Master of Engineering in Computer Engineering Orientation

August 21, 2019

Pierce Cantrell
Department of Electrical and Computer Engineering
Outline

• Requirements for Master of Engineering (ME) in Computer Engineering (Non-Thesis)
• Additional ME Course Requirements
• Foundation and First-Level Graduate Courses
• Tentative List of Courses for Master of Engineering CEEN Students
  – Must take at least 6 courses from this list
• Tentative List of Academic Year 2020 and 2021 Computer Engineering & Systems Courses
• Computer Science and Engineering (CSE) Class Restrictions
• Other Orientations
Requirements for Master of Engineering in Computer Engineering (Non-Thesis)

- Total number of hours (30)
- A minimum of 27 classroom hours (excludes 681, 684, & 685)
  - Classroom hours must be taken from courses within the College of Engineering and/or College of Science.
  - One course from the ISYS Dept. in the College of Business is allowed.
  - A minimum of 24 classroom hours from the Departments of CSCE and ECEN
  - At least 13 of these 24 hours must be in ECEN.
  - At least 6 courses from the CEEN Master of Engineering student course list – see slides 7-11.
- Transfer hours allowed from another institution (maximum of 6 hours)
  - Transfer hours must be from a U.S. peer institution; they cannot have been used on a previous degree plan.
  - Students must send syllabi, transcript, and TAMU course equivalent to the ECE Graduate Office. Transfer hours are subject to the approval of the GSC.
- Undergraduate hours allowed (maximum of 6 hours)
  - Only 400 level undergraduate courses can be included on your degree plan.
  - Courses must be from the College of Engineering and/or College of Science.
Requirements for Master of Engineering in Computer Engineering (Non-Thesis) (Continued)

• One hour of seminar is allowed (ECEN/CSCE 681) but is NOT required.
• Seminar (681), Internship (684), Directed Studies (685): no more than 3 hours allowed (combined)
  – Research (691) hours are not allowed on the ME degree plan.
• A Final Project Report is required to be submitted to the Graduate Office.
  – A graded project from any ECEN or CSCE graduate course can be used to fulfill this requirement.
  – The project requires a grade, the professor’s signature, and a completed cover page.
  – It must be submitted in the graduating semester;
    See the eCampus page for submission deadlines and other requirements.
• Composition of supervisory committee:
  – The Graduate Coordinator will be the chair of all ME committees. No other committee members are needed.
Additional Course Requirements
(Applies to ME)

- STAT 651 and STAT 652 (statistics courses) are for non-science majors and are *not allowed*.
- Traditionally, *no courses* will be admitted from Engineering Technology because of the non-calculus based curriculum and no approved graduate program.
- Credit for CSCE 614 will normally not be allowed. Take ECEN 651 instead.
- Credit for CSCE 619 and CSCE 612 in addition to ECEN 602 will normally not be allowed.
- No credit will be given for CSCE 601 & 602.
- No credit will be given for the following foundation courses:
  - ECEN 214
  - ECEN 248
  - ECEN 314
  - ECEN 325
  - ECEN 350
  - CSCE 221
  - CSCE 311
  - CSCE 321
Foundation and First-Level Graduate Courses

• **Foundation Courses (No graduate credit)**
  – ECEN 214 Electrical Circuit Theory
  – ECEN 248 Introduction to Digital Systems Design
  – ECEN 314 Signals & Systems
  – ECEN 325 Electronics
  – ECEN 350 Computer Architecture and Design
  – ECEN 423 Computer and Wireless Communications Networks
  – CSCE 221 Data Structures and Algorithms
  – CSCE 311 Analysis of Algorithms

• **Recommended first-level graduate courses**
  – ECEN Undergraduate Course: 468
  – CSCE Undergraduate Course: 410 (alternatively, take CSCE 611)
  – ECEN Graduate Courses: 602, 621, 651, 653, 654, 687, 714, 754, 749
  – CSCE Graduate Courses: 611, 629, 662
Must take at least 6 courses from the list on slides 7-12.

- **Hardware/VLSI**
  - ECEN 468 Advanced Digital System Design
  - ECEN 654 VLSI System Design
  - ECEN 661 Integrated Systems Design Automation
  - ECEN 680 Test and Diagnosis of Digital Systems
  - ECEN 687 Introduction to VLSI Design Automation
  - ECEN 689 Special Topics Courses in Hardware/VLSI
  - ECEN 699 Advances in VLSI Logic Synthesis
  - ECEN 714/454 Digital Integrated Circuit Design
  - ECEN 749/449 Microprocessor System Design
  - ECEN 751 Advanced Computational Methods for Integrated System Design
  - ECEN 752 Advances in VLSI Circuit Design
  - ECEN 759 Hardware Security
Tentative List of Courses for Master of Engineering CEEN Students

• **Networks**
  - **ECEN 602** Computer Communications & Networking
  - **ECEN 619** Internet Protocols & Modeling
  - **ECEN 621** Mobile Wireless Networks
  - **CSCE 663** Real-Time Systems
  - **CSCE 664** Wireless and Mobile Systems
  - **CSCE 665** Advanced Networking & Security
  - **ECEN 689** Special Topics Courses in Networks
Tentative List of Courses for Master of Engineering CEEN Students

- **Computer Architecture**
  - **CSCE 605** Compiler Design
  - **ECEN 651** Microprogrammed Control of Digital Systems (Not CSCE 614)
  - **ECEN 653** Computer Arithmetic Unit Design
  - **ECEN 659** Parallel / Distributed Numerical Algorithms and Applications
  - **ECEN 676** Advanced Computer Architecture
  - **ECEN 689** Special Topics Courses in Computer Architecture
Tentative List of Courses for Master of Engineering CEEN Students

- Systems and Software
  - CSCE 410 or CSCE 611 Operating Systems
  - CSCE 606 Software Engineering
  - CSCE 629 Analysis of Algorithms
  - CSCE 662 Distributed Processing Systems
  - CSCE 670 Information Retrieval & Storage
Tentative List of Courses for Master of Engineering CEEN Students

- Networking and System Theory
  - ECEN 663 Data Compression with Applications to Speech and Video
  - ECEN 689 Special Topics Courses in Networking and System Theory
  - ECEN 750 Design and Analysis of Communication Networks
  - ECEN 751 Advanced Computational Methods for Integrated Systems Design
  - ECEN 753 Theory and Applications of Networking Coding
  - ECEN 434/754 Optimization for Electrical and Computer Engineering Applications
  - ECEN 755 Stochastic Systems
  - ECEN 756 Game Theory
  - ECEN 757 Distributed Systems and Cloud Computing
Tentative List of Courses for Master of Engineering CEEN Students

• Data Science
  – ECEN 689 Special Topics Courses in Data Science
  – ECEN 748 Data Stream Algorithms and Applications
  – ECEN 758 Data Mining and Analysis
List of Computer Engineering and Systems Classes for Fall 2019

- ECEN 602  Computer Communication and Networking
- ECEN 621  Mobile Wireless Networks
- ECEN 651  Microprogrammed Control of Digital Systems
- ECEN 676  Advanced Computer Architecture
- ECEN 680  Testing & Diagnosis of Digital Systems
- ECEN 681  Sect. 603 Seminar: Computer Engineering
- ECEN 687  Intro to VLSI Physical Design Automation
- ECEN 689  Sect. 601 Special Topics in Machine Learning Engr.
- ECEN 714  Digital Integrated Circuit Design
  (Stacked with ECEN 454)
- ECEN 749  Microprocessor Systems Design
  (Stacked with ECEN 449)
- ECEN 754  Optimization for Electrical and Computer Engineering Applications
- ECEN 758  Data Mining and Analysis
Tentative List of Computer Engineering and Systems Classes for Spring 2020

- ECEN 619 Internet Protocols and Modeling
- ECEN 653 Computer Arithmetic Unit Design
- ECEN 654 Very Large Scale Integrated Systems Design
- ECEN 681 Seminar: Computer Engineering
- ECEN 689 Special Topics in Smartphone Systems
- ECEN 714 Digital Integrated Circuit Design
  (Stacked with ECEN 454)
- ECEN 749 Microprocessor Systems Design
  (Stacked with ECEN 449)
- ECEN 750 Design and Analysis of Communications Networks
- ECEN 755 Stochastic Systems
- ECEN 757 Distributed Systems and Cloud Computing
Tentative List of Computer Engineering and Systems Classes for Fall 2020

- ECEN 602 Computer Communication and Networking
- ECEN 621 Mobile Wireless Networks
- ECEN 651 Microprogrammed Control of Digital Systems
- ECEN 676 Advanced Computer Architecture
- ECEN 681 Seminar – Computer Engineering
- ECEN 714 Digital Integrated Circuit Design
  (Stacked with ECEN 454)
- ECEN 749 Microprocessor Systems Design
  (Stacked with ECEN 449)
- ECEN 754 Optimization for Electrical and Computer Engineering Applications
- ECEN 758 Data Mining and Analysis
- ECEN 759 Hardware Security
Tentative List of Computer Engineering and Systems Classes for **Spring 2021**

- ECEN 619  Internet Protocols and Modeling
- ECEN 653  Computer Arithmetic Unit Design
- ECEN 654  Very Large Scale Integrated Systems Design
- ECEN 681  Seminar: Computer Engineering
- ECEN 714  Digital Integrated Circuit Design
  (Stacked with ECEN 454)
- ECEN 748  Data Stream Algorithms and Applications
- ECEN 749  Microprocessor Systems Design
  (Stacked with ECEN 449)
- ECEN 750  Design and Analysis of Communication Networks
- ECEN 755  Stochastic Systems
- ECEN 758  Data Mining and Analysis
Computer Science & Engineering (CSCE) Classes

- CEEN Graduate Students can register for any CSCE graduate course without restriction.
- The CSE Department offers popular courses every semester.
  - If you are unable to get into a popular class this fall, you should be able to get in for spring.
  - High demand classes in CSE this fall are Natural Language Processing (NLP) and Deep Learning.
CESG Check-In

• WEB 333 -
  Suite in the NW corner of Wisenbaker includes:
  CESG Offices, Vickie & the Fishbowl

• One-on-one meeting with Ms. Vickie Winston, CESG Administrative Coordinator
  – Assignment of Mentor/Advisor for Course Advice
  – Useful Information

• Drop-In Daily @ WEB 333E: 8:00 – 12:00 & 1:00 - 4:00
International Students
https://calendar.tamu.edu/iss/#!view/day

- Thursday, August 22, 7:45 AM - 5:00 PM
- Rudder Exhibit Hall (@ 8:45 a.m.) & MSC Ballroom 2300 (@ 10:20 a.m.)
- Registration Required
OGAPS Orientation (Registration is now closed)

• Recommended – No Seats Remain, but…
You may attend as a walk up if space permits on the day of the event. If you are not able to attend, all materials presented at New Graduate Student Orientation will be made available on the OGAPS website at https://ogaps.tamu.edu/New-Current-Students/New-Graduate-Student-Orientation

• Friday, August 23, 8:00 AM to 4:00 PM

• Rudder Exhibit Hall check-in & throughout MSC

• Register for orientation at:
  https://recruiter.tamu.edu/register/?id=30245799-9cb0-4406-a54d-d9db1d4b6d23

*previous session held on Friday, 8/16/19*
CESG’s Website

- You can find this CESG PowerPoint Friday at:

  https://cesg.tamu.edu/