 2 Fall** | | |

# Dissertation Committee Approval Form

Student Name: _____ KSU ID Number: _____

Focus Area (select one):

- Intelligent Robotic Systems
- Smart Infrastructure
- Biomedical and Health Systems
- Innovative Materials

Tentative Dissertation Title: _____

_____

| Committee Member 1 (Chair) |
| --- |
| _____ |

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Signatures:

_____

Dissertation Advisor Date

_____

Program Director Date

_____

Graduate College Date

# Program of Study

Student Name: _____ KSU ID Number: _____

Focus Area (select one):

- Intelligent Robotic Systems
- Smart Infrastructure
- Biomedical and Health Systems
- Innovative Materials

Date entered the PhD.IE program (term/year): _____

Entered program after (select one):

| Category | Course number* | Course Title* | Credit Hours | Date Taken (Term/Yr) | Grade | |
|---|---|---|---|---|---|---|

| Category | Course number* | Course Title* | Credit Hours | Date Taken (Term/Yr) | Grade | Other/ Transfer ( 9) |
|---|---|---|---|---|---|---|
| Research (cont.) (36 CR) | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | Subtotal | | | | |
| | | Total CR (t 72) | ( | | | |

# Request for Transfer of Graduate Credits

Complete this form and for each credit transfer, attach: 1) an official transcript or a copy from the Graduate Admission file (copies

NESAW STATEKEN
UNIVERSITY

# Record of Program Qualifying Review

Student Name: _____ KSU ID Number: _____

Dissertation Advisor: _____

Focus Area (select one):

... Intelligent Robotic Systems ... Smart Infrastructure ... Biomedical and Health Systems ... Innovative Materials

Date of Qualifying Review: _____

Coursework score: _____/5 Research score: _____/5 Aggregate score: _____/10

We testify that the candidate was evaluated and

... Passed

... Failed

... Did not pass, repeat exam or part thereof after strengthening specific areas of weakness (details provided below):

Comments from the Committee:

Approved by:

_____

Dissertation Advisor Date

_____

Program Director Date

# Request for Candidacy Examination

Student Name: _____ KSU ID Number: _____

Focus Area (select one):

- ☐ Intelligent Robotic Systems
- ☐ Smart Infrastructure
- ☐ Biomedical and Health Systems
- ☐ Innovative Materials

Tentative Dissertation Title: _____

_____

☐ I have attached a research synopsis (5-page limit)

The members of my committee are:

| Name | Institution/Affiliation |
|---|---|
| 1. | |
| 2. | |
| 3. | |
| 4. | |
| 5. | |

The oral examination is scheduled for:

Date: Time: Location:

# Candidacy Feedback Form

Committee Member Name: _____ Date: _____

Student Name: _____

| Attribute | Does not meet expectations | Meets expectations | Exceeds expectations |
|---|---|---|---|
| **Literature review** | ... The literature review only tackled some limited aspects of the research topic | ... The literature review tackled most aspects of the research topic | ... The literature review tackled all aspects of the research topic |
| | ... The literature review lacked structure and organization | ... The literature review was suitably organized considering the contents of the selected articles | ... The literature review demonstrated logical sequencing and structure |
| | ... The conclusion of the review did not summarize the knowledge found from this review | ... The conclusion of the review summarized the knowledge found from this review | ... Detailed conclusions were reached from the |

Comments to the student:

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| Attribute | Does not meet expectations | Meets expectations | Exceeds expectations |
|---|---|---|---|
| **Oral & written presentation** | ··· Poor communication skills | ··· Good communication skills | ··· Excellent communication skills |
| **Quality of response to question** | ··· Arguments are poorly presented | ··· Arguments are well organized | ··· Arguments are skillfully presented |
| **Overall assessment** | ·· Does not meet expectations | ·· Meets expectations | ·· Exceeds expectations |

Comments to the student:

# Request for Dissertation Defense

Student Name: _____ KSU ID Number: _____

Focus Area (select one):

- ☐ Intelligent Robotic Systems
- ☐ Smart Infrastructure
- ☐ Biomedical and Health Systems
- ☐ Innovative Materials

Dissertation Title: _____

_____

☐ I have attached an abstract of my dissertation (250-word limit)

The members of my committee are:

| Name | Institution/Affiliation |
|---|---|

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# Dissertation Assessment Form

Committee Member Name: _____ Date: _____

Student Name: _____

| Attribute | Does not meet expectations | Meets expectations | Exceeds expectations |
|---|---|---|---|
| **Technical depth** | Report and presentation reveal critical weakness in depth of knowledge in subject matter | Report and presentation reveal some depth of knowledge in subject matter | Report and presentation reveal exceptional depth of subject knowledge |
| **Research Plan** | Population, sample and sampling strategy were poorly laid out<br>The choice of method analyses was not explained well and how analyses will be conducted was poorly laid out | Population, sample and sampling strategy were mostly well-explained<br>The choice of method analyses was mostly explained well and how analyses will be conducted was suffic EMC E9EMC BT /P | Population, sample and sampling strategy were well-defined and clearly explained |

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