INDUSTRIAL & SYSTEMS ENGINEERING DEPARTMENT

New PhD Student Orientation

Ratna Babu Chinnam, Ph.D.
Professor & Director of PhD Programs
Industrial & Systems Engineering Department
Wayne State University

Ratna.Chinnam@wayne.edu
Tel: 313.577.4846

Updated: August 29, 2016
Welcome!

Graduate Programs Overview

PhD Program Requirements
- Individual Development Plan (IDP)
- Plan of Work
- Transfer of Credits

Program Timeline of Events

Advisor Selection / Advisory Committee

PhD Preliminary Exams

Courses from Other Departments

Directed Studies

Technical Writing Course
Overview of Graduate Programs
Graduate Program Enrollment/Statistics

- PhD Program: Winter 2016 Enrollment
  - Regular Track: 36 Students
    - Candidates from Iran, China, Turkey, Saudi Arabia, Kuwait, South Korea, Nigeria, USA...
  - Global Executive Track (GET): 20 Students
    - First such engineering track in the US
    - Cohort based program, launched in January 2008
    - Candidates from Apple, Ford, Chrysler, GM, General Dynamics, Delphi, HUD, Urban Science, TRQSS, Magna, LLCs...
    - 4 Graduates and nearly 15 GET students entered/entering dissertation process

- MS Programs: Winter 2016 Enrollment
  - MS IE Program: 269 Students
  - MSEM Program: 70 Students
  - MS MfgE Program: 42 Students
Recent Dissertations: 2014-Present

**12 PhD Graduates**

- **2015 (7 Graduates)**
  - Mahyar Movahednejad, *Frontiers in Operations Research for Overcoming Barriers to Vehicle Electrification*, 2015. [Faculty Member, University of Oklahoma] (Advisor–Dr. Chinnam)

- **2014 (5 Graduates)**
Student Awards & Recognition: 2014 - Present

- **IISE Pritsker Doctoral Dissertation Award — 1st Place, 2016.**
  - Mahyar Movahednejad was awarded the IISE Pritsker Doctoral Dissertation Award for 2016. It recognizes individuals in academia who have shown outstanding research capabilities in industrial engineering along with a $1,000 cash prize from the Pritsker Corp. Candidate is also invited to present a paper on the dissertation at the Industrial Engineering Research Conference: Mahyar Movahednejad, *Frontiers in Operations Research for Overcoming Barriers to Vehicle Electrification*, Ph.D. Dissertation, Industrial & Systems Engineering Department, Wayne State University, 2015.

- **IIE Transactions Article profiled in IIE Magazine, 2016.**

- **IIE Transactions Article profiled in IIE Magazine, 2016.**

- **IBM Service Science Best Student Paper Award (Finalist), 2015.**
  - Mahyar Movahednejad is one of the few finalists among the 55 submissions for the IBM Service Science Best Student Paper Award for the following article based on his dissertation research (presentation at INFORMS 2015): Movahednejad, M., Mashayekhy, L., Chinnam, R.B., and Grosu, D. “Scheduling and Pricing Services for Online Electric Vehicle Charging”.

- **Best Student Paper Award, ISERC, 2015.**
  - Zhang, N and Yang, Q, “A Random Effect Autologistic Regression Model with Application for Characterizing Variation of Multiple Microstructure Samples”

- **IIE Transactions Article profiled in IIE Magazine, 2015.**
  - Zhang, N and Yang, Q, “Optimal Periodical Inspection-based Maintenance Planning for Multi-component Repairable System Subject to Dependent Competing Risks”

- **INFORMS ENRE Best Student Paper Award, 2014.**

- **POMS College of Sustainable Operations Student Paper Competition (Runner Up), 2014.**
  - Mahyar Movahednejad was awarded the Production and Operations Management Society (POMS) College of Sustainable Operations 2014 Student Paper Competition award and prize for the following article based on his dissertation research: Movahednejad, M., Mashayekhy, L., Grosu, D., and Chinnam, R.B, "Optimal Routing for Plug-in Hybrid Electric Vehicles".
2014: 13 Articles


2015+: 46 Articles


PhD Program Orientation
PhD Program Requirements

**Minimum of 90 semester credits beyond baccalaureate degree:**
- 20–21 credits of core courses
  - GS0900: Essential Research Practices: Responsible Conduct of Research (0 Credits)
    - Attend a day long course on either of these Saturdays: September 10th, 2016 or January 21st, 2017.
    - Visit Graduate School [website](#) for prerequisite online CITI training and more details.
  - Students are required to take the two Ph.D. core courses
    - IE7520: Optimization Methods
    - IE7710: Introduction to Stochastic Processes
  - Students are required to take at least two more “doctoral” courses offered by ISE department
- 8 credits of a minor
- 30 credits of dissertation research (IE 9991-9994)
- 31–32 credits of additional coursework

**Students with Non-IE/Engineering Background: 106 Credits**
- 16 extra credits to develop a comprehensive understanding for the IE discipline
  - Most of these courses will be foundational MS courses
- Credits might be reduced based on individual’s credentials

**Conditions:**
- At least 30 credits of course work at the 7000-level or above
- At least 20 credits of course work from the ISE department
- At least 30 credits of coursework from Wayne State (outside of dissertation credits)
- Up to 30 relevant credits can be transferred from other graduate programs
- Limit directed studies to no more than 8 credits (IE 7990 and IE 7996)
- ISE Department will only pay for a maximum of 12 credits of coursework outside the department for GTAs.
Additional Program Requirements

- **Program Load**: 8 credits or more per semester for full-time graduate student status
  - GRAs/GTAs are required to register for at least 6 credits of graduate coursework per semester
    - 1 credit during the Spring/Summer semester
- **Time Limitation**: 7-year time limit to complete all program requirements
- **1-Year Residency Requirement**: Must complete at least 6 graduate credits in course work, exclusive of dissertation research, in each of two successive semesters
  - Spring-Summer semester excluded from definition of successive semesters
- **Minimum GPA**: Must maintain a cumulative GPA of 3.0 to continue
- **Minimum Journal Publications**: Must dispatch at least one journal manuscript based on dissertation research four months ahead of defense
  - Candidates seeking academic positions should have published couple of articles in high impact journals to be considered seriously
  - Funded students will be expected to dispatch manuscripts starting 2nd year!
Upon admission, **Select Academic Advisor** (PhD Programs Director will serve as a temporary advisor)

- Prepare an **Individual Development Plan** by the end of the first term. Follow the [IDP Guidelines](#).
- Attempt **PhD Preliminary Exams** at the end of the first academic year (typically offered in late May).
- Prior to completion of 16 semester credits, **Submit PhD Plan of Work** to academic advisor and PhD Programs Director for approval. Once approved, submit the form to Ph.D. Office of Graduate School.
  - **Transfer of Credits** form can be submitted along with the PhD Plan of Work (if transferring relevant graduate credits from a different school).

- Participate in **Annual PhD Student Progress Evaluations**. E-mail to come from Graduate School!
- **Develop PhD Research Plan** in conjunction with advisor:
  - **Qualifying Exam**: You will propose the dissertation topic in writing and orally to your dissertation advisory committee. Can be done after completing ~ 50 credits of coursework (including transfer credits).
  - Following successful Proposal Defense, submit signed **Prospectus and Record of Approval** and **Petition for Doctoral Candidacy** to the Graduate School, indicating the members of the **Dissertation Committee** to the Ph.D. Office of the Graduate School.
- **Dissertation Registration (IE9991 to IE9994)**: Four consecutive academic-year semesters of registration as a degree candidate are required during the preparation of the dissertation.
- **Submit Manuscripts** (at least one) for publication in a Advisor-approved, peer-reviewed publication based on dissertation research at least four months prior to planned Dissertation Defense.
- **Dissertation Preparation**: The dissertation presents the original scholarship or research completed by the student. A dissertation format check by the Ph.D. Office is required before the defense.
- **File for Graduation** via Academica by the first week of classes in the semester you hope to graduate.
- **Dissertation Defense**: The student presents and defends the dissertation in a public lecture. The results of the defense are conveyed to the Graduate School via the **Final Defense Report** form.
  - Submit Dissertation Draft to Dissertation Committee at least 3 weeks prior to scheduled defense.
  - At least 2 weeks prior to the scheduled defense date, submit a copy of the **Dissertation Public Lecture Presentation-Defense** form to Graduate School.
  - Following successful defense, submit a correctly formatted **Electronic Dissertation Document** as well as a hard copy of the dissertation title page signed by the committee to the Ph.D. Office.

**Always rely on Graduate School Website for most current information!!!**
Ph.D. Program Timeline …

Year 1

- Confirm Faculty Advisor
- File Plan of Work
- IDP
- PhD Preliminary Exams
- Annual Review

Year 2

- Qualification Exam
- Prospectus
- Candidacy
- Update IDP
- Attend and Present at Professional Conference
- Publish in Refereed Journal
- Annual Review

Year 3

- Dissertation Committee Meeting
- Register for Dissertation
- Update IDP
- Attend and Present at Professional Conference
- Publish in Refereed Journal
- Annual Review

Year 4

- Dissertation Defense
- Attend and Present at Professional Conference
- Publish in Refereed Journal
- Update IDP
- Annual Review

Year 5

- Update IDP
- Annual Review
- 7 Year Time Limit

Graduate School PhD Timeline, Checklist and Dissertation Forms: [https://wayne.edu/gradschool/phd/](https://wayne.edu/gradschool/phd/)
Selecting Advisor & PhD Committee

- **Single most important decision in the program!**
  - Important Factors: Mutual Areas of Interest, Compatibility
  - Dual Major Advisors (Co-Chairs) is Allowed
  - Students can change advisor, under valid circumstances
    - Student should discuss the change with the current advisor
    - Must submit a Graduate Record/Status Change form, signed by both the old and new advisor, notifying both the Graduate Director and the Graduate School of this change.

- **GTAs have total liberty to choose their advisor**
  - Department never imposes an advisor on the candidate

- **Faculty funding GRA positions might have expectations of the candidates**
  - Candidate should discuss these expectations with the faculty sponsor early on to avoid any misunderstandings

- **PhD Advisory Committee**
  - Shall consist minimally of four members
    - If there are co-chairs, the committee must consist of five members
  - At least two committee members must be from the ISE department
  - Committee chair must hold a Graduate Faculty appointment in the ISE department
  - At least one member, in addition to the chair, must hold a Graduate Faculty appointment
  - Must have an external member from outside the department to broaden the dissertation committee and to represent a different perspective by virtue of his/her field, location or knowledge application.
    - Must be familiar with the standards for doctoral research
    - Member may be from within or outside Wayne State
    - Industry experts are also allowed on PhD Committees (ISE Chair should be supplied candidate’s current CV/Resume)
Tentative 2017 schedule for the PhD Preliminary Exams:

- May 31st (Wednesday): Probability Exam from 11AM to 4PM (Prepared by: Drs. Jeremy Rickli - jrickli@wayne.edu & Saravanan Venkatachalam saravanan.venkatachalam@wayne.edu)
  - Recommended Course: Audit/Take MATH 5700
- June 2nd (Friday): Statistics Exam from 11AM to 4PM (Prepared by: Dr. Qingyu Yang - qyang@wayne.edu)
  - Recommended Course: Audit/Take MATH 5800
- June 5th (Monday): Operations Research Exam from 11AM to 4PM (Prepared by: Dr. Evrim Dalkiran - evrimd@wayne.edu)
  - Recommended Course: Audit/Take ISE 6560

Visit department website (http://engineering.wayne.edu/ise/phd/prelimexams.php) for more information/requirements/samples

Consult faculty for guidance/advice!

Typical Passing Score: 75 out of 100 Points

Must pass at least two exams in first attempt; Else, repeat ALL exams

Two attempts allowed to clear all three exams

All students admitted in Fall 2016 or before that have not yet cleared the exams have to attempt the exams
Outside Courses

- **Sample Courses from Other Departments:**
  - Mathematics:
    - MAT 5700: Introduction to Probability Theory
    - MAT 5800: Introduction to Mathematical Statistics
    - MAT 5710: Introduction to Stochastic Processes
    - MAT 5830: Applied Time Series
    - MAT 6840: Linear Statistical Models
  - Computer Science:
    - CSC 6580: Design and Analysis of Algorithms
    - CSC 7810: Data Mining: Algorithms and Applications
  - Business/Management:
    - Several
  - Economics:
    - ECO 7110: Econometrics II
    - ECO 7120: Econometrics III
    - ECO 7550: Economics of Health Care I
  - Psychology:
    - PSY 8150: Multivariate Analysis

- **Courses from Other Michigan Schools:**
  - Michigan Intercollegiate Graduate Studies (MIGS) Program
    - Graduate students who are in good standing in a degree program are eligible to take graduate courses at several graduate schools in Michigan with prior approval of their Home and potential Host Institutions.

- **Directed Studies**
  - Independent studies may be authorized for areas of interest not covered by existing coursework.
  - Before registering for directed study, he/she should prepare an outline of the study and obtain the approval of the directed study course instructor and the PhD Programs Director using the Petition for Directed Study form.

**ISE Department will only pay for a maximum of 12 credits of coursework outside the department for GTAs. Students have to pay for their own tuition if pursuing any degrees in parallel.**
Scholarly Writing Course for Non-Native English Speakers (ENGLISH 5850)

Restricted to Students Enrolled in Ph.D. Programs

Helps graduate students become more confident in expressing themselves throughout the drafting process in writing scholarly English for academic and research purposes!

Course Objectives:
- Focusing on language style, grammar, punctuation, vocabulary, organization and tone for academic and scholarly writing
- Editing skills required for being a more confident and self-sufficient writer
- Avoiding plagiarism via summarizing, paraphrasing and documentation of sources
- Predicting the expectations of the English-speaking academic and scholarly reader
- Completing an article critique, a literature review and a research proposal

Course Activities:
- Examining journal articles from the student’s field to analyze genre, tone, organization, transitions, and language; writing multiple drafts of three papers with instructor and peer review; and targeting grammar and language issues. Workload is substantial.

Student Comments from Previous Course Evaluations:
- "This class has improved not only the way I write but also the way I think. Now that I am more familiar with the structure, I have more confidence. It also helps me think more analytically."
- "The thing I like most about this class is I am able to learn things about scholarly writing that I never even knew about or cared about before."
- "It is a necessary course for all non-native English speakers...in fact, it should be mandatory."
- "The class covers every tiny detail about scholarly writing."
- "It’s one of the most valuable courses of my Ph.D. program."

Steps to Register:
- Registration for this course is restricted to graduate students enrolled in Ph.D. programs who are non-native English speakers. Registration requires permission from the English Language Institute via an override. Class size is limited to 15.
- To Register: Send your WSU 9-digit Banner ID# to Sara Tipton, at the English Language Institute, 367 Manoogian Hall: s.tipton@wayne.edu, or Call 313-577-7706.
Additional Topics

- Internships
- Teaching Opportunities
- Work Ethic
- GTAs: 20Hrs/Week
- Fellowships / Awards
- Graduate Research Symposia
- Conference Travel Support from 2nd Year (Speaker/Alignment)
- Job Market
- Library Services
- Office Space
- IT Systems:
  - Blackboard Course Management System
  - Academica (Registration and lot more)
Login Using AccessID: [https://blackboard.wayne.edu/](https://blackboard.wayne.edu/)
Login Using AccessID: https://academica.aws.wayne.edu/
Questions?