

ELECTRICAL ENGINEERING CONCENTRATION

Program Description

The **Electrical Engineering Concentration** within the Associate in Science in Mathematics and Pre-Engineering is designed for students who plan to transfer to a four-year institution to pursue a bachelor's degree in electrical engineering or a related engineering discipline.

This concentration provides a strong foundation in calculus, physics, and engineering principles related to electricity, electronics, and electromagnetic systems. Students develop analytical and problem-solving skills while exploring how electrical engineers design and maintain systems used in communications, power generation, computing, and electronic devices. Coursework emphasizes quantitative reasoning, scientific analysis, and the application of mathematics and physics to engineering challenges.

The program prepares students for upper-level coursework in electrical engineering and related technology-driven fields.

Transfer Information

The Electrical Engineering concentration is structured to align with bachelor's degree programs in electrical engineering and related disciplines such as electronics engineering, computer engineering, and communications engineering.

Students are encouraged to work closely with faculty and Advising & Transfer Services to ensure coursework aligns with the requirements of their intended transfer institution. Because engineering programs require carefully sequenced coursework in calculus, physics, and technical subjects, students should follow the recommended course sequence to remain on track for transfer.

Students planning to transfer within New Jersey should explore the "Transfer Programs" feature on NJ Transfer (www.njtransfer.org (<http://www.njtransfer.org>)) to review articulation agreements and institutional requirements.

Career Information

The A.S. in Mathematics and Pre-Engineering – Electrical Engineering Concentration is designed primarily for transfer. A bachelor's degree in electrical engineering is typically required for professional roles in the field.

With further education, graduates may pursue careers such as:

- Electrical Engineer
- Electronics Engineer
- Power Systems Engineer
- Communications Engineer
- Embedded Systems Engineer

Students are encouraged to consult with faculty and Career Services early in their academic journey to explore transfer pathways, internships,

and career opportunities in electrical engineering and related technology fields.

Fall One		Credit Hours
ENGL 151	English I	3
STSC 150	Student Success Seminar	2
MATH 166	Topics in Algebra	4
CSIT 165	Programming I	4
CHEM 181 & 181L	General Chemistry I Lecture and General Chemistry I Lab	4
Credit Hours		17
Spring One		
ENGL 152	English II	3
MATH 196	Precalculus	4
ENGR 181	Graphics for Engineers	2
ECON 151	Macroeconomic Principles	3
Credit Hours		12
Summer One		
MATH 265	Calculus I	4
Credit Hours		4
Fall Two		
MATH 266	Calculus II	4
PHYS 281 & 281L	General Physics I Lecture and General Physics I Lab	4
PSYC 172	General Psychology	3
HIST 181	World Civilization to 1660	3
Credit Hours		14
Spring Two		
MATH 267	Calculus III	4
MATH 281	Differential Equations	4
ENGR 251	Electrical Engineering I	4
PHYS 282 & 282L	General Physics II Lecture and General Physics II Lab	4
Credit Hours		16
Total Credit Hours		63
Fall One		Credit Hours
ENGL 151	English I	3
STSC 150	Student Success Seminar	2
MATH 196	Precalculus	4
CSIT 165	Programming I	4
CHEM 181 & 181L	General Chemistry I Lecture and General Chemistry I Lab	4
Credit Hours		17
Spring One		
ENGL 152	English II	3
ENGR 181	Graphics for Engineers	2
MATH 265	Calculus I	4
ECON 151	Macroeconomic Principles	3
Credit Hours		12
Fall Two		
MATH 266	Calculus II	4
PSYC 172	General Psychology	3
PHYS 281 & 281L	General Physics I Lecture and General Physics I Lab	4
HIST 181	World Civilization to 1660	3
Credit Hours		14
Spring Two		
ENGR 251	Electrical Engineering I	4
MATH 267	Calculus III	4
MATH 281	Differential Equations	4
PHYS 282 & 282L	General Physics II Lecture and General Physics II Lab	4

Electives to meet 60 credits	1	
Credit Hours	17	
Total Credit Hours	60	
Fall One		
	Credit Hours	
ENGL 151	English I	3
STSC 150	Student Success Seminar	2
MATH 265	Calculus I	4
CSIT 165	Programming I	4
CHEM 181 & 181L	General Chemistry I Lecture and General Chemistry I Lab	4
	Credit Hours	17
Spring One		
ENGL 152	English II	3
ENGR 181	Graphics for Engineers	2
MATH 266	Calculus II	4
PHYS 281 & 281L	General Physics I Lecture and General Physics I Lab	4
	Credit Hours	13
Fall Two		
ENGR 251	Electrical Engineering I	4
MATH 267	Calculus III	4
PHYS 282 & 282L	General Physics II Lecture and General Physics II Lab	4
HIST 181	World Civilization to 1660	3
	Credit Hours	15
Spring Two		
ENGR 253	Electronic Circuits	4
MATH 281	Differential Equations	4
ECON 151	Macroeconomic Principles	3
PSYC 172	General Psychology	3
Electives to meet 60 credits	1	
Credit Hours	15	
Total Credit Hours	60	