

ELECTRICAL ENGINEERING CURRICULUM CHECKLIST

NAME: _____

E-mail: _____

CSCI-1100	Computer Science I	4		ENGR-1200	Eng. Graphics & CAD ¹	1	
MATH-1010	Calculus I	4		CHEM-1100	Chemistry I	4	
ENGR-1100	Intro. to Eng. Analysis	4		MATH-1020	Calculus II	4	
	Hum., Arts or Soc. Sci. El.	4		PHYS-1100	Physics I	4	
					Hum., Arts or Soc. Sci. El.	4	
MATH-2400	Intro. to Differential Eqns.	4		ENGR-2350	Embedded Control	4	
PHYS-1200	Physics II	4		ECSE-2010	Electric Circuits	4	
	Multidisciplinary Elective ¹	4		ECSE-2610	Cptr. Comp. & Operations	4	
	Hum., Arts or Soc. Sci. El.	4		MATH-2010	Multivar Calc & Matrix Alg	4	
ENGR-2050	Intro. to Eng. Design	4		ECSE-2100	Fields & Waves I	4	
ECSE-2050	Intro. to Electronics	4		ECSE-2210	Microelectronics Tech.	3	
ECSE-2410	Signals & Systems	3		ECSE-2110	Electrical Energy Systems	4	
ECSE-2500	Engineering Probability	3			Free Elective ^{2,3}	3-4	
	Professional Devel. II ¹	2					
ENGR-4010	Professional Devel. III ¹	1			Restricted Elective ^{1,4}	3	
	Design Elective ¹	3			Restricted Elective ^{1,4}	3	
	Lab Elective ^{1,4}	3-4			Free Elective ^{1,2}	3-4	
	Technical Elective ^{1,4}	3-4			Free Elective (if needed) ²	3-4	
	Free Elective ^{1,2}	3-4			Hum., Arts or Soc. Sci. El.	4	
	Hum., Arts or Soc. Sci. El.	4					

¹ May be taken either term.

² The free electives must total to at least 12 credits.

³ Students are encouraged to select a life science course, such as BIOL-1010.

⁴ It is recommended that students use electives to form a concentration. See the ECSE web page for concentration listings.

128 credits minimum

RESTRICTED ELECTIVE

ECSE-4xxx or ECSE-6xxx.

TECHNICAL ELECTIVE

Any course in engineering or science at the 4000 level or higher.

MULTIDISCIPLINARY ELECTIVES

ENGR-1600 Materials Science for Eng.
 ENGR-2090 Engineering Dynamics
 ENGR-2250 Thermal & Fluids Eng. I
 ENGR-2530 Strength of Materials

LAB ELECTIVES

ENGR-4710 Adv. Manufacturing Lab I
 ECSE-4160 Electric Power Eng. Lab
 ECSE-4220 VLSI Design
 ECSE-4760 Real-Time Cntrl & Comm.
 ECSE-4770 Cptr H'ware Design
 ECSE-4790 Microprocessor Systems

DESIGN ELECTIVES

MANE-4220 Inventor's Studio (F, S)
 ECSE-4900 ECSE Design (F, S)

COMPUTER AND SYSTEMS ENGINEERING CURRICULUM CHECKLIST

NAME: _____

E-mail: _____

ENGR-1200	Eng. Graphics & CAD ¹	1		MATH-2800	Intro. to Discrete Structures	4	
ENGR-1100	Intro. to Eng Analysis	4		MATH-1020	Calculus II	4	
MATH-1010	Calculus I	4		CSCI-1200	Data Structures	4	
CSCI-1100	Computer Science I	4			Hum., Arts or Soc. Sci. El.	4	
	Hum., Arts or Soc. Sci. El.	4					
ENGR-2350	Embedded Control	4		ECSE-2660	Cptr Arch, Nets, & Op Sys	4	
ECSE-2610	Cptr. Comp. & Operations	4		MATH-2400	Intro. to Differential Eqns	4	
CSCI-2300	Introduction to Algorithms	4		PHYS-1200	Physics II	4	
PHYS-1100	Physics I	4		CHEM-1100	Chemistry I	4	
ENGR-2050	Intro. to Eng. Design	4		ECSE-2410	Signals & Systems	3	
ECSE-2010	Electric Circuits	4		ECSE-2050	Intro. to Electronics	4	
MATH-2010	Multivar Calc & Matrix Alg.	4		ECSE-2500	Engineering Probability	3	
	Hum., Arts or Soc. Sci. El.	4			Free Elective ^{2,3}	3-4	
					Hum., Arts or Soc. Sci. El.	4	
ENGR-4010	Professional Devel. III ¹	1			Professional Devel. II ¹	2	
	Technical Elective ^{1,4}	3-4			Restricted Elective ^{1,4}	3-4	
	Restricted Elective ^{1,4}	3-4			Design Elective ¹	3	
	Computer Eng Elective ⁴	3-4			Free Elective ^{1,3}	3-4	
	Free Elective ^{1,3}	3-4			Hum., Arts or Soc. Sci. El.	4	
					Free Elective (if needed) ²	3-4	

¹ May be taken either term.

² The free electives must total at least 12 credits.

³ Students are encouraged to select a life science course, such as BIOL-1010.

⁴ It is recommended that students use electives to form a concentration. See the ECSE web page for concentration listings.

129 credits minimum

RESTRICTED ELECTIVE

ECSE-4xxx , ECSE-6xxx, CSCI-4xxx, or CSCI-6xxx.

TECHNICAL ELECTIVE

Any course in engineering or science at the 4000 level or higher.

COMPUTER ENGINEERING ELECTIVES

ECSE-4670 Comp. Comm. Networks
 ECSE-4750 Computer Graphics
 ECSE-4790 Microprocessor Systems
 CSCI-4380 Database Systems
 CSCI-4440 Software Dsg & Doc

DESIGN ELECTIVES

MANE-4220 Inventor's Studio (F, S)
 ECSE-4900 ECSE Design (F, S)

EE AND APPLIED PHYSICS* DUAL MAJOR CURRICULUM CHECKLIST

NAME: _____

E-mail: _____

ENGR-1100	Intro. to Eng. Analysis	4		ENGR-1200	Eng. Graphics & CAD ¹	1	
CSCI-1100	Computer Science I	4		MATH-1020	Calculus II	4	
MATH-1010	Calculus I	4		CHEM-1100	Chemistry I	4	
	Hum., Arts or Soc. Sci. El.	4		PHYS-1100	Physics I	4	
					Hum., Arts or Soc. Sci. El.	4	
ENGR-2050	Intro. to Eng. Design	4		ENGR-2350	Embedded Control	4	
MATH-2400	Intro. to Differential Eqns.	4		ECSE-2010	Electric Circuits	4	
PHYS-1200	Physics II	4		ECSE-2610	Cptr. Comp. & Operations	4	
BIOL-1010	Intro. to Biology ¹	4		MATH-2010	Multivar. Calc. & Matrix Alg.	4	
ECSE-2050	Intro. to Electronics	4		ECSE-2210	Microelectronics Tech.	3	
ECSE-2410	Signals & Systems	3		PHYS-2350	Experimental Physics	4	
PHYS-2110	Modern Physics	4		PHYS-4210	Electromagnetic Theory	4	
MATH-4600	Advanced Calculus	4		ECSE-2110	Electrical Energy Systems	4	
ECSE-2500	Engineering Probability	3			Hum., Arts or Soc. Sci. El.	4	
ENGR-4010	Professional Devel. III ¹	1			Professional Devel. II ^{1,2}	2	
ECSE-4220	VLSI Design	3		ECSE-4900	ECSE Design ¹	3	
PHYS-2330	Intermediate Mechanics	4		PHYS-4420	Thermody. & Stat. Mechanics	4	
PHYS-2510	Quantum Physics	4			EE Restricted Elective	3	
	Microelectronics Elective ¹	3-4			Hum., Arts or Soc. Sci. El.	4	
	Hum., Arts or Soc. Sci. El.	4					

¹ May be taken either term.

² May be taken in the third year

137 credits minimum

* EE must be your first named major. Otherwise an additional 2 credit hours of H&SS are required.

MICROELECTRONICS ELECTIVE

ECSE-4080 Semiconductor Pwr Electronics

ECSE-4250 Int. Ckt. Process & Design

ECSE-4720 Solid-State Physics

EE RESTRICTED ELECTIVE

ECSE-4xxx or ECSE-6xxx.

EE AND CSE DUAL MAJOR CURRICULUM CHECKLIST

NAME: _____

E-mail: _____

ENGR-1100	Intro. to Eng. Analysis	4		ENGR-1200	Eng. Graphics & CAD ¹	1	
MATH-1010	Calculus I	4		MATH-1020	Calculus II	4	
CSCI-1100	Computer Science I	4		MATH-2800	Intro. Discrete Structures	4	
	Hum., Arts or Soc. Sci. El.	4		CSCI-1200	Data Structures	4	
					Hum., Arts or Soc. Sci. El.	4	
ENGR-2350	Embedded Control	4		ECSE-2660	Cptr Arch, Nets, & Op Sys	4	
ECSE-2610	Cptr. Comp. & Operations	4		MATH-2400	Intro. to Differential Eqns	4	
CSCI-2300	Introduction to Algorithms	4		PHYS-1200	Physics II	4	
PHYS-1100	Physics I	4		CHEM-1100	Chemistry I	4	
ENGR-2050	Intro. to Eng. Design	4		ECSE-2050	Intro. to Electronics	4	
ECSE-2010	Electric Circuits	4		ECSE-2100	Fields & Waves I	4	
	Multidisc. Elective ¹	4		ECSE-2410	Signals & Systems	3	
MATH-2010	Multivar Calc & Matrix Alg	4		ECSE-2500	Engineering Probability	3	
	Hum., Arts or Soc. Sci. El.	4		ECSE-2110	Electrical Energy Systems	4	
ENGR-4010	Professional Devel. III ¹	1			Professional Devel. II ^{1,2}	2	
ECSE-2210	Microelectronics Tech.	3			Design Elective ¹	3	
	Computer Eng Elective ¹	3-4			Restricted Elective ^{1,3}	3-4	
	Lab Elective ^{1,3}	3-4			Restricted Elective ^{1,3}	3-4	
	Technical Elective ^{1,3}	3-4			Hum., Arts or Soc. Sci. El.	4	
	Hum., Arts or Soc. Sci. El.	4					

¹ May be taken either term.

² May be taken in the third year

³ It is recommended that students use electives to form a concentration. See the ECSE web page for concentration listings.

135 credits minimum

RESTRICTED ELECTIVE

ECSE-4xxx, ECSE-6xxx, CSCI-4xxx, or CSCI-6xxx.

TECHNICAL ELECTIVE

Any course in engineering or science at the 4000 level or higher.

MULTIDISCIPLINARY ELECTIVES

ENGR-1600 Materials Science for Eng.
ENGR-2090 Engineering Dynamics
ENGR-2250 Thermal & Fluids Eng. I
ENGR-2530 Strength of Materials

COMPUTER ENGINEERING ELECTIVES

ECSE-4670 Comp. Comm. Networks
ECSE-4750 Computer Graphics
ECSE-4790 Microprocessor Systems
CSCI-4380 Database Systems
CSCI-4440 Software Dsg & Doc

LAB ELECTIVES

ENGR-4710 Adv Manufacturing Lab I
ECSE-4160 Electric Power Eng. Lab
ECSE-4220 VLSI Design
ECSE-4760 Real-Time Cntrl & Comm.
ECSE-4770 Cptr. H'ware Design
ECSE-4790 Microprocessr Sys

DESIGN ELECTIVES

MANE-4220 Inventor's Studio (F, S)
ECSE-4900 ECSE Design (F, S)

CSE AND COMPUTER SCIENCE* DUAL MAJOR CURRICULUM CHECKLIST

NAME: _____

E-mail: _____

ENGR-1100	Intro. to Eng. Analysis	4		MATH-2800	Intro. to Discrete Structures	4	
ENGR-1200	Eng. Graphics & CAD ¹	1		MATH-1020	Calculus II	4	
MATH-1010	Calculus I	4		CSCI-1200	Data Structures	4	
CSCI-1100	Computer Science I	4			Hum., Arts or Soc. Sci. El.	4	
	Hum., Arts or Soc. Sci. El.	4					
ENGR-2350	Embedded Control	4		ECSE-2660	Cptr Arch, Nets, & Op Sys	4	
ECSE-2610	Cptr. Comp. & Operations	4		CHEM-1100	Chemistry I ³	4	
CSCI-2300	Introduction to Algorithms	4		MATH-2400	Intro. to Differential Eqns	4	
PHYS-1100	Physics I	4		PHYS-1200	Physics II	4	
ENGR-2050	Intro. to Eng. Design	4		ECSE-2410	Signals & Systems	3	
ECSE-2010	Electric Circuits	4		CSCI-4430	Programming Languages	4	
CSCI-2400	Models of Computation	4		CSCI-4210	Operating Systems	4	
MATH-2010	Multivar Calc & Matrix Alg.	4		ECSE-2050	Introduction to Electronics	4	
	Hum., Arts or Soc. Sci. El.	4		ECSE-2500	Engineering Probability	3	
ENGR-4010	Professional Devel. III ¹	1			Professional Devel. II ^{1,2}	2	
BIOL-1010	Intro. to Biology ¹	4			Design Elective ¹	3	
CSCI-4440	Software Design & Doc.	4			Computer Science Option ¹	3-4	
	Computer Science Option ¹	3-4			Computer Science Option ¹	3-4	
	Hum., Arts or Soc. Sci. El.	4			Hum., Arts or Soc. Sci. El.	4	

¹ May be taken either term.

² May be taken in the third year

³ Intro. to Biology (shown in senior year) can be taken here, with Chemistry I moving to the senior year

* CSE must be your first named major. Otherwise an additional 2 credit hours of H&SS are required.

134 credits minimum

COMPUTER SCIENCE OPTION

Any course numbered CSCI-4xxx, CSCI-6xxx, ECSE-46xx or ECSE-47xx may be used, excluding ECSE-4630, ECSE-4640, ECSE-4720 and reading and independent study courses. ECSE-4490 may also fulfill this requirement.

DESIGN ELECTIVES

MANE-4220 Inventor's Studio (F, S)
ECSE-4900 ECSE Design (F, S)

EE AND BIOMEDICAL ENGINEERING DUAL MAJOR CURRICULUM CHECKLIST

NAME: _____

E-mail: _____

ENGR-1100	Intro. to Eng. Analysis	4		ENGR-1200	Eng. Graphics & CAD ¹	1	
CSCI-1100	Computer Science I	4		MATH-1020	Calculus II	4	
MATH-1010	Calculus I	4		BIOL-2120	Intro. to Cell & Molec. Bio.	4	
	Hum., Arts or Soc. Sci. El.	4		PHYS-1100	Physics I	4	
					Hum., Arts or Soc. Sci. El.	4	
CHEM-1100	Chemistry I	4		BMED-2200	Modeling of Biomed. Sys.	4	
MATH-2400	Intro. to Differential Eqns.	4		ECSE-2010	Electric Circuits	4	
PHYS-1200	Physics II	4		ENGR-2600	Mod. & Anal. Uncertainty ^{1,3}	3	
ENGR-2350	Embedded Control	4		ECSE-2610	Cptr. Comp. & Operations	4	
				MATH-2010	Multivar Calc & Mat. Alg. ¹	4	
BIOL-4290	Human Physiological. Sys.	4		BMED-4500	Advanced Sys. Physiology	4	
ENGR-2050	Intro. to Eng. Design	4		ECSE-2210	Microelectronics Tech.	3	
ECSE-2410	Signals & Systems	3		ECSE-2050	Intro. Electronics	4	
ECSE-2100	Fields & Waves I	4		ECSE-2110	Electrical Energy Systems	4	
					Hum., Arts or Soc. Sci. El. ⁴	4	
ENGR-4010	Professional Devel. III ¹	1			Professional Development II ²	2	
BMED-4010	Biomedical Eng. Lab	4		ECSE-4900 or BME-4600	ECSE Design or BME Design	3	
	EE Concentration Elective	3-4			EE Concentration Elective	3-4	
	BME Concentration Elective	3-4			Hum., Arts or Soc. Sci. El.	4	
	Hum., Arts or Soc. Sci. El.	4					

¹ May be taken either term.

² May be taken in the third year

³ May be replaced with ECSE-2500 Engineering Probability (ECSE-2410 is a co-requisite, so it should be taken in the 5th semester)

⁴ May be taken in the 8th semester

129 credits minimum

BME CONCENTRATION ELECTIVE

A 4000 or 6000 level course in engineering or science selected to satisfy the BME Concentration requirements. Students should consult their BME advisor in selecting this course.

EE CONCENTRATION ELECTIVES

ECSE-4xxx or ECSE-6xxx course selected to satisfy the BME Concentration requirements. Students should consult their BME advisor in selecting this course.

EE AND MECHANICAL ENGINEERING DUAL MAJOR CURRICULUM CHECKLIST

NAME: _____

E-mail: _____

ENGR-1200	Eng. Graphics & CAD ¹	1		ENGR-1300	Engineering Processes ¹	1	
ENGR-1100	Intro. to Eng. Analysis	4		CSCI-1100	Computer Science I	4	
MATH-1010	Calculus I	4		MATH-1020	Calculus II	4	
CHEM-1100	Chemistry I	4		PHYS-1100	Physics I	4	
	Hum., Arts or Soc. Sci. El.	4			Hum., Arts or Soc. Sci. El.	4	
ENGR-2050	Intro. to Eng. Design	4		ECSE-2010	Electric Circuits	4	
ENGR-2350	Embedded Control	4		ECSE-2610	Cptr. Comp. & Operations	4	
ENGR-2530	Strength of Materials	4		ENGR-2090	Engineering Dynamics	4	
MATH-2400	Intro. to Differential Eqns.	4		ENGR-2250	Thermal and Fluids Eng I	4	
PHYS-1200	Physics II	4		MATH-2010	Multivar Calc & Matrix Alg	4	
ECSE-2050	Intro. to Electronics	4		ECSE-2100	Fields & Waves I	4	
ECSE-2410	Signals & Systems	3		ECSE-2210	Microelectronics Tech.	3	
ECSE-2500	Engineering Probability	3		MANE	Mechanical Eng. Core Mod.	6	
MANE	Mechanical Eng. Core Mod	6		ECSE-2110	Electrical Energy Systems	4	
					Professional Devel. II ¹	2	
ENGR-4010	Professional Devel. III ¹	1			Design Elective ¹	3	
ENGR-1600	Materials Science for Eng	4			ECSE Restricted Elective ¹	3	
	ECSE Lab Elective ¹	3-4			MANE Technical Elective II	3	
	MANE Technical Elective I	3			Hum., Arts or Soc. Sci. El.	4	
	ECSE Restricted Elective ¹	3			Hum., Arts or Soc. Sci. El.	4	
	Hum., Arts or Soc. Sci. El.	4					

¹ May be taken either term.

² The free electives must total to at least 12 credits.

³ Students are encouraged to select a life science course, such as BIOL-1010.

141 credits minimum

ECSE RESTRICTED ELECTIVE

ECSE-4xxx or ECSE-6xxx

MANE TECHNICAL ELECTIVE I

MANE-4xxx or MANE-6xxx

MANE TECHNICAL ELECTIVE II

MANE-4xxx, MANE-6xxx, or a course from the following list. If one of the courses below is used, you can omit one ECSE Restricted Elective, reducing the total credit hours for the dual degree.

ECSE-4090 Mechatronics
 ECSE-4120 Electromechanics
 ECSE-4080 Robotics I
 ECSE-4090 Robotics II

MANE CORE MODULES

Thermal and Fluids Module:
 MANE-4010 Therm & Fluids Eng II
 MANE-4020 Therm & Fluids Eng. Lab.

Mechanical Design Module:
 MANE-4030 Elem. of Mech. Dsgn.
 MANE-4040 Mech. Dsgn. Lab

ECSE LAB ELECTIVES

ENGR-4710 Adv. Manufacturing Lab I
 ECSE-4160 Electric Power Eng. Lab
 ECSE-4220 VLSI Design
 ECSE-4760 Real-Time Cntrl & Comm.
 ECSE-4770 Cptr H'ware Design
 ECSE-4790 Microprocessor Systems

DESIGN ELECTIVES

MANE-4220 Inventor's Studio (F, S)
 ECSE-4900 ECSE Design (F, S)
 MANE-4260 Design of Mech. Sys (F,S)