Composing a New Electrical and Computer Engineering Program


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Abstract – We are developing a new electrical and computer engineering program at Rowan University with first graduates expected in 2000. Features include a continuous engineering clinic sequence, a mixture of two-, three-, and four-credit courses, and technology focus electives. Project-based instruction is employed as a tool for motivating students and to demonstrate the relevancy of material. Multidisciplinary courses provide the opportunity for students in different disciplines to work together.

In this paper, we describe a new program developed to meet the challenges of preparing engineers for the next century and to satisfy ABET’s Criteria 2000. A unique feature of the program is the clinic sequence. Clinics deliver many of the Rowan engineering hallmarks:

- Hands-on instruction
- Treatment of integrated topics
- Teamwork
- Effective communication
- Multidisciplinary experience
- Entrepreneurship

Condensed ECE program goals include:

- Create effective engineers
- Impart essential ECE knowledge
- Cultivate effective communicators
- Facilitate multidisciplinary discourse
- Extend geographical reach
- Sensitize to contemporary issues
- Stimulate life-long learners

The 128-hour curriculum at a glance:

**FIRST YEAR**

- Freshman Engineering Clinic I 2
- Composition I 3
- Calculus I 4
- Chemistry I 4
- General Education I 3

- Freshman Engineering Clinic II 2
- Computer Science & Programming 4
- Calculus II 4
- Physics I 4
- General Education II 3

**SECOND YEAR**

- Sophomore Engineering Clinic I 4
  w/ Composition II
- Engineering Analysis I 4
- Physics II 4
- Statics 2
- Network I 2

- Sophomore Engineering Clinic II 4
  w/ Public Speaking
- Engineering Analysis II 4
- Dynamics 2
- Network II 2
- Digital I 2
- Electronics I 2

**THIRD YEAR**

- Junior Engineering Clinic I 3
- Systems/Elective 3
- Engineering Electromagnetics I 2
- Engineering Electromagnetics II 2
- Digital II: Microprocessors 2
- General Education III (Microeconomics) 3

- Junior Engineering Clinic II 3
- Systems/Elective 3
- DSP 3
- Communication 4
- Electronics II: VLSI Design 3

**FOURTH YEAR**

- Senior Engineering Clinic I 3
- Computer Architecture I 2
- Computer Architecture II 2
- Software Engineering 3
- Elective 3
- Technology Focus Elective 3

- Senior Engineering Clinic II 3
- Seminar: Engineering Frontiers 1
- Elective 3
- Technology Focus Elective 3
- General Education IV 3
- General Education V 3