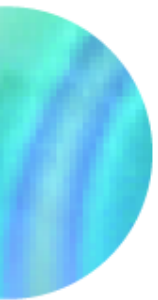# BS/MS Program
## Electrical and Computer Engineering

Why BS/MS Program?

- Double-count up to 9 credits (600-level or above)
- Experience graduate courses before committing to a graduate degree.
- Complete both degrees (BS/MS) in less time (5 years)
- Build relationships with faculty early on
- Pay undergraduate tuition for graduate courses (while in BS/MS program)

Requirements/How to Apply
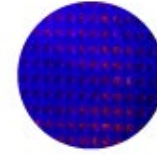
- 3.6 GPA requirement

- 9 credits of 300-level ENEE or CMSC coursework completed

- Graduate courses satisfy major technical requirements (speak with your undergraduate advisor)

- Complete BS/MS plan of study (include remaining undergraduate coursework)

- Find a faculty mentor (complete Recommendation Form)

- Submit materials to Souad Nejjar in graduate studies

Financial Support
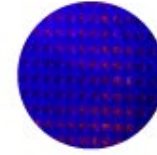
- Corporate-sponsored scholarships (Leidos, Northrop Grumman)
- Graduate teaching assistantship
- Graduate research assistantship

Timeline
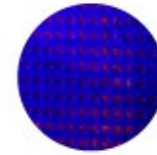
Junior Year: Determine eligibility for BS/MS program

| Meet with undergraduate advisor | Meet with ECE faculty mentor | Meet with Souad in GSO |

Semester before taking grad classes: Apply for the BS/MS program

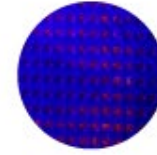| Submit BS/MS Plan of Study | Submit BS/MS Mentor Form | Submit Combined BS/MS Form |

By December 15 before BS Graduation: Submit a Graduate School application

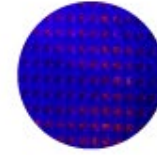| December 15 for fall admission | March-April admissions decision | Spring admission possible |

Potential BS/MS Candidates

- Excellent academic record
- Ability to handle heavy course loads
- AP credits
- Early planning
- Have a sense of research interests
- Interest in graduate school
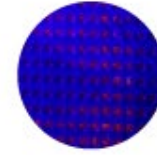- Grad courses fit into student plan

Applying Graduate Level Courses

- ENEE graduate level courses can satisfy major technical requirements
  - Electrical Engineering
    - Category A Technical Elective
    - General Technical Elective
  - Computer Engineering
    - Category C Technical Elective
    - ENEE646 can replace ENEE446 (by faculty approval)
    - Category F or additional Tech Electives
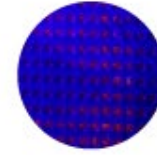 - ECE Honors: Grad course can replace H-level courses

Meeting with Undergrad Advisor

- ECE students can meet with their assigned undergrad advisor to discuss the program

- Freshmen/Sophomores
  - Discuss BS/MS program in your next registration meeting or during off peak times

- Juniors
  - Meet with advisor in the semester when you are completing your 9 credits of 300-level ENEE/CMSC courses

- BS/MS advising meeting can be held after registration period ends

Faculty Mentor Meeting

- Faculty mentor will provide guidance on selecting 9 credits of BS/MS grad courses

- In selecting a mentor, a good place to start is the ECE Research website: ece.umd.edu/research

- In preparation for your meeting:
  - Bring a copy of your transcripts
  - Review course descriptions
  - Be familiar with research interests

Research Areas
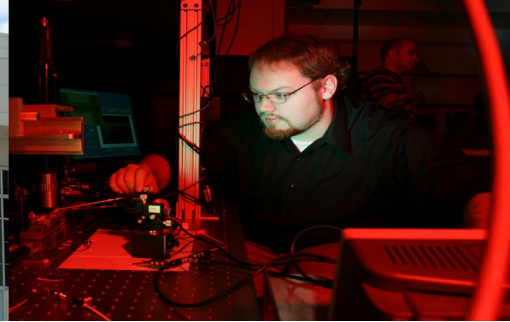
Communications & Signal Processing	ENEE222, ENEE322, ENEE324
Controls	ENEE222, ENEE322, ENEE324
Computer Engineering	ENEE150, ENEE244, ENEE245, ENEE350
Electrophysics	PHYS, ENEE205, ENEE380, ENEE381, ENEE382
Microelectronics	ENEE205, ENEE303, ENEE304, ENEE307, ENEE313
Power Systems	ENEE205, ENEE303, ENEE304, ENEE222, ENEE322

ELECTRICAL *and* COMPUTER ENGINEERING DEPARTMENT

MS Research Areas

Communications & Networking, Signal Processing	**CSP** (Communications & Signal Processing)
Controls, Robotics, & Dynamical Systems	**CONT** (Controls)
Computer Engineering, Cybersecurity	**COMP** (Computer Engineering)
Optics & Photonics, Applied Electromagnetics	**ELEC** (Electrophysics)
Circuits & Systems, Electronic Materials & Devices	**MICR** (Microelectronics)
Bioelectronics & Systems	multiple

MS Core Courses

Communications & Signal Processing (CSP)

ENEE 620

Random Processing in Communication & Control

ENEE 621

Estimation & Detective Theory

ENEE 627

Information Theory

ENEE 630

Advanced Digital Signal Processing

Computer Engineering (COMP)

ENEE 640

VLSI Architecture

ENEE 641

Mathematical Foundations for Computer Systems

ENEE 645

Compilers and Optimization

ENEE 646

Digital Computer Design

MS Core Courses

Controls (CONT)

ENEE 620
Random Processing in Communication & Control

ENEE 660
Systems Theory

ENEE 661
Nonlinear Control Systems

ENEE 662
Convex Optimization

ENEE 664
Optimal Control

Microelectronics (MICR)

ENEE 600
Solid State Electronics

ENEE 601
Semiconductor Devices and Technology

ENEE 611
Integrated Circuit Design and Analysis

ENEE 612
Advanced Power Electronics

Electrophysics (ELEC)

ENEE 680
Electromagnetic Theory I

ENEE 681
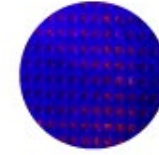Electromagnetic Theory II

ENEE 690
Quantum & Wave Phenomena with Electrical Application
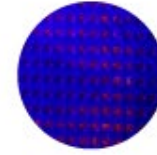
ENEE 692
Introduction to Photonics

Graduate School Application

Admission Requirement	Standard ECE Graduate Admission
Transcript	Required, GPA ≥ 3.5
General GRE (optional for ECE)	Currently not required
Letters of Recommendation	3 (two from ECE faculty recommended)
Statement of Purpose	Required
Resume or CV	Required

Questions?

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