

**Sample Electrical and Computer Engineering (ECE) and
Mechanical Engineering (ME) Dual Program**
[with Advanced Math Placement and One SS-H Credit]

FIRST YEAR	
Fall Semester	Spring Semester
1. WRITING 20/SS-H 2	1. SS-H 1/WRITING 20
2. MATH 32, Calculus II	2. MATH 103, Intermediate Calculus
3. CHEM 31L, Core Concepts in Chemistry	3. PHYSICS 61L, Mechanics
4. EGR 53L, Comp Methods in Engineering	4. EGR 75L, Mechanics of Solids
SOPHOMORE YEAR	
Fall Semester	Spring Semester
1. ECE 27L, Fundamentals of ECE	1. ECE 51L, Microelectronic Devices & Circuits
2. MATH 107, Linear Algebra & Differential Equations	2. MATH 108, Ordinary & Partial Differential Equations
3. PHYSICS 62L, Electricity, Magnetism & Optics	3. EGR 123L, Dynamics
4. ME 83L, Structure & Properties of Solids	4. ME 101L, Thermodynamics
5. COMPSCI 100E, Program Design & Analysis II	5. ME 126L, Fluid Mechanics
JUNIOR YEAR	
Fall Semester	Spring Semester
1. ECE 52L, Digital Systems	1. ECE 53L, Electromagnetic Fields
2. ECE 54L, Signals & Systems	2. ECE Concentration Elective (1)
3. ECE 142, Robotics & Automation	3. ME 125L, Control of Dynamic Systems
4. ECE 255, Probability & Statistics for Engineers	4. ME 131, Analysis for Design
5. SS-H 2	5. SS-H 3
SENIOR YEAR	
Fall Semester	Spring Semester
1. ECE Concentration Elective (2)	1. BIOLOGY 101L, 102L, 144 or 147
2. ME 150L, Heat Transfer	2. ME 160L, Mechanical System Design
3. ME 141L, Mechanical Design	3. ME Technical Elective
4. Approved ECE Design Elective	4. ECE Elective
5. SS-H 4	

NOTES:

- **WRITING 20:** University Writing Program, required in first year.
- **SS-H (Social Sciences and Humanities):** Five SS-H semester-course electives, appropriately distributed. Choices must cover 3 of 4 Areas of Knowledge (ALP, CZ, FL, SS), must include at least one SS course, and must include at least two courses from a single department (with at least one at the 100 level or above). The illustrated sample program assumes that one of the required SS-H courses is covered by an AP credit.
- **CHEM 31L:** AP credit CHEM 19 is also acceptable.
- **PHYSICS 61L & 62L:** PHYSICS 51L & 52L are acceptable substitutes for PHYSICS 61L & 62L, respectively. International students who have IPCs for GCE A-level physics take PHYSICS 63L or 143.
- **BIOLGY 101L, 102L, 144 or 147:** AP credit BIOLOGY 19 is also acceptable.
- **ECE Concentration Electives:** Two courses selected in one [Area of ECE Concentration](#) from the set approved for that concentration.
- **Approved ECE Design Elective:** Any one of the Approved ECE Design Electives, to be taken in a semester in which the student has *Senior status*. (Currently ECE 123, 135, 154, 164, 251 and 261 are approved.)
- **ME Technical Elective:** Any ME course at 100 level or higher.
- **ECE Elective:** Any ECE course at 100 level or above except ECE 148L, which latter course may be taken as a general elective if the course schedule accomodates that Free Elective.
- **Independent Study:** Accepted for the Elective ECE Course and/or for the ME Technical Elective, with *prior permission of the respective ECE or ME DUS*, and for any of the Free Electives, but not for any other required course in the dual-major program. Independent Study and Undergraduate Research are encouraged for qualified students, and required for Graduation with Departmental Distinction, but may require overload or summer study to fit into the dual-major program. A course overload is not recommended during the first year.
- **Free Electives:** A Free Elective is any Duke course counting toward the BSE degree beyond the specific courses required for the dual major. Additional Free Electives, increased flexibility for Study Abroad or for Independent Study could result, for example, from AP credit in mathematics (e. g., MATH 31 and/or 32), from AP credit for two SS-H courses (see the SS-H Note), from additional program overload (5 or more courses in a semester), or from summer courses. Overload is not recommended during the First Year.