Both Electrical Engineering and Computer Engineering students must choose a primary technical core component (8 courses) and a secondary technical core (** (includes 4 courses). Electrical Engineering students must choose their primary technical core/component from the Electrical Engineering tracks listed below; Computer Engineering students must choose theirs from the Computer Engineering tracks. For the secondary technical core, students may choose any technical core, including Academic Enrichment. **IF you are 18-20 Catalog, your “secondary” is actually Free Electives (14 hours required).

IMPORTANT NOTES:
• Courses in brackets [ ] are general prerequisite requirements, which are subject to change.
• Registrar’s online course schedule contains the most accurate course topics and pre-requisites.
• UT course syllabi are available at https://utdirect.utexas.edu/apps/student/coursedocs/nlogon/
• Consult the department offering a course if you have any questions about pre-requisites.
• You must complete at least 48 credit hours of engineering topics for your degree. Required courses (EE 302, 306, 411, 312, 313, 319K, 333T, 351K, 364, 464) yield 25 credit hours of engineering topics, 4 in math & basic sciences and 3 in other. Math courses count as math & basic sciences. See the Technical Core ABET advising sheet.
• All primary technical core courses and electives must be engineering courses with the exception of the advanced math course listed for the primary technical core.

ELECTRICAL ENGINEERING TECHNICAL CORES

COMMUNICATION, SIGNAL PROCESSING, NETWORKS AND SYSTEMS
Considers communication systems, system and signal analysis, networking theory and protocols, and control and optimization theory. Applications include wireless communications; speech, audio, image and video processing; and feedback control & robotics.

Required:

<table>
<thead>
<tr>
<th>Advanced Math</th>
<th>Core</th>
<th>Core</th>
<th>Core Lab</th>
</tr>
</thead>
</table>

Students must pick 4 additional electives from the following Technical Core courses:
EE 325 Electromagnetic Engineering [EE 411; M 427L or 427K; PHY 303N and 103L; co-requisite: M427L]
EE 325K Antennas and Wireless Propagation [EE 325]
EE 445S Real-Time Digital Signal Processing Laboratory [EE 312, 313 and 319K; co-requisites: EE 333T and 351K]
EE 351M Digital Signal Processing [EE 313; co-requisite: EE 351K]
EE 360C Algorithms [EE 312 and M 325K]
EE 361M/461P Introduction to Data Mining/Data Science Principles [EE 313, 351K, 360C, M 340L]
EE 362K Introduction to Automatic Control [EE 313 and M 340L]
EE 363M Microwave and Radio Frequency Engineering [EE 325]
EE 471C Wireless Communications Laboratory [EE 445S, 351M or 360K; co-requisite: EE 333T]
EE 371R Digital Image and Video Processing [EE 313 & EE 351K]
EE 379K/460J Data Science Laboratory [EE 313, EE 351K, EE 360C, and M 340L; co-requisite: EE 333T]
EE 379K Enterprise Network Security [EE 312 or EE 313]

See the Technical Core ABET advising sheet for allocation of engineering versus math & basic science topics. All primary technical core courses and electives must be engineering courses with the exception of the advanced math course.
ELECTRONICS AND INTEGRATED CIRCUITS
Trains students for careers involving design of electronics and integrated circuits including analog and digital integrated circuits, radio frequency circuits, power electronics, and biomedical electronics. The additional elective is only required for those picking this technical core as primary.

Required:

<table>
<thead>
<tr>
<th>Advanced Math</th>
<th>Core</th>
<th>Core</th>
<th>Core Lab</th>
<th>Additional Elective</th>
</tr>
</thead>
</table>

Students must pick 3 additional electives from the following Technical Core courses:
EE 438K Analog Electronics [EE 438]
EE 338L Analog Integrated Circuit Design [EE 438]
EE 440 Microelectronics Fabrication Techniques Laboratory [EE 339; co-requisite: EE 333T]
EE 445L Embedded Systems Design Laboratory [EE 411, 312, 313 and 319K; co-requisite: EE 333T]
EE 445S Real-Time Digital Signal Processing Laboratory [EE 312, 313 and 319K; co-requisite: EE 333T and 351K]
EE 460M Digital Systems Design Using HDL [EE 312, 316 and 319K]
EE 460N Computer Architecture [EE 306, 312, and 319K]
EE 460R Introduction to VLSI Design [EE 316 and 438]
EE 363M Microwave & Radio Frequency Engineering [EE 325]
EE 374K Biomedical Electronic Instrument Design [EE 438]
EE 374L Applications of Biomedical Engineering [EE 374K; co-requisite: EE 333T]

See the Technical Core ABET advising sheet for allocation of engineering versus math & basic science topics. All primary technical core courses and electives must be engineering courses with the exception of the advanced math course.

ENERGY SYSTEMS AND RENEWABLE ENERGY
Provides the foundation for a career in electric power systems, generation, grid operation, motors and drives, and renewable energy sources. Additional elective only required for those picking this tech core as their primary.

Required:

<table>
<thead>
<tr>
<th>Advanced Math</th>
<th>Core</th>
<th>Core</th>
<th>Core Lab</th>
<th>Additional Elective</th>
</tr>
</thead>
</table>

Students must pick 3 additional electives from the following Technical Core courses:
EE 339 Solid-State Electronic Devices [M 427J or 427K; PHY 303L and 103N]
EE 339S Solar Energy Conversion Devices [M 427J/K; PHY 303L and 103N]
EE 341 Electric Drives and Machines [EE 313]
EE 362Q Power Quality and Harmonics [EE 313]
EE 362R Renewal Energy and Power Systems [EE 313]
EE 362S Development of a Solar-powered Vehicle [EE 312 or EE 313]
EE 368L Power Systems Apparatus and Laboratory [EE 313; co-requisite: EE 333T]
EE 369 Power Systems Engineering [EE 313]
EE 362G Smart Grids [EE 368L or EE 369]
EE 379K Power Semiconductor Devices [EE 312 or EE 313]
ME 337C Intro to Nuclear Power Systems [ME 218; PHY 303L and 103N]

ME 337C has all credit hours in engineering topics. See the Technical Core ABET advising sheet for allocation of engineering versus math & basic science topics. All primary technical core courses and electives must be engineering courses with the exception of the advanced math course.
.FIELDS, WAVES AND ELECTROMAGNETIC SYSTEMS

Students in this technical core area study different aspects of applied electromagnetics, including antennas, radio wave propagation, microwave and radio frequency circuits and transmission structures, optical components and lasers, and engineering acoustics. The additional elective is only required for those picking this technical core as primary.

Required:

<table>
<thead>
<tr>
<th>Advanced Math</th>
<th>Core</th>
<th>Core</th>
<th>Core Lab</th>
<th>Additional Elective</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Pre-requisite: M 408D, 408L or 408S</td>
<td>Pre-requisite: M 427J or 427K; PHY 303L and 103N</td>
<td>Pre-requisite: EE 411; Co-requisite: EE 313 &amp; 333T</td>
<td>Pre-requisite: EE 325</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>OR</td>
<td>OR</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>EE 462L Power Electronics Laboratory</td>
<td>EE 363M Microwave and Radio Frequency Engineering</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Pre-requisite: EE 313 Co-requisite: EE 333T</td>
<td>Pre-requisite: EE 325</td>
</tr>
</tbody>
</table>

Students must pick 3 additional electives from the following Technical Core courses:

- EE 325K Antennas and Wireless Propagation [EE 325]
- EE 341 Electric Drives and Machines [EE 313]
- EE 347 Modern Optics [EE 313 and 325]
- EE 348 Laser and Optical Engineering [EE 339]
- EE 361R Radio Frequency Circuit Design [EE 325 and 438]
- EE 363M Microwave and Radio Frequency Engineering [EE 325]
- EE 363N Engineering Acoustics [M 427K]
- EE 369 Power Systems Engineering [EE 313]
- EE 374K Biomedical Electronic Instrument Design [EE 438]
- EE 374L Applications of Biomedical Engineering [EE 374K, co-requisite: EE 333T]

See the Technical Core ABET advising sheet for allocation of engineering versus math & basic science topics. All primary technical core courses and electives must be engineering courses with the exception of the advanced math course.

NANOELECTRONICS AND NANOTECHNOLOGY

Students in this technical core area learn about the materials and devices used in modern electronic and optoelectronic systems.

Required:

<table>
<thead>
<tr>
<th>Advanced Math</th>
<th>Core</th>
<th>Core</th>
<th>Core Lab</th>
<th>Additional Elective</th>
</tr>
</thead>
<tbody>
<tr>
<td>M 427L</td>
<td>EE 325 Electromagnetic Engineering</td>
<td>EE 339 Solid-State Electronic Devices</td>
<td>EE 440 Microelectronics Fabrication Techniques Laboratory</td>
<td>EE 325K Antennas and Wireless Propagation</td>
</tr>
<tr>
<td></td>
<td>Pre-requisite: M 408D, 408L or 408S</td>
<td>Pre-requisite: M 427J or 427K; PHY 303L and 103N</td>
<td>Pre-requisite: EE 313 Co-requisite: EE 333T</td>
<td>Pre-requisite: EE 325</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>OR</td>
<td>OR</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>EE 460R Power Electronics Laboratory</td>
<td>EE 363M Microwave and Radio Frequency Engineering</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Pre-requisite: EE 313 Co-requisite: EE 333T</td>
<td>Pre-requisite: EE 325</td>
</tr>
</tbody>
</table>

Students must pick 4 additional electives from the following Technical Core courses:

- EE 438 Fundamentals of Electronic Circuits I Laboratory [EE411; Credit or registration of EE 313 and 333T]
- EE 338L Analog Integrated Circuit Design [EE 438]
- EE 339S Solar Energy Conversion Devices [M 427J/K; PHY 303L and 103N]
- EE 347 Modern Optics [EE 313 and 325]
- EE 348 Laser and Optical Engineering [EE 339]
- EE 460R Introduction to VLSI Design [EE 316 and 438]
- EE 340P High-Throughput Nanopatterning [EE 411, EE 339, and M 427]
- EE 379K Power Semiconductor Devices [EE 312 or EE 313]

See the Technical Core ABET advising sheet for allocation of engineering versus math & basic science topics. All primary technical core courses and electives must be engineering courses with the exception of the advanced math course.
**COMPUTER ENGINEERING TECHNICAL CORES**

**COMPUTER ARCHITECTURE AND EMBEDDED SYSTEMS**
Involves understanding the operation and design of computers and embedded systems on many different levels, including the instruction set, microarchitecture, logic design, stand-alone systems, and software and hardware components of a larger system. *The additional elective only required for those picking this techn core as primary.*

**Required:**

<table>
<thead>
<tr>
<th>Advanced Math</th>
<th>Core</th>
<th>Core</th>
<th>Core Lab</th>
<th>Additional Elective</th>
</tr>
</thead>
<tbody>
<tr>
<td>M 325K</td>
<td>EE 316</td>
<td>EE 460N</td>
<td>EE 445L</td>
<td>EE 360C</td>
</tr>
<tr>
<td>Discrete Mathematics</td>
<td>Digital Logic Design</td>
<td>Computer Architecture</td>
<td>Embedded Systems Design Laboratory</td>
<td>Algorithms</td>
</tr>
<tr>
<td>Pre-requisite: M 408D, 408L, or 408S</td>
<td>Pre-requisite: EE 306</td>
<td>Pre-requisites: EE 308, 312, and 319K</td>
<td>Pre-requisites: EE 411, 312, 313, and 319K</td>
<td>Pre-requisites: EE 312 and M 325K</td>
</tr>
</tbody>
</table>

Students must pick 3 additional electives from the following Technical Core courses:
- EE 422C Software Design & Implementation II [EE 312 or CS 312]
- EE 445M Embedded and Real-Time Systems Laboratory [EE 445L or EE 445S; co-requisite: EE 333T]
- EE 445S Real-Time Digital Signal Processing Laboratory [EE 312, 313 and 319K; co-requisites: EE 333T and 351K]
- EE 460M Digital Systems Design Using HDL [EE 312, 316 and 319K]
- EE 360P Concurrent and Distributed Systems [EE 422C and EE 360C]
- EE 460R Introduction to VLSI Design [EE 316 and 438]
- EE 361C Multicore Computing [EE 422C]
- EE 461S Operating Systems [EE 312 and 319K, and M 325K]
- EE 362K Introduction to Automatic Control [EE 313 and M 340L]
- EE 379K Information Security & Privacy [EE 312 or EE 313]
- EE 379K Enterprise Network Security [EE 312 or EE 313]

See the Technical Core ABET advising sheet for allocation of engineering versus math & basic science topics. All primary technical core courses and electives must be engineering courses with the exception of the advanced math course.

**DATA SCIENCE AND INFORMATION PROCESSING**
Trains students in information and signal processing, data mining as well as decision and control algorithms. Applications include data analytics, machine learning, sound and image processing, knowledge extraction and actuation.

**Required:**

<table>
<thead>
<tr>
<th>Advanced Math</th>
<th>Core</th>
<th>Core</th>
<th>Core Lab</th>
<th>Required Elective</th>
</tr>
</thead>
<tbody>
<tr>
<td>M 325K</td>
<td>EE 361M or EE 461P</td>
<td>EE 360C</td>
<td>EE 460J or EE 379K</td>
<td>EE 351M</td>
</tr>
<tr>
<td>Discrete Mathematics</td>
<td>Data Science Principles</td>
<td>Algorithms</td>
<td>Data Science Laboratory</td>
<td>Digital Signal Processing</td>
</tr>
<tr>
<td>Pre-requisites: M 408D, 408L, or 408S</td>
<td>Pre-requisites: EE 351K, EE 360C, M 340L</td>
<td>Pre-requisites: EE 312 and M 325K</td>
<td>Pre-requisites: EE 313, EE 351K, EE 360C, M 340L</td>
<td>Co-requisite: EE 333T</td>
</tr>
</tbody>
</table>

Students must pick 3 additional electives from the following Technical Core courses:

*If choosing Acad. Enrichment as your secondary tech core, you must choose one of the following: EE 316 or EE 445S or EE 471C*
- EE 422C Software Design & Implementation II [EE 312 or CS 312]
- EE 445S Real-Time Digital Signal Processing Laboratory [EE 312, 313 and 319K; co-requisites: EE 333T and 351K]
- EE 360P Concurrent and Distributed Systems [EE 422C and EE 360C]
- EE 361C Multicore Computing [EE 422C]
- EE 461L Software Engineering and Design Laboratory [EE 422C and M 325K; co-requisite: EE 333T]
- EE 362K Introduction to Automatic Control [EE 313 and M 340L]
- EE 471C Wireless Communications Laboratory [EE 445S, 351M or 360K; co-requisite: EE 333T]
- EE 371R Digital Image and Video Processing [EE 313 & EE 351K]
- EE 379K Architecture for Big Data Science [EE 422C and 351K, and M 340L]
- EE 379K Engineering Dynamic Program Analysis [EE 312 or EE 313]

*If you choose Data Science with Acad. Enrichment, you’re required to take one of the following Electives: EE 316 or EE 445S or EE 471C. If Academic Enrichment is not your secondary, please disregard.*
see the Technical Core ABET advising sheet for allocation of engineering versus math & basic science topics. all primary technical core courses and electives must be engineering courses with the exception of the advanced math course.

Software Engineering and Design
This core covers the engineering life cycle of software systems, including requirement analysis and specification, design, construction/programming, testing, deployment, maintenance, and evolution.

Required:

<table>
<thead>
<tr>
<th>Advanced Math</th>
<th>Core</th>
<th>Core</th>
<th>Core Lab</th>
</tr>
</thead>
<tbody>
<tr>
<td>M 325K</td>
<td>EE 422C</td>
<td>EE 360C</td>
<td>EE 461L</td>
</tr>
<tr>
<td>Discrete Mathematics</td>
<td>Software Design &amp; Implementation II</td>
<td>Algorithms</td>
<td>Software Engineering and Design Laboratory</td>
</tr>
<tr>
<td>Pre-requisite: M 408D, 408L, or 408S</td>
<td>Pre-requisite: EE 312</td>
<td>Pre-requisites: EE 312 and M 325K</td>
<td>Pre-requisites: EE 422C and M 325K</td>
</tr>
</tbody>
</table>

Students must pick 4 additional electives from the following Technical Core courses:

*If choosing Acad. Enrichment as your secondary tech core, you must choose one of the following: EE 316 or EE 445L*

EE 316  Digital Logic Design [EE 306 or CS429]
EE 445L  Embedded Systems Design Laboratory [EE 411, 312, 313 and 319K; co-requisite: EE 333T]
EE 445M  Embedded and Real-Time Systems Laboratory [EE 445L or 445S; co-requisite: EE 333T]
EE 460N  Computer Architecture [EE 306, 312 and 319K]
EE 360P  Concurrent and Distributed Systems [EE 422C and EE 360C]
EE 360T  Software Testing [EE 422C]
EE 361C  Multicore Computing [EE 422C]
EE 361M/461P  Introduction to Data Mining/Data Science Principles [EE 313, 351K, 360C; M 340L]
EE 361Q  Requirements Engineering [EE 312]
EE 461S  Operating Systems [EE 312 and 319K, and M 325K]
EE 379K/460J  Data Science Laboratory [EE 313, EE 351K, EE 360C, and M 340L; co-requisite: EE 333T]
EE 379K  Information Security & Privacy [EE 312 or EE 313]
EE 379K  Engineering Dynamic Program Analysis EE 312 or EE 313]
EE 379K  Software Architectures [EE 312 or EE 313]
EE 379K  Enterprise Network Security [EE 312 or EE 313]

*If you are choosing Software Engineering and Design along with Academic Enrichment, it is required you take one of the following Technical Core Electives: EE 316 or EE 445L.* If Acad. Enrichment is not your secondary, please disregard.

See the Technical Core ABET advising sheet for allocation of engineering versus math & basic science topics. all primary technical core courses and electives must be engineering courses with the exception of the advanced math course.

Academic Enrichment (12-14, 14-16, 16-18 catalogs only)

A student may choose the Academic Enrichment as their secondary technic core ONLY. For AE, the student selects 14 hours of coursework to support his or her personal or career goals. At least 3 of the 14 hours must be an advanced math/ basic science course. Before registering for these courses, students are strongly encouraged to look through the Course Database on our ECE website for a list of pre-approved courses.

You must complete at least 48 credit hours of engineering topics for your degree. Required courses (EE 302, 306, 411, 312, 313, 319K, 333T, 351K, 364, 464) yield 25 credit hours of engineering topics, 4 in math & basic sciences and 3 in other, as described on the last page. The primary technical cores described above would yield a minimum of 22 / 23 credit hours of engineering topics and 4 / 3 hours of math & basic science topics, depending on whether M 427L / M 325K were taken.

Academic Enrichment courses may include traditional upper-division technical courses in Electrical Engineering and other allied fields. For example, those wanting to strengthen their mathematical background might consider the courses listed on the next page. In particular, those wanting to prepare for graduate studies in communications, data science, machine learning, networks, signal processing, and/or systems/controls, might consider the following:
Those wanting a stronger background in system software might consider the following courses:

CS 356  Computer Networks [CS 439 or 372]
CS 371P  Object-Oriented Programming [CS 310 or 429]
CS 375  Compilers [CS 310 or 310H; CS 336 or 336H; M 408D or 408M]
EE 360P  Concurrent and Distributed Systems [EE 422C and EE 360C]
EE 461S  Operating Systems [EE 312 and 319K, and M 325K]

Academic Enrichment courses may be in other fields, such as business, economics, communication, music, and philosophy; or research done with a faculty member in EE X60 Special Problems in Electrical and Computer Engineering. The courses must be completed in residence; courses in an approved study abroad program require the approval of the Undergraduate Faculty Advisor. There may include up to three hours of EE 325L Cooperative Engineering, EE 225M Cooperative Engineering, and EE 125S Internship in Electrical and Computer Engineering.

ALTERNATIVE ADVANCED MATH COURSES

**If a student chooses BOTH Electrical Engineering Technical Core Areas**

M 325K  Discrete Mathematics [M 408D, 408L or 408S]
M 328K  Introduction to Number Theory [M 325K]
M 346  Applied Linear Algebra [M 340L]
M 348  Scientific Computing [M 340L; CS 303E or 307]
M 358K  Applied Statistics ## [M 362K or EE 351K]
M 361  Theory of Functions of Complex Variables [M 427K or 427L]
M 362M  Introduction to Stochastic Processes [M 362K or EE 351K]
M 365C  Real Analysis I [At least two of the following: M 325K, M 328K, M 340L/341; consent of undergraduate advisor]
M 372K  Partial Differential Equations and Applications [M 427K]
M 374  Fourier and Laplace Transforms [M 427K]
M 374M  Mathematical Modeling in Science and Engineering [M 427K; M 340L or 341]
M 378K  Introduction to Mathematical Statistics ## [M 362K or EE 351K]

ALTERNATIVE ADVANCED MATH COURSES

**If a student chooses BOTH Computer Engineering Technical Core Areas**

M 427L  Advanced Calculus for Applications II [M 408D or 408M]
M 328K  Introduction to Number Theory [M 325K]
M 343K  Introduction to Algebraic Structures [two of the following: M 325K, M 328K and M 341]
M 344K  Intermediate Symbolic Logic [PHL 313, 313K or 313Q]
M 348  Scientific Computation in Number Analysis [M 340L; CS 303E or 307]
M 358K  Applied Statistics ## [M 362K or EE 351K]
M 365C  Real Analysis I [At least two of the following: M 325K, M 328K, M 340L/341; consent of undergraduate advisor]
M 374M  Mathematical Modeling in Science and Engineering [M 427K and 340L]
M 378K  Introduction to Mathematical Statistics ## [M 362K or EE 351K]
CS 341  Automata Theory [Computer Science 429 (or 310) or 429H (or 310H)]
CS 346  Cryptography [CS 429 (or 310) or 429H (310H); 331 (or 357), 331H (or 357H), 341, or 341H; corequisite: M 340L]

## M 378K Introduction to Mathematical Statistics [M 362K or EE 351K] is more in-depth than M 358

***Check with the CS Dept. / Advisor for ALL PREREQUISITE REQUIREMENTS & CLASS SEAT AVAILABILITY***
**Academic Enrichment (AE)/Free Electives**

**What is it?**
- 14 credit hours of courses; only 3 lower division
- It’s flexible, YOU pick your courses
- Courses can be from ECE or other departments
- Requires an advanced math/basic science course
  - Visit our ECE website for more details

**How does it work?**
1. Review the **Course Database** for pre-approved courses to count toward AE / Free Electives (on ECE website)
2. Once you decide on your courses from the **Course Database**, submit your courses via a Qualtrics survey. Afterwards, an ECE advisor will update your degree audit.
3. Want to take a course that’s NOT listed on the Database? Student can petition a course- but you have to upload a link to the most recent course syllabus. You can petition via the same Qualtrics survey.

**Reminders:**
- Only 3 hours can be lower division
- NO Pass/Fail courses accepted (except EE 125S)
- Career Plan statements are not required
- When submitting the survey, include the course number and name. Example: **M 325K - Discrete Math**

---

**Tips for Petitioning Courses**

**Courses must count towards a degree in the offering department.**
- For example, ITD courses are not accepted because there is no ITD undergrad degree.

**Courses for non-majors are not accepted.**
For example, Sculpture for non-majors is not accepted because it doesn’t count towards an Art degree.

For more on the Course Database & a link to the Qualtrics Survey, please visit our website:

[https://www.ece.utexas.edu/undergraduate/academic-enrichment](https://www.ece.utexas.edu/undergraduate/academic-enrichment)
**Acceptable**

- Courses taken for a letter grade.
- Courses taken in-residence.
- Courses taken via a study abroad program if pre-approved.
- Courses completed as part of a dual degree.
- EE 109K Enhancing Academic Success or First-Year Design (taken for a letter grade).
- Research done for course credit (EE X60 Special Problems course, no more than one semester; ES 321 or ES 322 GLUE Undergraduate Research, up to two semesters).
- Engineering Co-op (EE 325LX, 325LY, & 325LZ, or EE 225MA & 225MB; up to three credit hours).
- Approved Engineering Internship in Industry (EE 125S, up to three credit hours). Paperwork is due before the internship begins.
- Service Learning for Engineers (ES 160, ES 260, ES 360, up to two semesters)
- ES 277K and ES 377K, up to two semesters
- Graduate coursework if taken for undergraduate credit.
- Courses taken for a minor:
  - Up to one course from the minor (14-16 catalogs and earlier).
  - Multiple courses from the minor, as long as at least 9 hours of the minor are NOT used towards BSEE requirements (16-18 catalog).
- Courses taken for a certificate. At least 1 certificate course must be outside the requirements of the BSEE degree.

**Unacceptable**

- Lower-division courses (only 3 credit hours allowed).
- University Extension courses
- Pass-Fail Courses
  - **Exception**: EE 125S
- Transfer coursework
  - **Exception**: 18-20 Catalog is allowed 3 hours of transfer credit
- Courses that do not count toward a degree in the offering department.
  - Examples:
    - General Engineering supplemental instruction
    - Elements of Computing courses
    - Business Foundations courses
    - Information Studies (INF) courses
    - Integrated Design (ITD) courses
- AP credits
- ES 107S or ES 119 “Bites” courses
- Courses from the BSEE/MSE integrated program CANNOT count towards AE and the MSE.
- Courses that lack substantial rigor.
  - Examples:
    - CH 301, CH 304K, CH 305K, INF 312
- Courses that apply to personal growth and do not apply to specific careers.
  - Examples:
    - PED, ROTC, HDF courses
- Courses that duplicate required course content.
  - Examples:
    - SDS 322 (overlaps with EE 312)
    - EDP 371, M 362K, and SDS 321 (overlap with EE 351K)
**DATA SCIENCE AND INFORMATION PROCESSING (IF CHOOSING AS YOUR PRIMARY TECHNICAL CORE):**

Trains students in information and signal processing, data mining as well as decision and control algorithms. Applications include data analytics, machine learning, sound and image processing as well as knowledge extraction and actuation. Choose a faculty advisor from among Profs. Constantine Caramanis, Alex Dimakis, Joydeep Ghosh, Evdokia Nikolova, Sujay Sanghavi and Haris Vikalo. Please review their research interests on the ECE website to find a mentor that matches your career goals. Select your two technical cores.

*Secondary Technical Core: _______________________________  Graduating Semester: ______________

**Advanced Technical Core**

<table>
<thead>
<tr>
<th>M 325K</th>
<th>EE 461P or EE 361M</th>
<th>EE 360C</th>
<th>EE 379K or EE 460J</th>
<th>EE 351M</th>
</tr>
</thead>
<tbody>
<tr>
<td>Discrete Mathematics</td>
<td>Intro to Data Mining</td>
<td>Algorithms</td>
<td>Data Science Laboratory</td>
<td>Digital Signal Processing</td>
</tr>
<tr>
<td>Pre-requisite: M 408D, 408L or 408S</td>
<td>Pre-requisites: EE 351K and 360C, M 340L</td>
<td>Pre-requisites: EE 312 and M 325K</td>
<td>Pre-requisites: EE 351K and 360C</td>
<td>Co-requisite: EE 351K</td>
</tr>
</tbody>
</table>

Students must pick 3 additional electives from the following Technical Core courses:

*If choosing academic enrichment as your secondary tech core, you must choose one of the following: EE 316 or EE 445S or EE 471C

EE 422C Software Design & Implementation II [EE 312 or CS 312]

EE 445S Real-Time Digital Signal Processing Laboratory [EE 312, 313 and 319K; co-requisites: EE 333T & EE 351K]

EE 360P Concurrent and Distributed Systems [EE 422C and EE 360C]

EE 361C Multicore Computing [EE 422C]

EE 461L Software Engineering and Design Laboratory [EE 422C and M 325K; co-requisite: EE 333T]

EE 362K Introduction to Automatic Control [EE 313 and M 340L]

EE 471C Wireless Communications Laboratory [EE 445S, 351M or 360K; co-requisite: EE 333T]

EE 371R Digital Image and Video Processing [EE 351K]

EE 379K Architecture for Big Data Science [EE 422C and 351K, and M 340L]

EE 379K Engineering Dynamic Program Analysis [EE 312 or EE 313]

(Secondary courses must add to at least 14 credit hours, with at least one math/science course; must have 48 credit hours of engineering and 32 credit hours of math/science topics; primary electives MUST be a minimum of 23 EE credit hours; BSEE requires a minimum of 125 credit hrs).

*Data Science & Academic Enrichment:* **PLEASE NOTE THAT ACADEMIC ENRICHMENT REQUIRES A MINIMUM OF 14 CREDIT HOURS.** If you choose this combination you MUST complete one of the required electives listed above. If you are hoping to appeal with a different course, your faculty advisor must approve.

**Student’s Name_________________________  Student’s UT EID: ______________**

1. Student Signature  2. Data Science Faculty Mentor  3. Undergrad Faculty Advisor: Dr. Valvano

**Return signed form with three signatures to Sharon Bressette in EER 2.884. __________ (Date)**