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ENGINEERING AT SUNY NEW PALTZ

The Department of Electrical and Computer Engineering at SUNY New Paltz is committed to academic excellence. We offer high-quality undergraduate and master's programs that prepare students to participate effectively as members of the engineering profession of today and tomorrow and to function as thoughtful and responsible members of modern society. We strive to create and maintain a challenging learning environment supportive of engineering study for a diverse student body. As well, we provide engineering education and technical support to the campus community, regional industry and the community-at-large.

Mission

This mission follows closely those of our institution and is stated as:

1. Offering high-quality undergraduate programs in Electrical and Computer Engineering and a master's program in Electrical Engineering to a diverse student body;

2. Providing engineering education and technical support to the campus community, regional industry and the community-at-large;

3. Admitting students who show promise of succeeding in the challenging field of engineering;

4. Having our students gain technical knowledge, social skills and confidence to contribute as productive and responsible members of the engineering profession and the society.

Objectives of the Electrical & Computer Engineering Program

The educational objectives of the ECE program are to produce graduates who:

1. Enter professional careers or pursue graduate studies in engineering or related fields.
2. Advance in their professional careers through completion of engineering projects that utilize teamwork and communication skills, lifelong learning, independent and creative thinking, and leadership;

or

advance in their careers by completing graduate coursework, earning graduate degrees, and by doing, presenting and publishing original research.

3. Work beyond their primary responsibilities to promote engineering to others, through active membership in professional societies or community outreach.

Outcomes of the Electrical Engineering Program

Fundamental Knowledge

The graduating students of the Electrical Engineering Program will possess knowledge of mathematics, science, and engineering and have the capability of applying this knowledge to identify, solve engineering problems, and verify the results.

Experimental Skills

The graduating students of the Electrical Engineering Program will have significant experience in the practical aspect of their profession through laboratory courses, with an opportunity for co-op positions. The students will have developed the ability to verify theoretical expectations against simulation and experimental results.

Design Competence

The graduating students of the Electrical Engineering Program will have learned the trial-and-error design process, consisting of preliminary design, verification assisted by computer simulation, improved design, etc. Students will have acquired the personal skills of group interaction through a variety of progressive experiences integrated in the curriculum, initiated by course and laboratory teamwork design, and culminating in the comprehensive senior-year design project.

Social Awareness

The graduating students of the Electrical Engineering Program will have benefited from our departmental setting within a liberal arts college by having access to a wide selection of courses on contemporary world's issues, languages and cultures. Consequently, the students will have developed the capability to recognize the impact of their engineering decisions within the global and societal context.

Professional Aptitude

The graduating students of the Electrical Engineering Program will have the ability to function effectively, professionally and *ethically*, both as an individual and as a member of a team. The graduating students will be able to clearly and *effectively* communicate their ideas in both written and oral forms. In addition, the students will be instilled with the need for life-long learning.

Accreditation

The SUNY New Paltz Electrical and Computer Engineering programs are both accredited by the Engineering Accreditation Commission of the Accreditation Board for Engineering and Technology (ABET), 111 Market Place, Suite 1050, Baltimore, MD 21202-4012.

COMPUTER ENGINEERING

The Department of Electrical and Computer Engineering offers a comprehensive program in computer engineering. Students may choose electives in computer hardware, software engineering, computer and information engineering and communication and networking.

The computer revolution has changed the way in which we live, work and play. Computer engineers are at the heart of this rapid development. Career opportunities for computer engineering graduates continue to be plentiful. The program at New Paltz is designed to meet these needs generally and those of the Mid-Hudson Valley specifically.

The curriculum consists of general education component, a pre-engineering phase (pre-engineering major code OOEN) and upper division engineering coursework (computer engineering major code 518). Computer engineering students must meet a modified General Education requirement. The pre-engineering and general education requirements are similar for the electrical engineering and the computer engineering programs.

Curriculum

Our curriculum is designed to provide students with a solid knowledge of mathematics, science and engineering concepts and the ability to apply them to engineering problems. Design is emphasized throughout the engineering program. Students also complete a series of courses in humanities/social sciences that complement their engineering education and encourages them to understand engineering roles in a broader context. The flexibility of the engineering curriculum serves full- and part-time students, traditional and non-traditional students, and students new to engineering as well as those who have had some experience in technical areas.

COMPUTER ENGINEERING CURRICULUM REQUIREMENTS **131-132 credits**

General Education	18 credits
Pre-Engineering Requirement	40 credits
Computer Engineering Core Requirement	60-61 credits
Technical Electives	13 credits

Although it is possible for a dedicated student who begins the math sequence with Calculus I to complete all degree requirements in four years, our students, like those at most engineering schools in the United States, typically require an additional semester to complete the program.

GENERAL EDUCATION REQUIREMENTS **18 credits**

Choose one (1) course from each of the following six categories:

1. American History
2. Art
3. Humanities
4. Social Science
5. Western Civilization
6. World Civilization

For the list of courses in each category, please refer to the “GE III Requirements for Electrical and Computer Engineering” brochure.

PRE-ENGINEERING REQUIREMENTS (40 credits)

The pre-engineering course of study consists of 40 credits in mathematics, computer science, physics, chemistry, introductory engineering, and English. The required courses are:

		Credits
Mathematics		
MAT251	Calculus I	4
MAT252	Calculus II	4
MAT353	Calculus III	4
Computer Science		
CPS210	Computer Science I: Foundations	4
Physics		
PHY201	General Physics I	4
PHY202	General Physics II	4
Chemistry		
CHE201	General Chemistry I	4
Engineering		
EGG101	Introduction to Engineering Science	3
EGE193	Fundamentals of Electrical Engineering	3
English		
ENG160	Freshman Composition I	3
ENG180	Freshman Composition II	3
	or	
ENG205	General Honors English I	3
ENG206	General Honors English II	3

ADMISSION TO THE COMPUTER ENGINEERING PROGRAM

Students completing the pre-engineering sequence with a grade point average of 2.50 or above are eligible for admission to the computer engineering program (major code 518).

Note that the general education and pre-engineering requirements are identical for both electrical and computer engineering majors. Therefore, a student who has successfully completed the pre-engineering requirement may declare either the electrical engineering (major code 517) or the computer engineering (major code 518) upper division major.

Students are strongly advised to complete at least six credits of general education courses before applying for admission to an engineering major.

The admission of transfer students will be based on a detailed comparison of their transcript with the New Paltz pre-engineering requirements and consultation with an advisor from the Department of Electrical and Computer Engineering.

DEPARTMENTAL ACADEMIC POLICIES

Pre-engineering students may not enroll in engineering or engineering related courses other than Introduction to Engineering Science (EGG101), Fundamentals of Electrical Engineering (EGE193), and Technical Communications (EGG309). Exceptions are sometimes granted for Circuits Laboratory (EGE209), Circuit Analysis (EGE250), Digital Logic Laboratory (EGC208), Digital Logic Fundamentals (EGC230), Applied Mathematics I (MAT314), Discrete Mathematics (MAT320), and Computer Science 2A (CPS393). Permission to register in any of these courses must be obtained from the Department of Electrical and Computer Engineering **before** registration.

Students are required to receive grades no less than a C- in any course that is used to satisfy the Engineering major requirement. Courses taken on a Satisfactory/Unsatisfactory basis cannot be applied toward the engineering degree requirements.

UPPER-DIVISION COMPUTER ENGINEERING REQUIREMENTS

The upper-division engineering course work, which leads to the Bachelor of Science degree in Computer Engineering, consists of the computer engineering core and a series of technical electives.

COMPUTER ENGINEERING CORE CURRICULUM REQUIREMENTS (60-61 engineering credits)

The following courses constitute the computer engineering core:

		Total Credits	Design Credits	Engr/Sci Credits
EGE209	Circuits Laboratory	1	0.5	0.5
EGE250	Circuit Analysis	3	0.5	2.5
EGE311	Signals and Systems	3	0.5	2.5
EGE320	Electronics I	3	1	2
EGE321	Electronics II	3	1	2
EGE322	Electronics I Lab	1	1	0
EGE323	Electronics II Lab	1	1	0
EGE340	Engineering Electromagnetics I	3	0.5	2.5
EGE408	Senior Design Project I[1]	3	3	0
EGE409	Senior Design Project II[1]	3	3	0
EGC208	Digital Logic Laboratory	1	0.5	0.5
EGC230	Digital Logic Fundamentals	3	1	2
EGC308	Microprocessor Laboratory	1	0.5	0.5
EGC331	Microprocessor System Design	3	1.5	1.5
EGC432	Intro to Computer Architecture	3	1	2
EGC493	Digital Systems Design	3	2	1
EGG309	Technical Communications	3	0	0
CPS310	Computer Science 2A	4	1	3
CPS353	Software Engineering	3	2	1
MAT341	Applied Math I	3	0	0
EGE370	Engineering Statistics	3	0	0
MAT320	Discrete Mathematics	3	0	0
PHY315	Mechanical Engineering[2]	3 or 4	1	2
		60-61		

COMPUTER ENGINEERING TECHNICAL ELECTIVES (13 Credits)

Thirteen credits of technical electives are required which must include at least one electrical and/or computer engineering (EGExxx and/or EGCxxx) lecture course (3 credits) and one electrical engineering (EGExxx and/or EGCxxx) laboratory (1 credit). Technical electives can include upper division computer science, physics, and math courses. **Students must obtain the advice of their advisor about their choice of electives before registering.** (Engineering Graduate Courses can be used as undergraduate Technical Electives.)

Lecture Group		**Total Credits**	**Design Credits**	**Engr/Sci Credits**
CPS340	Operating Systems I	3	1	2
CPS341	Operating Systems II	3	1	2
CPS410	Design and Analysis of Algorithms	3	0	1
CPS420	Languages and Machines	3	1	1
CPS450	Design of Programming Languages	3	0	1
EGE312	Communication Systems	3	1	2
EGE316	Control Systems I	3	1	2
EGE317	Digital Control Systems	3	1	2
EGE342	Microwave Fundamentals	3	1	2
EGE436	Microelectronics Technology	3	1	2
EGE451	Electromechanical Energy Conversion	3	1	2
EGE452	Electric Power Systems	3	1	2
EGE440	Solid State Devices	3	1	2
EGC412	Data Communications	3	1	2
EGC416	Embedded Systems	3	1.5	1.5
EGC423	Digital Integrated Circuits	3	1	2
EGC435	VLSI Design	3	1.5	1.5
EGC494	Co-op/fieldwork	3	1.5	1.5
MAT375	Numerical Methods	3	0	1
MAT488	Partial Differential Equations	3	0	1
PHY308	Modern Physics I	3	0	0

Laboratory Group		**Total Credits**	**Design Credits**	**Engr/Sci Credits**
EGE293	Computer Simulation Lab	1	0	1
EGE302	Antennas	1	0	1
EGE303	Microwave Fundamentals	1	0.5	0.5
EGE304	Control	1	0	1
EGE305	Communication	1	0	1
EGE306	Microwave Circuits	1	0.5	0.5
EGE450	Microelectronics Technology	1	0	1
EGE455	Electromechanical Energy Conversion	1	0	1
EGE493	Electric Power Systems	1	0.5	0.5
EGC401	VLSI Design	1	1	0

Footnotes

[1] Senior Design Project I and II (EGE408 and EGE409 - 6 cr). Seniors must register during each of the last two semesters preceding their graduation for Senior Design Project I and II. A single project under the direction of a single faculty member will be spread over two semesters. This project should provide a meaningful engineering design experience and should draw on the cumulative technical background of the student. Students work with a team of two, or at most, three – depending on the complicity of the project. On rare occasions students are allowed to work individually on a project. Senior Designs I and II are presented three times a year (spring, summer, fall). Students are required to present their projects with PowerPoint and a complete report should be submitted at the time of the presentation.

[2] Choose one of the following two courses:
PHY315 Engineering Mechanics (4)
PHY422 Thermodynamics (3)

COURSE DESCRIPTIONS

GENERAL ENGINEERING COURSES

EGG101 Introduction to Engineering Science (3)
Introduction to electrical and computer engineering topics. Various fields of engineering activities and career opportunities. History of engineering. Present and future trends in various areas of electrical engineering such as energy conversion, automatic control, electronic communications and computers. Engineering ethics and professionalism. Visits to representative industries. Pre-requisite: HS or college physics and PI

EGG309 Technical Communications (3)
Oral, written and communication issues of the professional engineer, including: schedules, job specification, step-by-step directions, presentation of data, professional articles, abstracts, technical proposals, oral presentations, power point presentations, information formatting for world wide web, technical editing. Pre-requisite: PI

COMPUTER ENGINEERING COURSES

EGC208 Digital Logic Laboratory (1)
Laboratory exercises covering the material of EGC230 Digital Logic Design. Pre-requisite: EGC230

EGC230 Digital Logic Fundamentals (3)
Algebra of logical variables, logical functions. Basic combinational circuits. Flip-flops, registers and counters. Arithmetic. Memory blocks. Sequential circuits. Pre-requisite: EGE193

EGC308 Microprocessor Laboratory (1)
Laboratory exercises covering the material of EGC331 Microprocessor Systems Design. Pre-requisite: EGC331

EGC331 Microprocessor System Design (3)
An introduction to microprocessor systems. Topics include microprocessor organization, Assembly language programming, memory interfacing and timing, programmable peripheral interface, timer, interrupts and programmable interrupt controller, and serial data communication. Pre-requisite: EGC230

EGC401 VLSI Design Laboratory (1)
Software and hardware used in VLSI design. Applications to NMOS and CMOS. Pre-requisite: EGE435

EGC412 Data Communications (3)
A first course in Computer Communications, which introduces the problems, solutions, and limitations, associated with interconnecting computers by communication networks (LAN or WAN). The seven layer ISO Open Systems Interconnect (OSI) reference model serves as framework for the course with major emphasis on layers one through four (physical, data link, network, and transportation. Pre-requisite: EGC331

EGC416 Embedded Systems (3)
An introduction to embedded systems with real world applications. Topics include micro controller system architecture, analog to digital and digital to analog, signal conditioning, and real-time issues. Pre-requisite: EGC331

EGC423 Digital Integrated Circuits (3)
MOS transistor, logic gate circuits and electrical characteristics. P-N junction and Schottky diodes. BJT, inverter and digital gate circuits. Regenerative circuits. Semiconductor memories. Design projects. Course based on charge-control and SPICE2 large signal MOSFET, diode and BJT models, and the related integrated circuit analysis. Pre-requisite: EGE321, EGC230

EGC432 Introduction to Computer Architecture (3)
Design of a simple processor. Topics include performance metrics, data formats, instruction sets, design of arithmetic unit, data path and control design, pipelined architecture, memory hierarchies including caches and virtual memory, I/O systems, and multiprocessor systems. Pre-requisite: EGE331

EGC435 VLSI Design (3)
Introduction to MOS devices and circuits (N-MOS, CMOS), MOS transistor theory. Integrated system processing technology and design rules (N-MOS and CMOS), circuit characterization and performance estimation, N-MOS and CMOS circuits and logic design. Interfacing. Introduction to VLSI design tools. Testability analysis. Micro architecture of VLSI systems. Chip design projects. Pre-requisite: EGC230, EGE321

EGC450 Digital Systems Design (3)
An introduction to digital systems design using a hardware description language. Topics include programmable counters, shift registers, design of synchronous and asynchronous sequential machines. Pre-requisite: EGC230

EGC494 Co-op/fieldwork (3)
Participation in a design and engineering project for a complete summer or part time during the semester, under the supervision of an engineer in industry. Student must arrange all details with the department first. After completion of co-op, student must present his/her gained experience and submit a full report. Details can be found in department co-op brochure. Pre-requisite: Junior or senior level

ELECTRICAL ENGINEERING COURSES

EGE193 Fundamentals of Electrical Engineering (3)
Circuit elements, basic laws of circuit, methods of circuit analysis, fundamentals of computer, circuits theorems, control, electrical motors, energy generation, distribution and conversion, communication, semiconductors and electronics. Pre-requisite: EGG101.

EGE209 Circuits Laboratory (1)
Laboratory exercises covering the material of Circuit Analysis. Co-requisite: EGE250.

EGE293 Computer Simulation Lab (1)
The Computer Simulation Lab is intended to introduce electrical and computer engineering students to the concepts of engineering design using the MATLAB script language as the primary implementation tool. The MATLAB system is widely used by professional engineers and scientists. The students will be introduced to the following topics: Problem Solving and Engineering Method, MATLAB Interactive Environment, MATLAB Programming Elements, Control Structures, Arrays and matrix Operations, Plotting and Graphing, Recursion, Object Oriented Programming, Software Development. Pre-requisite: EGE250

EGE250 Circuit Analysis (3)
Sinusoidal and phasor, circuits with ac input, power calculation, three-phase circuits, transfer function, filters, two-port circuits, magnetically coupled circuits and transformers. Fourier analysis. Laplace transform (if time permits). Pre-requisite: EGE193

EGE302 Antenna Laboratory (1)
Measurement of the far field pattern and characteristics of wire antennas and arrays for VHF. Measurement of the field pattern and characteristics of reflector type antennas in the X-band, and of aperture type antennas and arrays in the X-band. Pre-requisite: PI

EGE303 Microwave Fundamentals Laboratory (1)
Measurement of VSWR and wavelength in waveguides, stub tuners and matching, calibration of attenuators, time domain reflectometry and frequency domain network analyzer measurement. Pre-requisite: EGE342

EGE304 Control Laboratory (1)
Transient response and frequency response measurements to characterize control system devices and components. Laboratory study of open-loop and closed-loop linear systems. Steady-state error analysis; Positional speed control systems. Co-requisite: EGE316

EGE305 Communication Laboratory (1)
AM communication circuits. FM communication. SSB communication circuits. RF power transmitting. Phase-locked loop circuits, frequency synthesis, time division multiplexing (sampling, PCM, DM), frequency division multiplexing, amplitude shift keying, phase shift keying, frequency shift keying. Pre-requisite: EGE312

EGE306 Microwave Circuits Laboratory (1)
Design, build and test planar microwave devices such as power divider, coupler, filter, mixer, amplifier, and oscillator. Pre-requisite: PI

EGE311 Signals and Systems (3)
Continuous and discrete - time signals, systems, and their properties. Continuous and discrete - time linear time - invariant systems. Convolution sum and convolution integral. System descriptions using differential and difference equations. Continuous - time Fourier series, Fourier transform, and their properties. Frequency - selective filters, amplitude modulation, and sampling. Pre-requisite: MAT359 and EGE250

EGE312 Communication Systems (3)
Signal analysis, Signal transmission. Digital communication systems. Amplitude modulation; angle modulation. Pre-requisite: EGE311

EGE316 Control Systems I (3)
Mathematical modeling of physical systems, signal flow graph, feedback control systems; stability; time domain analysis, frequency response and analysis of design using root locus, and frequency domain methods, Nyquist criterion and Nichols chart, design of the PID controllers, time domain design of the phase lead and lag controllers. Pre-requisite: EGE311

EGE317 Digital Control Systems (3)
Analysis and design of discrete-time control systems. General formulation of dynamic systems using difference equations. The Z-transform and its applications. Signal conversion and processing. Stability analysis. Design of discrete-time control system via transform methods. Compensator design using classical techniques. Pre-requisite: EGE311

EGE320 Electronics I (3)
Semiconductors, diodes, zener diodes, diode circuits. Bipolar junction transistors: physics, biasing, and amplification. Junction field effect transistors: physics, biasing and amplification. Metal-oxide semiconductor field effect transistor: physics, biasing and amplification. Bipolar transistor as a switch. Field effect transistor as a resistor. Laboratory exercises. Pre-requisite: EGE250

EGE321 Electronics II (3)
Multistage amplifiers (direct coupled, capacitor coupled). Cascade stage, differential amplifiers. Widlar current source. Operational amplifiers. Application of operational amplifiers. Frequency response of amplifiers. Tuned amplifiers. Oscillators. Waveform generators. Feedback amplifiers. Stability of feedback amplifiers. Power amplifiers. Laboratory exercises. Pre-requisite: EGE320

EGE322 Electronics I Laboratory (1)
Laboratory exercises covering characterization of diodes, BJT, and JFET, diode circuits and biasing and amplification of BJT and JFET. Co-requisite: EGE320

EGE323 Electronics II Laboratory (1)
Laboratory exercises covering the multistage amplifier, direct coupled amplifier, difference amplifier, op-amp applications, frequency response, oscillator, waveform generator, power amplifier, and frequency response. Co-requisite: EGE321

EGE340 Engineering Electromagnetics I (3)
Transmission line theory. Graphical solutions using Smith Chart. Impedance matching. Transients on lossless lines. Coordinate systems and vector calculus. Maxwell's equations and the wave equation. Uniform plane waves. Pre-requisite: EGE250, MAT353

EGE341 Engineering Electromagnetics II (3)
Electrostatic fields in free space and material media. Electric energy, potential, and capacitance. Laplace's and Poisson's equations. Magnetostatic fields in free space and material media. Magnetic energy, magnetic potential, and inductance. Magnetic circuits. Quasi-static electromagnetic fields. Induction, magnetic forces and torques. Pre-requisite: EGE340

EGE342 Microwave Fundamentals (3)
Review of Maxwell's equations, propagation of plane waves, reflection and transmission of plane wares, transmission line analysis, striplines and microstrip lines, waveguide analysis, microwave networks. Pre-requisite: EGE341

EGE370 Engineering Statistics (3)
This course will provide engineering students with an understanding of the principles of engineering data analysis using basic probability and statistic theorems. Emphasis is on the application of statistical techniques to real-world data processing or problems. Pre-requisite: MAT252

EGE408 Senior Design Project I (3)
First part of a two-semester design project. Students choose a project and an advisor and learn about the design process. A written progress report is required at the end of the semester.
Pre-requisite: Graduating senior, major code 518 and PC.

EGE409 Senior Design Project II (3)
Second part of a two-semester design project. Written and oral reports are required at the end of the semester.
Pre-requisite: EGE08 and PC.

EGE436 Microelectronic Technology (3)
Crystal growth. Epitaxy. Major steps in the fabrication of VLSI circuits. Process simulation and diagnostic techniques. Yield and reliability. Pre-requisite: EGE320

EGE451 Electromechanical Energy Conversion (3)
Fundamentals of electromechanical energy conversion. Transformers. Induction machines, three phase and single phase. Synchronous machines. Pre-requisite: EGE250

EGE452 Electric Power Systems (3)
Energy sources, transmission line parameters, transmission line modeling, power flow analysis, voltage and frequency control. Pre-requisite: EGE250

EGE450 Microelectronics Technology Laboratory (1)
Semiconductor cleaning and etching. Metal evaporation, DC Sputtering, electron beam evaporation. RF Sputtering, thermal oxide growth, alloying, annealing, window opening, oxide thickness measurement, four-point probe method, cryogenic characterization. Pre-requisite: EGE436

EGE440 Solid State Devices (3)
Bond and band model, semiconductors at equilibrium and non-equilibrium, physics of PN junctions, diodes, bipolar transistors, M-S, MESFET, MOSFET, LED, Solar cell and photo diodes, PNPN diodes and SCR. Pre-requisite: EGE320

EGE455 Electromechanical Energy Conversion Lab (1)
Operation of single and three phase transformers. Characteristics of single phase and three phase induction motors. Characteristics of three phase synchronous machines. Characteristics of various types of direct current machines. Co-requisite: EGE451

EGE493 Electric Power Systems Lab (1)
Measurement of alternator characteristics, transformer characteristics, and transmission line characteristics. Power flow and short circuit measurements on uncompensated and compensated transmission lines. Determination of voltage regulation and efficiency of loaded lines. Co-requisite: EGE452

GRADUATE COURSES:

The Engineering Department offers a number of graduate level courses each semester. These courses (EGE5xx) may be used to satisfy the technical electives requirement with departmental approval. Information is available from the department office.

GENERAL INFORMATION

Graduates

Our students graduate with an understanding of the roles, responsibilities and professional ethics expected of engineers; with the communication and teamwork skills needed to function effectively in a range of work environments and with the ability to think critically and adapt to a changing world. Our graduates are well prepared to be successful in entry-level positions in industry and research and to pursue further study and advancement in their chosen fields.

Industry Involvement and Co-op/fieldwork Program

A key feature of engineering at New Paltz is the close working relationship the Department enjoys with local high-technology industry. The interest and support of industry inspired the development of the program and now ensures that it will remain relevant to expanding and changing industrial needs. We encourage our students to participate in co-op/fieldwork experiences while at New Paltz, and we maintain a high after-graduation placement rate. Students, who complete a pre-arranged and supervised co-op/fieldwork and submit a report, receive 3 credits.

Engineering Advisory Board (EAB)

The Engineering Department has a very active external advisory board with participants contributing from the many high tech engineering and related companies located in the Hudson Valley. The EAB's mission is "to provide information and guidance to the SUNY New Paltz Engineering Department in regards to their curriculum, their graduates and the quality of things being done at SUNY New Paltz and to help steer the direction of the engineering board to create the best quality students they can to provide superior professionals for local industries". Some of the specific functions of the EAB are: to assist in providing co-op or intern positions for our students; to provide information and opportunities for full time employment for the graduating students; help identify speakers for the engineering seminar program; and provide feedback for the engineering curriculum through an evaluation of our students' performance during several years of professional activity within these companies.

Advisory Curriculum Committee (ACC)

In order to assess that the specific objectives and expected outcomes of the engineering programs are satisfied, the Engineering Department has established the Advisory Curriculum Committee (ACC). The constituencies of this committee include: alumni (2), students (2), faculty (2), EAB (2), Department Chair and Director of College Institutional Research. The ACC meets every semester to provide specific course and program assessment, as well as evaluate assessment methodology as related to the engineering program objectives and outcomes.

Undergraduate Research Opportunities

Opportunities are available for undergraduate students through the C-STEP Program (for woman and minority students) and the School of Engineering and Science (for all students) to conduct research during the summer. Students receive a generous stipend. Undergraduate research enhances student's chance in finding a suitable engineering job.

Learning Environment

Engineering students at New Paltz have the opportunity to study in an environment supportive of their academic needs. Engineering courses are taught by research-oriented engineering faculty; small class and laboratory sizes encourage faculty/student interaction. Students have access to a well-equipped infrastructure including state-of-the-art facilities, industry-standard laboratories and modern computer facilities.

Transfer Students: Application and Transfer Credit Procedure

Students wanting to complete their engineering education at SUNY New Paltz must complete the application form and forward it directly to the Admission Office. The Admission Office is responsible for evaluating the student's transcript and making an acceptance decision. This office will also evaluate the transfer credits requested by the student. If the student is transferring in from a local community college, transfer of credit will be in accordance with the agreed upon transfer credit articulation policies. Under certain circumstances, if the Admission Office is unable to evaluate specific courses and is unable to make a decision on transferability of credits, the Chair of the Engineering Department will consider the matter and render a decision after evaluating the course description and pre-requisites. Additional information is available in departmental brochures: "*Electrical Engineering*", "*Computer Engineering*", and "*What Do I Need To Get In*?"

The Program Requirements Checklist

Each program requirements are listed in the program course checklist and are included in every student file. At the end of each semester, student grades are transferred into the program course checklist. When the course checklist is completed, and the student has satisfied all program requirements, he/she is then eligible to graduate. The program course checklist is used for advising and planning purposes as well.

Seminars

The Engineering Department offers several seminars each semester that cover a variety of subjects. To partially satisfy the life-long requirement of ABET, (The Accreditation Board for Engineering and Technology) engineering students are required to attend at least five engineering seminars and write a brief report on each one (to be included in their file). Only two reports per semester are accepted.

Engineering Design

ABET requires that each student complete one and one half years of engineering topics to include engineering sciences and engineering design appropriate to the student's field of study. At New Paltz, the design experience is developed and integrated throughout the engineering curriculum.

The experience begins in Introduction to Engineering with an introduction to basic engineering design. As engineering majors progress through the major they gain engineering design experience at increasing levels of complexity within many of the engineering core and technical elective courses. Open-ended problems are assigned and students must complete design projects in many of their courses. Advanced elective courses afford students the opportunity to complete more substantial design projects in their areas of interest.

To assist students in choosing courses with appropriate design content, each course is assigned a number of design credits. Our engineering programs require sixteen or more engineering design credits to be completed by the time of graduation. Each student is required to maintain a design folder on file with the Department of Electrical and Computer Engineering. By the time of graduation, the folder must contain at least 5 increasingly complex design projects, for which two projects must be from elective and/or senior level courses. (This is a strict graduation requirement.)

In the senior year, the design experience culminates in a major design project completed in the courses Senior Design I and II. Under the guidance of the engineering faculty, students draw on the technical knowledge and skills that they have developed throughout the undergraduate experience in order to select and complete a substantial design project. The project grade is based on a formal report, an oral presentation (attended by engineering faculty, students, and constituents), and the project's overall performance. Senior design projects may be chosen from any of the areas of specialization in which the Department of Electrical and Computer Engineering offers technical elective courses.

Department Support in Student Activities and Senior Design Projects

The Department financially supports student related activities such as: job fairs, conferences and compensates (a reasonable amount) the cost of Senior Design Projects.