SACRAMENTO STATE

EEEB13-14.001
Approved by the Faculty Senate Oct 17, 2013 - Att: FS 13/14-36

Program Proposal
Form B

Academic Group *(College)*: **Engineering and Computer Science**	**Date of Submission to College Dean:**
Academic Organization *(Department)*: **Electrical & Electronic Engineering**	**Requested Effective: Fall___, Spring__X__, 2014__.**
Department Chair: **Suresh Vadhva**	**Contact if not Department Chair:**

Title of the Program *(Please be specific; indicate minor, undergraduate or graduate degree, etc.)*:
Bachelor of Science in Electrical and Electronic Engineering (undergraduate degree)

Type of Program Proposal:

___X___ Modification in Existing Program:
- **_X_ Substantive Change**
- **___ Non-Substantive Change**
- **___ Deletion of Existing Program**

_____ New Programs
- **___ Initiation (Projection) of New Program on to Master Plan**
- **___ New Degree Programs**
  - **___Regular Process**
  - **___Fast Track Process**
  - **___Pilot Process**
- **___ New Minor, Concentration, Option, Specialization, Emphasis**
- **___ New Certificate Program**

PLEASE NOTE: **Form B is to be used only as a Cover Form. Additional information is requested for each of the above as noted in the corresponding procedure in the Policies and Procedures for Initiation, Modification, Review and Approval of Courses and Academic Programs found at http://www.csus.edu/umanual/acad.htm**

Briefly describe the program proposal (new or change) and provide a justification.

We propose to streamline our undergraduate major by removing the pre-major requirement. Since the CMS System checks all pre-requisites, it is unnecessary to have another layer built in which can potentially block students from being able to add courses.

Approvals:

Department Chair: Suresh Vadhva **Date:** 4/2/2013

College Dean: [signature] **Date:** 5/13/13

University Committee: Kate Chalmers **Date:** 9-10-13

Associate Vice President and Dean for Academic Affairs: [signature] **Date:** 9/11/13

Itemized List of Changes:

1. **Remove Pre-Major Requirement**

New Program

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Units required for Major: 96
Minimum total units required for BS: 129

Note: Students graduating with a BS in Electrical and Electronic Engineering will not be subject to the University's Foreign Language Graduation Requirement. Students who change major may be subject to the University's Foreign Language Graduation Requirement.

Courses in parentheses are prerequisites.

A. Required Lower Division Courses (+++++ 42 units)

(5)	CHEM 1A*	General Chemistry I (High school chemistry and college algebra; sufficient performance on the college algebra diagnostic test, or equivalent)
(4)	CPE/EEE 64#	Introduction to Logic Design (CSC 15 or CSC 25)
(1)	ENGR 1	Introduction to Engineering (Algebra & Trigonometry, or instructor permission)
(3)	ENGL 20	College Composition II (ENGL 1A or ENGL 2 or equivalent with grade of "C-" or better, sophomore standing must have completed 30 units prior to registration)
(3)	ENGR 17#	Introductory Circuit Analysis (MATH 45, PHYS 11C, either concurrent, not both)
(3)	ENGR 50	Computational Methods and Applications (Math 30 and PHYS 11A; Corequisite: PHYS 11A
(4)	MATH 30*	Calculus I (MATH 29 or four years of high school mathematics which includes two years of algebra, one year of geometry, and one year of mathematical analysis; completion of ELM requirement and Pre-Calculus Diagnostic Test.)
(4)	MATH 31*	Calculus II (MATH 30 or appropriate high school based AP credit)
(4)	MATH 32	Calculus III (MATH 31)
(3)	MATH 45	Differential Equations for Science and Engineering (MATH 31)
(4)	PHYS 11A*	General Physics: Mechanics (MATH 30, MATH 31 or equivalent certificated high school courses; MATH 31 may be taken concurrently)
(4)	PHYS 11C*	General Physics: Electricity and Magnetism, Modern Physics (MATH 31, PHYS 11A)

B. Required Upper Division Courses (Major 33 units)

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It is imperative that students take the University's Writing Placement for Juniors (WPJ) during the first semester of the junior year, as it is a prerequisite to all laboratory courses after EEE 117L.

(3)	EEE 108	Electronics I (EEE 117; Corequisite: EEE 108L)
(1)	EEE 108L	Electronics I Laboratory (EEE 117, EEE 117L; Corequisite: EEE 108)

Old Program

Units required for Pre-Major: 42
Units required for Major: 54
Minimum total units required for BS: 129

Note: Students graduating with a BS in Electrical and Electronic Engineering will not be subject to the University's Foreign Language Graduation Requirement. Students who change major may be subject to the University's Foreign Language Graduation Requirement.

Courses in parentheses are prerequisites.

A. Required Lower Division Courses (Pre-Major 42 units)

(5)	CHEM 1A*	General Chemistry I (High school chemistry and college algebra; sufficient performance on the college algebra diagnostic test, or equivalent)
(4)	CPE/EEE 64#	Introduction to Logic Design (CSC 15 or CSC 25)
(1)	ENGR 1	Introduction to Engineering (Algebra & Trigonometry, or instructor permission)
(3)	ENGL 20	College Composition II (ENGL 1A or ENGL 2 or equivalent with grade of "C-" or better, sophomore standing must have completed 30 units prior to registration)
(3)	ENGR 17#	Introductory Circuit Analysis (MATH 45, PHYS 11C, either concurrent, not both)
(3)	ENGR 50	Computational Methods and Applications (Math 30 and PHYS 11A; Corequisite: PHYS 11A
(4)	MATH 30*	Calculus I (MATH 29 or four years of high school mathematics which includes two years of algebra, one year of geometry, and one year of mathematical analysis; completion of ELM requirement and Pre-Calculus Diagnostic Test.)
(4)	MATH 31*	Calculus II (MATH 30 or appropriate high school based AP credit)
(4)	MATH 32	Calculus III (MATH 31)
(3)	MATH 45	Differential Equations for Science and Engineering (MATH 31)
(4)	PHYS 11A*	General Physics: Mechanics (MATH 30, MATH 31 or equivalent certificated high school courses; MATH 31 may be taken concurrently)
(4)	PHYS 11C*	General Physics: Electricity and Magnetism, Modern Physics (MATH 31, PHYS 11A)

B. Required Upper Division Courses (Major 33 units)

Students are not permitted to enroll in upper division courses until they have completed all lower division requirements in **Section A** and have filed a change of major form for Electrical and Electronic Engineering. It is imperative that students take the University's Writing Placement for Juniors (WPJ) during the first semester of the junior year, as it is a prerequisite to all laboratory courses after EEE 117+.

(3)	EEE 108	Electronics I (EEE 117; Corequisite: EEE 108L)
(1)	EEE 108L	Electronics I Laboratory (EEE 117, EEE 117L; Corequisite: EEE 108)

(3)	EEE 117#	Network Analysis (ENGR 17, EEE 64; EEE 64 may be taken concurrently; Corequisite: EEE 117L)
(1)	EEE 117L	Network Analysis Laboratory (Corequisite: EEE 117)
(3)	EEE 130	Electromechanical Conversion (EEE 117; may be taken concurrently)
(4)	EEE 161	Applied Electromagnetics (MATH 32, MATH 45, PHYS 11C, ENGR 17 and CSC 25)
(4)	EEE 174	Introduction to Microprocessors (EEE 64; junior status)
(3)	EEE 180	Signals and Systems (EEE 117; may be taken concurrently)
(3)	EEE 184	Introduction to Feedback Systems (EEE 180)
(3)	EEE 185	Modern Communication Systems (EEE 180, ENGR 120; ENGR 120 may be taken concurrently)
(3)	ENGR 120	Probability and Random Signals (EEE 180, may be taken concurrently)
(2)	ENGR 140	Engineering Economics (ENGR 17, ENGR 30, or instructor permission)

C. Required Design Project Series (8 units)

Students will choose either the Electrical Power Design Project Series **OR** the Product Design Project Series to complete the Design Project Series requirement. Each Series is 8 units.

Electrical Power Design Project Series

(3)	EEE 141	Power System Analysis (EEE 130, may be taken concurrently) **AND**
(1)	EEE 143	Power System Laboratory (EEE 130, EEE 141; (GWAR Certification before Fall 09, or WPJ score of 80+; or 3-unit placement in ENGL 109M/W; or 4-unit placement in ENGL 109M/W and co-enrollment in ENGL 109X; or WPJ score 70/71 and co-enrollment in ENGL 109X)) **AND**
(2)	EEE 192A*	Electrical Power Design Project I (EEE 143, may be taken concurrently and any two of the following courses: EEE 141, EEE 142, EEE 144; GWAR Certification before Fall 09, or WPJ score of 80+; or 3-unit placement in ENGL 109M/W; or 4-unit placement in ENGL 109M/W and co-enrollment in ENGL 109X; or WPJ score 70/71 and co-enrollment in ENGL 109X)) **AND**
(2)	EEE 192B*	Electrical Power Design Project II (EEE 192A, EEE 142, EEE 144 ; EEE 142 or EEE 144 may be taken concurrently--but not both)

Product Design Project Series

(4)	EEE 109	Electronics II (EEE 108, EEE 108L, EEE 117, EEE 117L; GWAR Certification before Fall 09, or WPJ score of 80+; or 3-unit placement in ENGL 109M/W; or 4-unit placement in ENGL 109M/W and co-enrollment in ENGL 109X; or WPJ score 70/71 and co-enrollment in ENGL 109X)

(3)	EEE 117#	Network Analysis (ENGR 17, EEE 64; EEE 64 may be taken concurrently; Corequisite: EEE 117L)
(1)	EEE 117L	Network Analysis Laboratory (Corequisite: EEE 117)
(3)	EEE 130	Electromechanical Conversion (EEE 117; may be taken concurrently)
(4)	EEE 161	Applied Electromagnetics (MATH 32, MATH 45, PHYS 11C, ENGR 17 and CSC 25)
(4)	EEE 174	Introduction to Microprocessors (EEE 64; junior status)
(3)	EEE 180	Signals and Systems (EEE 117; may be taken concurrently)
(3)	EEE 184	Introduction to Feedback Systems (EEE 180)
(3)	EEE 185	Modern Communication Systems (EEE 180, ENGR 120; ENGR 120 may be taken concurrently)
(3)	ENGR 120	Probability and Random Signals (EEE 180, may be taken concurrently)
(2)	ENGR 140	Engineering Economics (ENGR 17, ENGR 30, or instructor permission)

C. Required Design Project Series (8 units)

Students will choose either the Electrical Power Design Project Series **OR** the Product Design Project Series to complete the Design Project Series requirement. Each Series is 8 units.

Electrical Power Design Project Series

(3)	EEE 141	Power System Analysis (EEE 130, may be taken concurrently) **AND**
(1)	EEE 143	Power System Laboratory (EEE 130, EEE 141; (GWAR Certification before Fall 09, or WPJ score of 80+; or 3-unit placement in ENGL 109M/W; or 4-unit placement in ENGL 109M/W and co-enrollment in ENGL 109X; or WPJ score 70/71 and co-enrollment in ENGL 109X)) **AND**
(2)	EEE 192A*	Electrical Power Design Project I (EEE 143, may be taken concurrently and any two of the following courses: EEE 141, EEE 142, EEE 144; GWAR Certification before Fall 09, or WPJ score of 80+; or 3-unit placement in ENGL 109M/W; or 4-unit placement in ENGL 109M/W and co-enrollment in ENGL 109X; or WPJ score 70/71 and co-enrollment in ENGL 109X)) **AND**
(2)	EEE 192B*	Electrical Power Design Project II (EEE 192A, EEE 142, EEE 144 ; EEE 142 or EEE 144 may be taken concurrently--but not both)

Product Design Project Series

(4)	EEE 109	Electronics II (EEE 108, EEE 108L, EEE 117, EEE 117L; GWAR Certification before Fall 09, or WPJ score of 80+; or 3-unit placement in ENGL 109M/W; or 4-unit placement in ENGL 109M/W and co-enrollment in ENGL 109X; or WPJ score 70/71 and co-enrollment in ENGL 109X)

		AND
(2)	EEE 193A*	Product Design Project I (EEE 108, EEE 109, EEE 130, EEE 161, EEE 174, EEE 180, GWAR Certification before Fall 09, or WPJ score of 80+; or 3-unit placement in ENGL 109M/W; or 4-unit placement in ENGL 109M/W and co-enrollment in ENGL 109X; or WPJ score 70/71 and co-enrollment in ENGL 109X; EEE 109 may be taken concurrently) **AND**
(2)	EEE 193B*	Product Design Project II (EEE 193A)

Notes: Students planning to complete EEE 193A/EEE 193B series for Electronics must enroll in EEE 109 (4 units)

Students planning to complete EEE 192A/EEE 192B series for Power must enroll in EEE 141 (1 unit) and EEE 143 (3 units)

D. Required Electives (13 units)

(7)	EEE	Depth Requirement: Select two lecture courses (6 units) and one lab course (1 unit) from one of the Depth Requirement Areas listed below.
(6)	EEE	Electives Requirement: Select two additional 3-unit lecture courses from any of the four areas listed below.

* Indicates course which can also be used to meet General Education (GE) requirements. The designation "General Education course" denotes a course which meets GE requirements other than those which also serve as prerequisites to courses in the major. Students are expected to satisfy the requirements of the Accreditation Board for Engineering and Technology (ABET) as well as the University's GE requirements. Consult the Department Chair for specific GE requirements. Students should take ENGL 1A as early as possible since it is required for admission to the upper division.

#Workshops (EEE 64W, ENGR 17W, and ENGR 117W) are available to augment understanding of material, however, they cannot be used to satisfy graduation requirements.

Depth Requirement Areas and List of Electives

Analog/Digital Electronics

CPE/CSC 138	Computer Networks and Internets (CSC 35, CSC 60, CSC 130)
CPE 151	CMOS and VLSI (CPE/EEE 64, CPE/EEE 102 or EEE 108)
CPE 153	VLSI Design (CPE 151)
CPE 166	Advanced Logic Design (CPE/EEE 64, ENGR 17)
CPE 186	Computer Hardware System Design (CPE 185 or EEE 174)
CPE 187	Embedded Processor System Design (CPE 166, CPE 185, EEE 102; GWAR Certification before Fall 09, or WPJ score of 80+; or 3-unit placement in ENGL 109M/W; or 4-unit placement in ENGL 109M/W and co-enrollment in ENGL 109X; or WPJ score 70/71 and co-enrollment in ENGL 109X)
EEE 109*	Electronics II (EEE 108, EEE 108L, EEE 117, EEE 117L; GWAR Certification before Fall 09, or WPJ score of 80+; or 3-unit placement in ENGL 109M/W; or 4-unit placement in ENGL 109M/W and co-

		AND
(2)	EEE 193A*	Product Design Project I (EEE 108, EEE 109, EEE 130, EEE 161, EEE 174, EEE 180, GWAR Certification before Fall 09, or WPJ score of 80+; or 3-unit placement in ENGL 109M/W; or 4-unit placement in ENGL 109M/W and co-enrollment in ENGL 109X; or WPJ score 70/71 and co-enrollment in ENGL 109X; EEE 109 may be taken concurrently) **AND**
(2)	EEE 193B*	Product Design Project II (EEE 193A)

Notes: Students planning to complete EEE 193A/EEE 193B series for Electronics must enroll in EEE 109 (4 units)

Students planning to complete EEE 192A/EEE 192B series for Power must enroll in EEE 141 (1 unit) and EEE 143 (3 units)

D. Required Electives (13 units)

(7)	EEE	Depth Requirement: Select two lecture courses (6 units) and one lab course (1 unit) from one of the Depth Requirement Areas listed below.
(6)	EEE	Electives Requirement: Select two additional 3-unit lecture courses from any of the four areas listed below.

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Depth Requirement Areas and List of Electives

Analog/Digital Electronics

CPE/CSC 138	Computer Networks and Internets (CSC 35, CSC 60, CSC 130)
CPE 151	CMOS and VLSI (CPE/EEE 64, CPE/EEE 102 or EEE 108)
CPE 153	VLSI Design (CPE 151)
CPE 166	Advanced Logic Design (CPE/EEE 64, ENGR 17)
CPE 186	Computer Hardware System Design (CPE 185 or EEE 174)
CPE 187	Embedded Processor System Design (CPE 166, CPE 185, EEE 102; GWAR Certification before Fall 09, or WPJ score of 80+; or 3-unit placement in ENGL 109M/W; or 4-unit placement in ENGL 109M/W and co-enrollment in ENGL 109X; or WPJ score 70/71 and co-enrollment in ENGL 109X)
EEE 109*	Electronics II (EEE 108, EEE 108L, EEE 117, EEE 117L; GWAR Certification before Fall 09, or WPJ score of 80+; or 3-unit placement in ENGL 109M/W; or 4-unit placement in ENGL 109M/W and co-

	enrollment in ENGL 109X; or WPJ score 70/71 and co-enrollment in ENGL 109X)
EEE 110	Advanced Analog Integrated Circuits (EEE 109 or instructor permission)
EEE 111	Advanced Analog Integrated Circuits Laboratory (EEE 109, either EEE 110 or EEE 230 may be taken concurrently)
EEE 166	Physical Electronics (EEE 108)
Control Systems	
EEE 187	Robotics (EEE 180 or equivalent, or instructor permission)
EEE 188	Digital Control System (EEE 180, GWAR Certification before Fall 09, or WPJ score of 80+; or 3-unit placement in ENGL 109M/W; or 4-unit placement in ENGL 109M/W and co-enrollment in ENGL 109X; or WPJ score 70/71 and co-enrollment in ENGL 109X)
EEE 189	Controls Laboratory (EEE 184; EEE 184 may be taken concurrently, GWAR Certification before Fall 09, or WPJ score of 80+; or 3-unit placement in ENGL 109M/W; or 4-unit placement in ENGL 109M/W and co-enrollment in ENGL 109X; or WPJ score 70/71 and co-enrollment in ENGL 109X)
Communication Engineering	
EEE 162	Applied Wave Propagation (EEE 117, EEE 161)
EEE 163	Traveling Waves Laboratory (EEE 117, EEE 162; EEE 162 may be taken concurrently; GWAR Certification before Fall 09, or WPJ score of 80+; or 3-unit placement in ENGL 109M/W; or 4-unit placement in ENGL 109M/W and co-enrollment in ENGL 109X; or WPJ score 70/71 and co-enrollment in ENGL 109X)
EEE 165	Introduction to Optical Engineering (EEE 161, EEE 180, EEE 185; EEE 185 may be taken concurrently)
EEE 167	Electro-Optical Engineering Laboratory (EEE 161, EEE 165, EEE 180, and GWAR Certification before Fall 09, or WPJ score of 80+; or 3-unit placement in ENGL 109M/W; or 4-unit placement in ENGL 109M/W and co-enrollment in ENGL 109X; or WPJ score 70/71 and co-enrollment in ENGL 109X); EEE 165 may be taken concurrently)
EEE 181	Introduction to Digital Signal Processing (CPE/EEE 64 or equivalent, EEE 180)
EEE 182	Digital Signal Processing Lab (EEE 180, EEE 181; EEE 181 may be taken concurrently)
EEE 183	Digital and Wireless Communication System Design (EEE 161, EEE 180, EEE 185; EEE 185 may be taken concurrently)
EEE 186	Communication Systems Laboratory (EEE 117, EEE 185; GWAR Certification before Fall 09, or WPJ score of 80+; or 3-unit placement in ENGL 109M/W; or 4-unit

	enrollment in ENGL 109X; or WPJ score 70/71 and co-enrollment in ENGL 109X)
EEE 110	Advanced Analog Integrated Circuits (EEE 109 or instructor permission)
EEE 111	Advanced Analog Integrated Circuits Laboratory (EEE 109, either EEE 110 or EEE 230 may be taken concurrently)
EEE 166	Physical Electronics (EEE 108)
Control Systems	
EEE 187	Robotics (EEE 180 or equivalent, or instructor permission)
EEE 188	Digital Control System (EEE 180, GWAR Certification before Fall 09, or WPJ score of 80+; or 3-unit placement in ENGL 109M/W; or 4-unit placement in ENGL 109M/W and co-enrollment in ENGL 109X; or WPJ score 70/71 and co-enrollment in ENGL 109X)
EEE 189	Controls Laboratory (EEE 184; EEE 184 may be taken concurrently, GWAR Certification before Fall 09, or WPJ score of 80+; or 3-unit placement in ENGL 109M/W; or 4-unit placement in ENGL 109M/W and co-enrollment in ENGL 109X; or WPJ score 70/71 and co-enrollment in ENGL 109X)
Communication Engineering	
EEE 162	Applied Wave Propagation (EEE 117, EEE 161)
EEE 163	Traveling Waves Laboratory (EEE 117, EEE 162; EEE 162 may be taken concurrently; GWAR Certification before Fall 09, or WPJ score of 80+; or 3-unit placement in ENGL 109M/W; or 4-unit placement in ENGL 109M/W and co-enrollment in ENGL 109X; or WPJ score 70/71 and co-enrollment in ENGL 109X)
EEE 165	Introduction to Optical Engineering (EEE 161, EEE 180, EEE 185; EEE 185 may be taken concurrently)
EEE 167	Electro-Optical Engineering Laboratory (EEE 161, EEE 165, EEE 180, and GWAR Certification before Fall 09, or WPJ score of 80+; or 3-unit placement in ENGL 109M/W; or 4-unit placement in ENGL 109M/W and co-enrollment in ENGL 109X; or WPJ score 70/71 and co-enrollment in ENGL 109X); EEE 165 may be taken concurrently)
EEE 181	Introduction to Digital Signal Processing (CPE/EEE 64 or equivalent, EEE 180)
EEE 182	Digital Signal Processing Lab (EEE 180, EEE 181; EEE 181 may be taken concurrently)
EEE 183	Digital and Wireless Communication System Design (EEE 161, EEE 180, EEE 185; EEE 185 may be taken concurrently)
EEE 186	Communication Systems Laboratory (EEE 117, EEE 185; GWAR Certification before Fall 09, or WPJ score of 80+; or 3-unit placement in ENGL 109M/W; or 4-unit

	placement in ENGL 109M/W and co-enrollment in ENGL 109X; or WPJ score 70/71 and co-enrollment in ENGL 109X); EEE 185 may be taken concurrently)
PHYS 106	Introduction to Modern Physics (MATH 31; PHYS 11A, PHYS 11B, PHYS 11C or PHYS 5A, PHYS 5B)
PHYS 130	Acoustics (MATH 45, PHYS 11A, PHYS 11B, PHYS 11C)

Power Engineering

EEE 131	Electromechanics Laboratory (EEE 117, EEE 130, GWAR Certification before Fall 09, or WPJ score of 80+; or 3-unit placement in ENGL 109M/W; or 4-unit placement in ENGL 109M/W and co-enrollment in ENGL 109X; or WPJ score 70/71 and co-enrollment in ENGL 109X; EEE 130 may be taken concurrently)
EEE 141**	Power System Analysis (EEE 130 may be taken concurrently)
EEE 142	Energy Systems Control and Optimization (EEE 130)
EEE 143**	Power Systems Laboratory (EEE 130, EEE 141; GWAR Certification before Fall 09, or WPJ score of 80+; or 3-unit placement in ENGL 109M/W; or 4-unit placement in ENGL 109M/W and co-enrollment in ENGL 109X; or WPJ score 70/71 and co-enrollment in ENGL 109X)
EEE 144	Electric Power Distribution (EEE 130)
EEE 145	Power System Relay Protection (EEE 130, EEE 141)
EEE 146	Power Electronics Controlled Drives (EEE 108, EEE 130)
EEE 148	Power Electronics Laboratory (EEE 146, may be taken concurrently)

Note: Other upper division courses in Engineering and Computer Science may be selected as elective lectures with **prior** approval of the student's advisor.

*Students planning to complete EEE 193A/EEE 193B series may **not** use EEE 109 to meet depth/elective requirement.

Students planning to complete EEE 192A/EEE 192B series may **not use EEE 141 and EEE 143 to meet depth/elective requirement.

Sequencing coursework for Undergraduate Major

The Engineering Electrical and Electronic Department strongly recommends that EEE majors sequence their courses as outlined in the EEE Curriculum Pattern Guide, available at the Department Office, RVR 3018.

	placement in ENGL 109M/W and co-enrollment in ENGL 109X; or WPJ score 70/71 and co-enrollment in ENGL 109X); EEE 185 may be taken concurrently)
PHYS 106	Introduction to Modern Physics (MATH 31; PHYS 11A, PHYS 11B, PHYS 11C or PHYS 5A, PHYS 5B)
PHYS 130	Acoustics (MATH 45, PHYS 11A, PHYS 11B, PHYS 11C)

Power Engineering

EEE 131	Electromechanics Laboratory (EEE 117, EEE 130, GWAR Certification before Fall 09, or WPJ score of 80+; or 3-unit placement in ENGL 109M/W; or 4-unit placement in ENGL 109M/W and co-enrollment in ENGL 109X; or WPJ score 70/71 and co-enrollment in ENGL 109X; EEE 130 may be taken concurrently)
EEE 141**	Power System Analysis (EEE 130 may be taken concurrently)
EEE 142	Energy Systems Control and Optimization (EEE 130)
EEE 143**	Power Systems Laboratory (EEE 130, EEE 141; GWAR Certification before Fall 09, or WPJ score of 80+; or 3-unit placement in ENGL 109M/W; or 4-unit placement in ENGL 109M/W and co-enrollment in ENGL 109X; or WPJ score 70/71 and co-enrollment in ENGL 109X)
EEE 144	Electric Power Distribution (EEE 130)
EEE 145	Power System Relay Protection (EEE 130, EEE 141)
EEE 146	Power Electronics Controlled Drives (EEE 108, EEE 130)
EEE 148	Power Electronics Laboratory (EEE 146, may be taken concurrently)

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Sequencing coursework for Undergraduate Major

The Engineering Electrical and Electronic Department strongly recommends that EEE majors sequence their courses as outlined in the EEE Curriculum Pattern Guide, available at the Department Office, RVR 3018.