



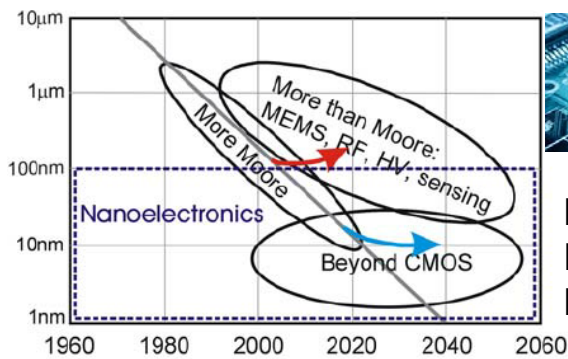
Rensselaer

why not change the world?®

MS Students Orientation 2020

Partha S. Dutta, Professor of ECSE | 08/28/2020

Electrical, Computer & Power Engineering in the 21st Century



Post CMOS
Integrated
Electronics



Artificial Intelligence



Electric Vehicle



High Performance Computing



Autonomous Vehicles



Space Technologies



Electrical, Computer & Power Engineering in the 21st Century



Digital Manufacturing



Clean Energy



Healthcare Technology



Cybersecurity



Resilient Power & Power Electronics



Research Addressing 21st Century Grand Challenges



Make solar energy economical



Provide energy from fusion



Develop carbon sequestration methods



Manage the nitrogen cycle



Provide access to clean water



Restore and improve urban infrastructure



Advance health informatics



Engineer better medicines



Reverse-engineer the brain



Prevent nuclear terror



Secure cyberspace



Enhance virtual reality



Advance personalized learning



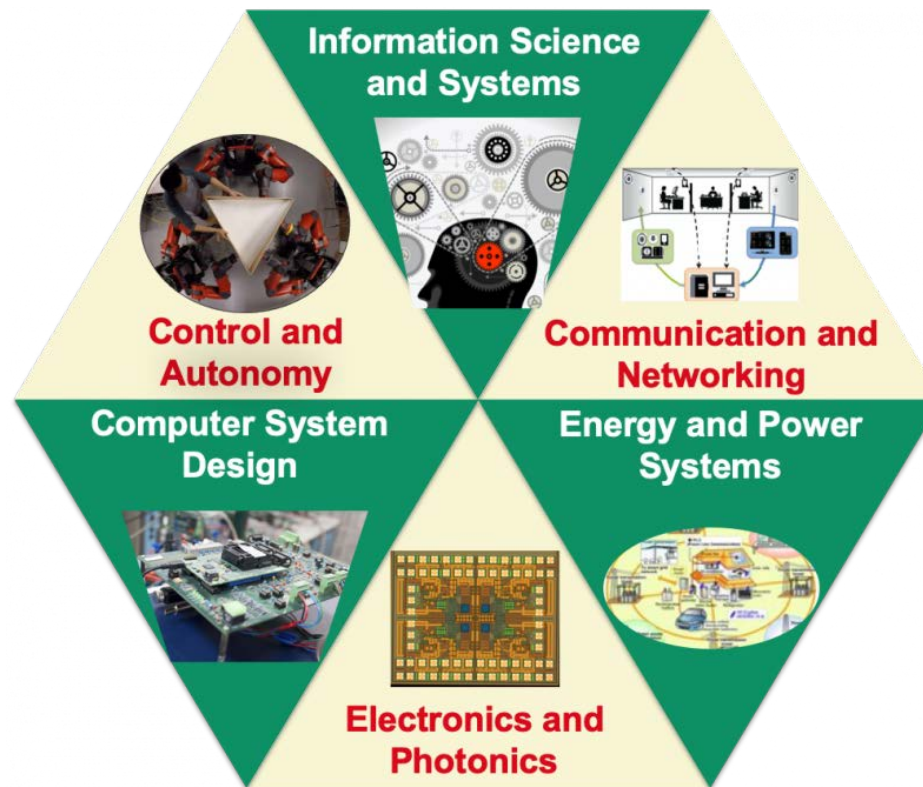
Engineer the tools of scientific discovery



GRAND CHALLENGES
FOR ENGINEERING

ECSE Research Areas

<https://www.ecse.rpi.edu/research>



<https://ecse.rpi.edu/research/faculty-research-summaries>

<https://www.ecse.rpi.edu/people>

ECSE Graduate Program Services Office

- Professor Hussein Abouzeid, Graduate Program Director, abouzeid@ecse.rpi.edu
- Professor Partha Dutta, Masters Program Director, duttap@rpi.edu
- Ms. Kelley Kritzk, Graduate Program Administrator, kritzk@rpi.edu
- Ms. Priscilla Magilligan, Administrative Secretary (returning 10/1/2020), pris@ecse.rpi.edu

Central location to submit forms, make inquiries, and seek help with any graduate program related matters.

e.g. submit/update:

PoS (MS or PhD)
Advisor Form (MS or PhD)
DSYR (PhD)

Usually via e-mail to kritzk@rpi.edu

ECSE Student Services Office

What we provide

- Central Location
 - Forms, student mailboxes (pre-Covid), information, and questions
- Source of support
 - Point of contact for all matters throughout entire academic career.
 - Foster a supportive, stable, inclusive environment.
- Communication hub
 - Institute and Department policies.

ECSE Degree Programs

<https://www.ecse.rpi.edu/>

ECSE Degree Programs

Computer & Systems Engineering: B.S., M.S., M.Eng., Ph.D.

Electrical Engineering: B.S., M.S., M.Eng., Ph.D.

Electric Power: M.S., M.Eng., Ph.D.

M.S., M.Eng.: 30 Credit Hours Beyond B.S. Degree (24 course credit-hours)

Ph.D.: 72 Credit Hours Beyond B.S. Degree (36 course credit-hours)

Ph.D.: 48 Credit Hours Beyond M.S. Degree (12 course credit-hours)

Typical: 12-15 Credits per semester (6-9 course credit-hours)

Typical time to graduate (after B.S):

M.S./M.Eng: 1-2 years (2-4 semesters)

Ph.D. : 3-5 years (6-10 semesters)

Note:

- Doctoral students may add a Master's degree while completing their PhD requirements
- Master's students may apply to the doctoral program

Registration Requirements

MS/MEng (excluding Co-Term) and PhD:

- Full-time status **16 Credit maximum**
- Full-time status minimum:
 - **9 credits** for TA
 - **12 credits** for RA and Self-Pay

Co-Terminal:

- Full-time status minimum is **12 credits**.
- **Maximum 21** credits if course load is predominately UG courses.
- Co-term students should *aim for 15 credits* per semester, especially if taking graduate level courses.
- You must follow OGE requirements once the bachelor degree is completed.

Why is this important?

- Financial aid cannot be entered into the system until you are registered. You cannot be paid until it is entered.
- Registration deadlines:
 - TAs – check with Kelley.
 - RA and Self Pay – check with Kelley (1st day of classes).
- If you are a Teaching Assistant:
 - You already filled in the TA information (including your class schedules) to Kelley (if not, do so ASAP)
 - Prof. James Lu uses this information to ensure your TA assignment does not conflict with your course schedule.
 - TA assignments has been sent via email last week.

Graduate Plan of Study (PoS)

- A Plan of Study (PoS) must be on file with (ECSE→OGE) for all graduate students
- Deadline to submit PoS to our office: 9/30/2020.
- Plans of Study are brought/mailed to Kelley for initial review and forwarding for final signatures
- Plans of Study can be revised as needed, and may be returned for revision before approval
- Plans of Study must be followed.
 - If you decide to change courses, you can submit a PoS anytime.
 - However, if you don't update PoS, you risk having issues at graduation time, and may delay your graduation

Other Common Required “Paper”-work

- **Orientation Packet paperwork & deadlines**
 - TA Information Forms (every semester for TAs)
 - Intellectual Property Agreement
 - Communications in ECSE
 - Program/Research Advisor
- **Master’s Program Paperwork**
 - Nomination of Master’s Thesis Committee*
 - Record of Master’s Thesis & Oral Presentation*
- **Doctoral Program Paperwork**
 - RQE Application (First week of each semester, 9/7/2020)
 - Major/Minor Form (once, with first PoS, 9/30/2020)
 - Doctoral Committee Nomination
 - Record of Candidacy Examination
 - Record of Dissertation Exam*

**Institute deadlines for each semester are posted on the Academic Calendar at rpinfo.rpi.edu*

Reminders will be sent on a semester basis but don’t wait to be reminded!

TA/RA Expectations

- **You are considered an employee of the Institute:**
 - Show up on time.
 - Do the work thoroughly and completely.
 - Communicate with your advisor and/or Student Services.
- **TAs:**
 - Continuation of TA assignment is subject to satisfactory performance
 - TA evaluation form submitted by instructors at end of semester
 - TA assignment could be terminated in extreme cases of under-performance
 - Time-budget and discuss the TA assignment and expectations with your instructors
- **Time Off**
 - RAs: Discuss with your advisor well in advance.
 - TAs: You must be available throughout the semester. You cannot leave for the break without checking when the final grading will be done.
- **ECSE TA Best Practices**
 - A workshop will be announced. Attendance is required.

ADD/DROP Deadlines

- Add Deadline: September 11, 2020
- Drop Deadline: October 23, 2020
- Late Adds are not permitted. OGE will NOT approve (except in *extreme situations*)
 - *My grade was not going to be good is not a valid excuse*
- You should not drop a course if it lowers your load below the minimum full-time requirements, esp. if the add deadline has passed.
- The critical period where students make mistakes is [9/11, 10/23]

Mercer Distinguished Lectures

**Darrin Communications Center (DCC) 324
(now Online during Covid19 protocols)**

Refreshments: 3:30 p.m., Lecture: 4:00 – 5:00 p.m.

Schedule available at:

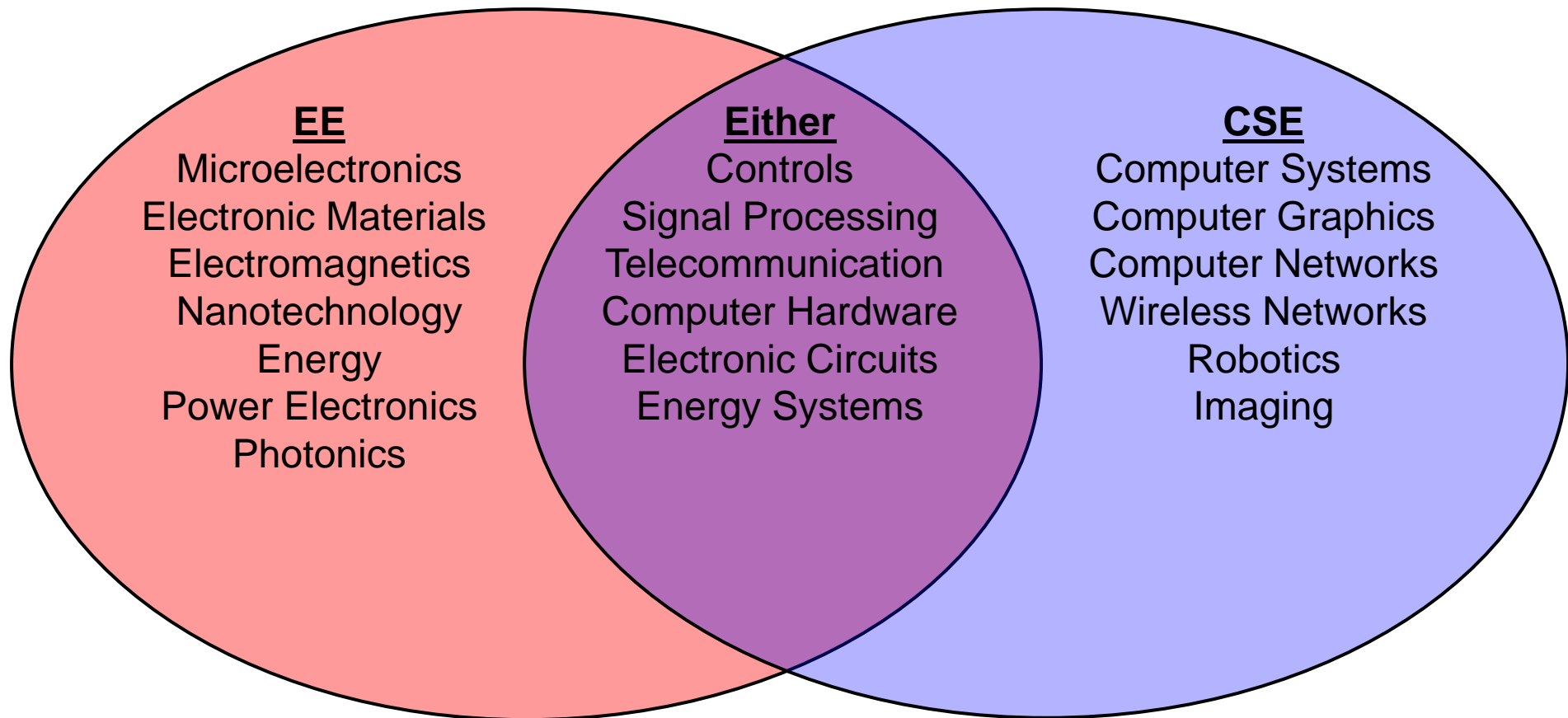
- <https://www.ecse.rpi.edu/lectures>

ECSE Master's Degrees

- Master of Science (MS) **with** or **without Thesis**
 - MS in Electrical Engineering
 - MS in Computer and Systems Engineering
- Master of Engineering (MEng)
 - MEng in Electrical Engineering
 - MEng in Computer and Systems Engineering
- *ME, MS w/ or w/o Thesis can be used for Co-Terminal, but MS w/o Thesis degree is most typical*

Differences Among Degrees

- w/ vs. w/o thesis matters a lot in PoS requirements.
- EE vs. CSE doesn't matter in PoS Requirements, just area of concentration/research:



Master of Engineering (M.Eng.)

- Preparation for Professional Practice
- Semesters to complete: 2 possible w/ heavy load; 3 semesters more typical.
- 3-Course Technical Concentration.
- 2-Course Non-Technical Sequence.
 - MGMT/ECON/ courses encouraged.
- Max time period 2-1/2 yrs (Grad School Policy).
- Professional Master's Project an option but not typical (need a willing Advisor for this).
- Academic Advisor = an ECSE Faculty or GPD.

Master of Science with Thesis

- Preparation for Research Career and/or a PhD
- Emphasis on depth in research area.
- 3 semesters to complete (recommended).
- Max time period 2.5 yrs (Grad School Policy).
- Master's Thesis required: Need 6 (or 9) credits of ECSE-6990 *MS Thesis* in your PoS.
- Must **publicly present** master's thesis research, with **Committee** (3 ECSE faculty) sign off (even if also pursuing a PhD).
- Academic Advisor = Research Advisor.

Master of Science w/o Thesis

- Typically does not focus on research
- Semesters to complete: 2 possible w/ heavy load; 3 semesters more typical
- Max time period 2.5 yrs (Grad School Policy)
- Professional / Master's Project an option but not typical (need a voluntary Advisor for this)
- Academic Advisor = an ECSE Faculty or GPD

Co-Terminal MEng

Identical to MEng, except:

- PoS must reflect completion by end of Year 5 (that is, 1 AY after your normal 4-Year BS).
- ECSE strongly recommends at least 6 Master's PoS credits by end of Year 4!
- Co-terminal students must complete all BS requirements and graduate within 8 semesters, at which point their status will change to graduate.
- Academic Advisor = Undergraduate Advisor.

Co-Terminal MS w/o Thesis

Identical to MS w/o Thesis, except:

- PoS must reflect completion by end of Year 5 (that is, 1 AY after your normal 4-Year BS).
- ECSE strongly recommends at least 6 Master's PoS credits by end of Year 4
- Co-terminal students must complete all BS requirements and graduate within 8 semesters, at which point their status will change to graduate.
- Academic Advisor = Undergraduate Advisor.

Co-Terminal MS with thesis

Identical to MS, except:

- Need an existing Research Advisor, who fully endorses PoS Completion by end of Year 5 (1 AY after your normal 4-Year BS).
- ECSE strongly recommends at least 6 Non-Thesis Master's PoS credits by end of Year 4
- Co-terminal students must complete all BS requirements and graduate within 8 semesters, at which point their status will change to graduate.
- Academic Advisor = Research Advisor.

ECSE 2020 Handbook

- <https://www.ecse.rpi.edu/sites/default/files/ECSE-Graduate-Program-Handbook-2020.pdf>
- MS/MEng PoS Examples
- MS and PhD Program Requirements
- ECSE PhD Forms
 - Application for ECSE Research Qualifying Examination
 - RQE Assignment to Doctoral Student
 - RQE Student Evaluation by RQE Faculty
 - RQE Student Evaluation by Faculty Advisor
 - Doctoral Student Major/Minor Concentrations

Important Links!

- www.rpi.edu
 - RPI Web Page
- www.ecse.rpi.edu
 - ECSE Web Page
 - Master PoS Files, a copy of these slides! (“academics” link)
 - Research Areas, Advisor Interests, etc.
- rpinfo.rpi.edu
 - Course Catalog
 - Institute Directory, Academic Calendar (Add/Drop Deadlines!), Final Exam Schedule, etc.
- sis.rpi.edu
 - Class-Hour Schedule
 - Special-Topics Courses and New-Course Descriptions, etc.

Personal Well Being

- Sleep and vitamins
- Work/life balance <http://studenthealth.rpi.edu/counseling.php>
- Social life <http://www.visittroyny.com/aboutTroy/history/history.aspx>
- Conflict resolution <http://gradoffice.rpi.edu/update.do?artcenterkey=5>
- Sexual misconduct investigative process
<http://doso.rpi.edu/update.do?artcenterkey=740>
[http://www.rpi.edu/dept/hr/policy/17 Sexual Harassmen Policy.pdf](http://www.rpi.edu/dept/hr/policy/17_Sexual_Harassmen_Policy.pdf)
<https://www.dropbox.com/s/cx3s20iujyutfwx/studentsexualmisconductinvestigativeprocess.pdf?dl=0>

Cyber Presence

- Personal webpage (e.g., homepages.rpi.edu/~xxxx, WordPress <https://jenpazour.wordpress.com>)
- Resume
- Publication: <http://arxiv.org>, <http://www.researchgate.net>
- Code: GitHub
- Google Scholar
- LinkedIn
- Blog
- Youtube (e.g., lecture, teaching, research results)
- Twitter, Facebook, etc.

Key Attributes of Successful Students

- Knowledge and Creativity

- Has a broad perspective on the field
- Is among the brightest persons I know
- Produces novel ideas
- Is intensely curious about the field

- Communication Skills

- Speaks in a clear, organized and logical manner
- Writes with precision and style
- Speaks in a way that is interesting
- Organizes writing well

- Teamwork

- Supports the efforts of others
- Behaves in an open and friendly manner
- Works well in group settings
- Gives criticism/feedback to others in a helpful way

- Resilience

- Accepts feedback without getting defensive
- Works well under stress
- Can overcome challenges and setbacks
- Works extremely hard

- Planning and Organization

- Sets realistic goals
- Organizes work and time effectively
- Meets deadlines
- Makes plans and sticks to them

- Ethics and Integrity

- Is among the most honest persons I know
- Maintains high ethical standards
- Is worthy of trust from others
- Demonstrates sincerity

Fellowship/Awards/Internship

- NSF Fellowship
- DOE Fellowship
- SMART Fellowship
- Company internships (CCPD <https://www.rpi.edu/dept/cdc/>)
- Departmental and school awards (Founder's Award)

Additional RPI Resources

- Rensselaer Student Handbook
<http://www.rpi.edu/dept/doso/resources/judicial/docs/2014-2016RPIHandbookofStudentRightsandResponsibilitiesAUGUST2014.pdf>
- Graduate student handbook supplement
<http://rpi.edu/dept/grad/docs/The%20Graduate%20Student%20Supplement%20.pdf>
- Graduate student forum (Wednesdays)
- TA training course (other graduate students can sign on too)
- Faculty, Counseling Center, Graduate Class Dean

Additional Resources

- CITI training (required for RAs) <http://research.rpi.edu/compliance/citi>
- Collaborative tools: <http://overleaf.com> <http://sharelatex.com> Google Doc
- Academic integrity: courses, research, thesis, papers

<http://doso.rpi.edu/update.do?artcenterkey=676>

Plagiarism: Representing the work or words of another as one's own through the omission of acknowledgment or reference. For example, using sentences verbatim from a published source in a term paper without appropriate referencing, or presenting as one's own the detailed argument of a published source, or presenting as one's own electronically or digitally enhanced graphic representations from any form of media.

- Writing: writing center <http://www.ccp.rpi.edu>

William Zinsser's On Writing Well:

<https://ia600308.us.archive.org/31/items/OnWritingWell/on-writing-well.pdf>

- Presentation:

<https://www.dropbox.com/s/uif4ojh7uczu5yf/AdviceToBeginningPhysicsSpeakers.pdf?dl=0>



Thank you for joining us!

Questions?