Join Our Graduate Program!

Graduate Program Info Webinar

Nov. 16, 2020
10 – 11 am (CST)

Meeting will be started at 10 am!
Please keep your microphone on “mute” mode.
Agenda

- **Welcome remark**
  - Prof. Lawrence J. Overzet, ECE Department Head

- **My Experience as a graduate student**
  - Mr. Brighton Hill (fast track student)

- **Overview of the ECE Graduate Program & FAQ**
  - Prof. JB Lee, ECE Associate Department Head for Graduate Program
  - FAQ: Fast-track program, Quick Admit, Financial assistance, ...
  - ECE Graduate Program staffs and Academic Advisors
Welcome Message

Dr. Lawrence Overzet, Ph.D.
Department Head, Fellow AVS
Electrical and Computer Engineering
Erik Jonsson School of Engineering & Computer Science
About Me – Brighton Hill

- Graduated from UTD w/ BS in EE and CE in Spring 2020
- Was in Fast-Track Program for EE before switching to Fast-Track for CE
- Currently in MS CE Program for Computing Systems (Spring 2021 Graduation)
Why Grad School after Undergrad?

- Develop your expertise
  - Various “concentrations” allow students to specialize

- Future-proofing
  - While your first job opportunity may not require a grad degree, a future opportunity might

- Increased opportunities & time for internships
  - Get an additional summer’s worth to explore your favored work environment

- It’s hard to go back
  - Life is unpredictable
  - Fast-Track program makes this easier
The Fast-Track Program is designed to save you time and money

- Effectively finish master's a year sooner
  - This allows you to enter the job market earlier

- Double count your credits
  - Saves your time

- Graduate credits at undergraduate prices
  - Who doesn’t like saving money?

- Return on Investment

  \[ \text{ROI} = \frac{(\text{Current Value of Investment} - \text{Cost of Investment})}{\text{Cost of Investment}} \]

  - By decreasing your cost, Fast-Track increases your ROI
Fast-Track Tips

- **Focus on the required classes**
  - Treat the required classes for Fast-Track like they are part of a Critical Path

- **Get started as soon as you can**
  - Don’t wait till the deadline approaches to sign up for Fast-Track

- **Think about your concentration**
  - Prioritize classes that are core to your concentration or have lots of overlap with concentrations you are considering

- **Have back-up plans and back-up back-up plans**
  - There are going to be classes you will not be able to get into, be prepared for this.

- **Keep in contact with your advisors**
  - This extends to when you are in your grad program
Overview of the ECE Department and Graduate Program
The Jonsson School & ECE – Fast Facts

- ECE faculty members: 40 / 18
  - 16 IEEE Fellows
- Annual research expenditures: $13.5M (ECS $57M)
- Internships
  - 156 (2018-19), 138 (2019-20) students got internships
  - CE – 52nd, 32nd public universities, 3rd Texas public universities
  - EE (TE) – 50th, 28th public universities, 3rd Texas public universities

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<th></th>
<th>BS</th>
<th>MS</th>
<th>PhD</th>
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<tr>
<td>ECS total</td>
<td>6,438</td>
<td>1,193</td>
<td>608</td>
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<tr>
<td>EE / CE / TE</td>
<td>1,100</td>
<td>219</td>
<td>223</td>
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An email from a major international company located in San Diego, CA.

Company A is looking to build a more official partnership with UT Dallas for their internship and new grad recruiting from the ECE department. We have hired great Master’s-level students from UT Dallas into Company A’s YYY group. We’d like to kickstart our partnership with $$$ in funding to go towards advancing ..... in the MS and PhD programs. ..... Our 2020 summer internship program transitioned from on-campus to a completely virtual format, and we will continue our fall recruiting virtually as well. ..... Our hiring for the Summer 2021 and new college grad opportunities will remain just as robust as last year with a target of ZZZ interns. We will be continuing to look for talent from the Computer Engineering, Computer Science, and Electrical engineering majors.

- Templeton Endowed Fellowships – Rich Templeton (Chairman and CEO of Texas Instruments)
- Texas Instruments Analog Excellence Graduate Fellowship
- Jonsson School Industrial Advisory Council Fellowship
EE : 5 concentrations


MS EE requirement : 33 semester credit hours (SCHs)
  9 SCHs (core courses)
  18 concentration electives (EExx)
  6 school-wide electives
EE Areas of Study: Circuits

Focus of Concentration

- **Design and analysis** of advanced electronic circuits
- Application & theory of modern electronic **devices, circuits, and systems** in the digital, analog, and radio frequency and microwave regime
- Core design principles around **digital, analog, and RF circuits**

Three (3) core courses (9 SCH)

- EECT 6325 – VLSI Design
- EECT 6326 – Analog Integrated Circuit Design
- EERF 6311 – RF and Microwave Circuits

Job Horizon for Internship & Future Career (Historical Examples)
EE Areas of Study: Devices

Focus of Concentration

- Semiconductor device modeling, Quantum devices
- Plasma science and technology, CNT electrodes/sensors
- MEMS devices, Nano-electronic devices, Bio sensors, Nano-photonic devices, Packaging technologies

Three (3) core courses (9 SCH)

EEGR 6316 Fields and Waves
EEMF 6319 Quantum Physical Electronics
EEOP 6311 Photonics Devices and Integration
Focus of Concentration

- Transportation electrification
- Distributed power generation
- Energy storage, management and harvesting
- Power electronics, motors & drives

Three (3) core courses (9 SCH)

EEPE 6354 Power Electronics
EEPE 6398 General Theory of Electric Machines
EEPE 6357 Control, Modeling, and Simulation in Power Electronics
EE Areas of Study: Signals and Systems

Three (3) (9 SCH) required core courses:
- One of the three required core courses must be
  EESC 6349 Probability, Random Variables, and Statistics
- The other two required core courses must be from this list:
  EECS 6331 Linear Systems
  EESC 6352 Digital Communication Systems
  EESC 6360 Digital Signal Processing I

Two main thrusts:
(1) **Communications** including wireless communication, communication networks, and information theory
(2) **Signal Processing** including speech processing, image processing, and machine learning
EE Areas of Study: Computing Systems

Three (3) core courses (9 SCH)
- EEDG 6301 – Advanced Digital Logic
- EEDG 6304 – Computer Architecture
- EEDG 6302 – Microprocessor Systems
Computer Engineering

**Embedded Systems Concentration**

Four (4) core courses (12 SCHs)
- CE / EEDG 6302 – Microprocessor and Embedded Systems
- CE / EEDG 6304 – Computer Architecture
- CE / EEDG 6370 – Design and Analysis of Reconfigurable Computing Systems
- EESC 6367 – Applied Digital Signal Processing

**Computer Systems Concentration**

Four (4) core courses (12 SCHs)
- CE / EEDG 6304 – Computer Architecture
- CE / EECT 6325 – VLSI Design
- CS 6363 – Design and Analysis of Computer Algorithms
- CS 6378 – Advanced Operating Systems
Telecommunications Engineering

Five (5) core courses (15 SCHs)

- CS/TE 6385 Algorithmic Aspects of Telecommunication Networks
- EESC 6349 Probability, Random Variables, and Statistics
- EESC 6352 Digital Communication Systems
- CS 6352 Performance of Computer Systems
- CS 6390 Advanced Communication and Computer Networks
FAQ Session
A Graduate degree can:
- Qualify you for more jobs
- Make you more well-rounded
- Hone your critical thinking skills
- Keep you competitive for future job market
- Earn you $17,000 more than Undergraduate degree holders!! (*2015 Georgetown univ study)
Fast-track

- Earn both BS and MS in 5 years
- 15 graduate class SCHs may be used for BS requirement as well as MS requirement (kill two birds in one stone)
- Out of 128 required SCH for BS, you can do $113 + 15 (= 128$ for BS, 15 graduate SCHs), that same 15 SCHs apply to the 33 SCH MS reequipment $15 + 18 (=33$ for MS)
- Who is eligible?
  - Has an overall GPA for all college courses of at least 3.33.
  - Has completed at least six of the following benchmark courses (see the form above), with an average six course GPA of at least 3.5. The combined GPA in all benchmark courses should be at least 3.33.
- Application deadline – March 21 (for Summer/Fall), Oct. 21 (for Spring)
Quick Admit / Regular Application

Quick Admit (https://utdallas.edu/admissions/graduate/quickadmit/)

- Auto admit
  - GPA > 3.2 eligible for “automatic admission” (ECE ➔ EE, CE, TE MS) (BS ME ➔ MS EE or CE? NO!)
  - Application fee, Statement of Purpose, Letters of Recommendation, GRE all waived

- Expedited review
  - GPA > 3.0 eligible for “expedited review” (ECE ➔ EE, CE, TE MS) (BS ME ➔ MS EE or CE? NO!)
  - Application fee, Statement of Purpose, Letters of Recommendation, GRE all waived

Is GRE waived? (https://ece.utdallas.edu/admissions/graduate-programs/)

- We review application without GRE and “conditional” admission is given.
  - GRE scores must be submitted by the end of the 1st semester of enrollment.
  - GRE at home is available. (https://www.ets.org/s/cv/gre/at-home/)
TAs, RAs & Fellowships

TAs
- Application (online, Feb. 1 ~ Feb. 15)
- TA appointments are yearly basis (Fall & Spring)
- Competitive, priority given to PhD students, faculty support is crucial

RAs
- RAs are awarded by faculty member(s) depending on their research funding

Jonsson School Fellowships (most deadline is June each year)
- Beecherl fellowship, Excellence in Education Doctoral fellowship, Jan P. van der Ziel fellowship, Jonsson School Industrial Advisory Council fellowship, OK Kyun Kim and Youngmoo Cho Kim Graduate fellowship, Phil Ritter Endowed scholarship, Templeton Endowed fellowship, Texas Instruments Analog Excellence Graduate fellowship, Jonsson School $1,000 Graduate Study scholarships, Betty and Gifford Johnson travel funds, Pathways to Research Scholarship
Fellowships for US Citizens

- NSF Graduate Research Fellowship (https://www.nsfgrfp.org/)
  - 5 years, $34K annual stipend, $12K education cost to the institution
- National Defense Science and Engineering Graduate Fellowship Program (https://ndseg.sysplus.com/)
- NASA Graduate Fellowship (https://www.nasa.gov/stem/fellowships-scholarships/index.html)
- NIST Graduate Student Measurement Science and Engineering Fellowship Program (https://www.nist.gov/iaao/academic-affairs-office/nist-graduate-student-measurement-science-and-engineering-gmse)
- Truman Fellowship at Sandia National Lab (https://www.sandia.gov/careers/students_postdocs/fellowships/truman_fellowship.html)
- Ford Foundation Fellowships (https://sites.nationalacademies.org/pga/fordfellowships/index.htm)
- Soros Fellowship for New Americans (https://www.pdsoros.org/fellowship)
Internships

- AFRL Scholars Program (https://www.nsfgrfp.org/)
- JPL Internship Program (https://www.jpl.nasa.gov/edu/intern/apply/)
- NIST Summer Undergraduate Research Fellowship (https://www.nist.gov/surf)
- NIST Internship Program (https://www.nist.gov/careers/student-opportunities/internship-program)
- NASA Internship Program (https://nasajsc.secure.force.com/InternshipProjectQuickLook)
Spring 2021 orientation & registration

- **Spring 2021 Orientation** ([https://ece.utdallas.edu/graduate-programs/graduate-student-forms/](https://ece.utdallas.edu/graduate-programs/graduate-student-forms/))
  - **Spring 2021 ECE New Graduate Student Orientation**
  - **January 7, 2021 @ 9:30 am – 11:00 am (Tentative)**
  - **Venue: Online**

  - Orientation is mandatory for all new graduate students. You can register courses **after** you attend the orientation.

- **Course Registration** (**must be registered by Jan. 14**)
  - Meet with academic advisors and get your course registration form signed, then the form would be sent to the graduate office staff for course registration. You will receive acknowledgment about your course registration in email.
  - **Fast-track students**
    - Before matriculated into MS ➔ UG advisor, After matriculated into MS ➔ JB Lee (ADH Graduate Program)
  - **MS students – academic advisors**
    - EE – Dr. Randall Lehmann, Dr. Mathew Heins
    - CE – Dr. Diana Cogan (EE)
    - TE – Dr. Marco Tacca (EE, CE)
Your degree requirements are outlined in the Graduate Catalog ([https://catalog.utdallas.edu/2020/graduate/home](https://catalog.utdallas.edu/2020/graduate/home)).

**Degree plan**

- **Degree plan** must be submitted (to academic advisors for signature) by the end of the first semester of enrollment & toward the end of a semester before graduating semester.
- A degree plan is a tool that helps you track your progress.

Every concentration area has **core courses** and **elective courses**:

- Choose your classes carefully to maximize learning and graduate on time!!
- Take required **core courses** as quickly as possible.
  - [https://ece.utdallas.edu/files/MSEE-Degree-Plans.pdf](https://ece.utdallas.edu/files/MSEE-Degree-Plans.pdf) (MS EE degree plan)
  - [https://ece.utdallas.edu/files/MSCE-TE-Degree-Plans-v.4.pdf](https://ece.utdallas.edu/files/MSCE-TE-Degree-Plans-v.4.pdf) (MS CE & TE degree plan)
Graduate Program Advisors and Staffs

- **MS Academic Advisors** (degree plan, course registration, ...)
  - Dr. Randall Lehmann (EE)
  - Dr. Matthew Heins (EE)
  - Dr. Diana Cogan (CE, EE)
  - Dr. Marco Tacca (TE, EE)
  - Dr. JB Lee (Assoc. Dept. Head, Fast-track)

- **Staffs**
  - Barbara Parker
  - Patricia Williams
  - Kimberly High
  - Diane Huang
Online Resources for ECE Students

• Graduate Student Resources webpage
  ➢ http://ece.utdallas.edu/academics/graduate-programs/
  ➢ https://catalog.utdallas.edu/
  ➢ https://ece.utdallas.edu/graduate-programs/graduate-student-forms/
  ➢ https://graduate.utdallas.edu/faculty/forms/
  ➢ https://engineering.utdallas.edu/engage/students/internships/

• If you need help, please contact ecegradprogram@utdallas.edu for assistance