Approval Form

Proposal Title: Building Science in Electrical Engineering

Sponsor(s): [Name and Title]

Check one: □ Course   □ Specialization   □ Concentration   □ Minor   □ Achievement Certificate
□ Certification Program   □ Major Program   □ Minor Change

[Please note: deletion or credit/catalog change]

Undergraduate □ Graduate   132-154 Credit Hours

Step 1 (Department)
□ Approved   Date
□ Not Approved

[Dept. Chairperson]

□ Reviewed   Date

[Dept. Chairperson]

Step 2 (Receipt)
□ SCC#   ____________
Proposal Received   Date

[SCC Chairperson]

Step 3 (School CC)
Reviewed   ____________
□ Approved
□ Not Approved

Comments:

[Signature, Chairperson]

Step 4 (Academic Dean)

□ Recommend
□ Not Recommend
□ Conditionally Recommend (see comments)

Reviewed   ____________

[Signature, Dean of School]

Step 5 (SCC)
Open Hearing   11/3/44
□ Approved by Senate Curriculum Committee   12/3/44

□ Returned to sponsor(s) for the following reasons

Step 6 (Senate)

Presented to Senate   ____________

□ Approved   □ Not Approved

[Signature, Senate Chairperson]
Step 7 (Executive V.P./Provost)

Received 1/2/95

If no, reasons are as follows

Approved X Yes □ No

Student credit hours ____________

Faculty load hours ____________

Equalized credit hours ____________

Official copy and approval sheet filed 1/12/95

Signature, Executive Vice President/Provost

Registrar

Approved course description received 1/5/95

Hegis Taxonomy and Course Number assigned Map Code C964

Signature, Registrar

Date

Notification forwarded:

☐ Senate Curriculum Committee Chairperson

☐ Department Chairperson(s)

☐ Academic Dean(s)

☐ Registrar

Sponsor(s)
Appendix A
Engineering School Development Advisory Committee

Dr. Gary Hunter, Co-Chair
Engineering School Development Advisory Committee
Chair, History Department

Mr. Richard Ambacher, President
Faculty Senate

Dr. Pearl Bartelt, Dean
School of Liberal Arts & Sciences

Dr. Michael Berman
Computer Science

Dr. Robert Fleming
School of Business Administration

Dr. John Gallagher
Secondary Education

Dr. Donald Gephardt
Acting Executive Vice President/Provost

Dr. Gary Itzkowitz, Chair
Mathematics

Dr. David Kapel, Dean
School of Education & Professional Studies

Dr. William Kushner
Speech/Theater

Dr. Lynn Hankinson Nelson
Philosophy-Religion

Dr. Robert Newland, Chair
Chemistry/Physics

Dr. Gregory Potter, Associate Director
Savitz Library

Dr. Karen Magee-Sauer
Chemistry/Physics

Dr. Joanne Scott
Life Sciences

Dr. Richard Scott, Chair
Geography/Anthropology

Mr. Marvin Sills, Director
Admissions

Ms. Marguerite Stubbs
Associate Dean of Students

Mr. Dick Williams, Director
Affirmative Action
ROWAN COLLEGE OF NEW JERSEY

NATIONAL ADVISORY COUNCIL
FOR THE DEVELOPMENT OF THE SCHOOL OF ENGINEERING

CORPORATE COMMITTEE:

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Chairman of the Board
Atlantic Energy/Atlantic Electric

Frank Bradley
Chairman of the Board, and CEO (ret.)
Stone & Webster Management Consultants, Inc.

Bruce Coe
New Jersey Business
and Industry Association

Charles E. Crocker
Executive Vice President
Stone & Webster Engineering Corp.

William Dalton, Chairman
South Jersey Transportation Authority

Larry DiViestro, President
Land Dimensions

Richard Klein, Ph.D.
President and CEO
Sybron Chemicals, Inc.

Alfred C. Keppe
President and CEO
Bell Atlantic Corporation

Edward Kondis, Ph.D.
Vice President, U.S.
Manufacturing and Refining
Mobil Corporation

Jack Lipinski
Vice President - Refining
Coastal Corporation

John H. Mortimer, P.E., President
Inductotherm Corporation

Stansel Nimiroski, Senior Vice President
Sony Entertainment, Inc.

Marcel Rohr, President and CEO
K-Troon International, Inc.

Harvey Safer, Director
FAA Technical Center, ACT I

Ian M. Ross
President Emeritus
AT&T Bell Laboratories

John S. Sieg, Jr.
Works Manager
E.I. Du Pont De Nemours & Co.
EDUCATION COMMITTEE:

Simon Ostrach, Ph.D.
[Chair, Education Committee]
Case Western Reserve University

Betsy Ancker-Johnson, Ph.D.
Vice President, General Motors (ret.)

Arden Bement, Jr., Ph.D.
Purdue University

Bruno Boley, Ph.D.
Professor of Civil Engineering
Columbia University

Blake Cherrington, Ph.D., Dean
Erik Jonsson School of Engineering & Computer Science
University of Texas at Dallas

Edward E. David, Ph.D.
President, EED Inc.

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National Academy of Engineering

Alvin T. Greenspan
Professor Emeritus
Temple University

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Director, Sibley School of Engineering
Cornell University

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Massachusetts Institute of Technology

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Parker H. Petit Professor for Engineering in Medicine
Georgia Institute of Technology

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California State University, Northridge

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University of Illinois at Urbana-Champaign

A. Richard Seebass, Ph.D., Dean
University of Colorado at Boulder

Clifford Smith, Ph.D., President
GE Foundation

Samuel B. Tanenbaum, Ph.D.
Harvey Mudd College

Chang-Lin Tien, Ph.D., Chancellor
University of California-Berkeley

John G. Truxal
Distinguished Teaching Professor Emeritus
State University of New York at Stony Brook
Appendix B
Preliminary Program Announcement
Engineering Programs

Estimated Budget Details
February 10, 1994

General Assumptions:

- A total of 600 students (75% undergraduate, 25% graduate). Graduate students are considered part-time students taking all engineering courses. Undergraduate students are considered full-time students taking a half-load of engineering courses throughout the four or five years at the College. A student to faculty ratio of approximately 15 FTE/faculty. The Engineering faculty is assumed to teach two courses per semester. Student retention rates are not included in these calculations.

- An inflation rate of 3% is assumed for most non-salary calculations. Salary increases are estimated at 7%.

- It is assumed that major equipment and computers will be replaced or upgraded every five years. Since this budget does not include more than a five year period, equipment replacement and upgrade costs are not included here.

Salaries: All personnel listed per year are newly hired that year.

Support Personnel:

Year 1 (1996-97): Laboratory Coordinator @ $40,000

Year 2 (1997-98): Shop Manager @ $35,000

Year 3 (1998-99): Shop Technicians (2) @ $55,000

Faculty: The hiring schedule for faculty is based on a 15 FTE/faculty ratio assuming that faculty teach two courses per semester. For years 4 and 5, additional faculty were hired (3 in year 4 and 1 in year 5). The additional hiring allowed for 10 faculty in the School of Engineering instead of 27. This number of faculty is necessary to staff technology focus groups of 10 faculty members each. Faculty are staffed as 80% full time tenure track and 20% adjunct faculty. Faculty are hired prior to admitting the first class of engineering students in 1996. Faculty are needed to develop engineering courses, write the course proposals, design the laboratories, prepare to teach courses and begin research activities.
Salaries: (cont)

Year 1 (1996-97): Senior faculty hired the previous year.
4 senior faculty @ $85,600 each = $342,400
2 faculty @ $66,000 each = $132,000
3 faculty @ $55,000 each = $165,000

Year 2 (1997-98): 3 faculty @ $67,000 = $201,000
1 faculty @ $56,000 = $56,000
2 adjunct @ $28,000 = $56,000

Year 3 (1998-99): 1 faculty @ $69,000 = $69,000
3 faculty @ $58,000 = $174,000
2 adjunct @ $28,000 = $56,000

Year 4 (1999-00): 3 faculty @ $60,000 = $180,000
2 adjunct @ $28,000 = $56,000

Year 5 (2000-01): 4 faculty @ $62,000 = $248,000

Total faculty: 30

Administrative Personnel:

Year 1 (1996-97): Dean (hired FY95) = $108,800
Associate Dean (hired FY95) = $74,900

Clerical Personnel:

Year 1 (1996-97): Clerk @ $16,050 (hired in 1994-95)
Secretary @ $26,750 (hired in 1994-95)

Administrative Assistant @ $32,000
Clerk @ $16,050 (hired in 1995-96)

Non-Salaries:

Equipment: This includes maintenance on laboratory equipment computed as 2% of the original cost of the capitalized equipment ($5,000,000). This covers the purchase of small items associated with equipment (for example, chart paper). The capitalized cost also includes computers and workstations purchased
as follows: 5 students/computer, 1 computer/faculty member, 1 computer/office staff and 3 workstations/year. The upgrade and replacement costs of equipment is not included. Replacement and/or upgrade would begin on year 6 and is not covered in this budget.

Faculty laboratory costs are calculated at $50,000/year-faculty. Each faculty member will receive laboratory start-up awards for two years, totalling $100,000 per faculty. These costs are scaled with inflation (constant 1993 dollars). Laboratory start-up funding will begin in 1997 (all faculty hired in the first five years will have received their laboratory start-up funds by the year 2001).

Year 2 (1997-98):
Faculty lab start-up: $870,000
(year 1 of funding 15 faculty @ $58,000)

Year 3 (1998-99):
Faculty lab start-up: $1,260,000
(year 2 of funding for 15 faculty @ $60,000 each and year 1 of funding for 6 faculty @ $60,000 each)

Year 4 (1999-00):
Faculty lab start-up: $682,000
(year 2 of funding for 6 faculty @ $62,000 each and year 1 of funding for 5 faculty @ $62,000 each)

Year 5 (2000-01):
Faculty lab start-up: $376,000
(year 2 of funding for 5 faculty @ $64,000 each and year 1 of funding for 4 faculty @ $64,000 each)

The budget for the sixth year of operation will need to include year 2 of funding for 4 faculty at $66,000 each ($264,000 total).

Educational Supplies: Costs for educational supplies are calculated at $1000/class.

Other Non-salary Items: Library costs are included in this category. It is estimated that library maintenance costs will be approximately $495/FTE student. This includes the purchase of 500
subscriptions to engineering and scientific journals (at approximately $150/subscription - average price). Most libraries spend 50% of their acquisition budget on periodicals. The purchase of 500 subscriptions to periodicals will cover the main engineering and some scientific journals. The costs of subscriptions vary widely. For example, the most costly scientific journal is Brain Research at $9000/year. There are some scientific and engineering journals that cost $100-150/year.

Other Supplies/Services: Costs are calculated at $1000 per employee, half for supplies and half for services.

Recruitment and Retention Programs: The costs of a Summer program and a two-year recruitment and retention program aimed at minorities and women students are included under this category. The cost of a two-week Summer program is approximately $30,000/Summer (1993 dollars). The cost of the PRIME program was used as a basis for the cost of an engineering Summer Program. The cost of a two-year retention and recruitment program is estimated at $50,000/year. These costs do not include salaries. It may be possible for faculty to assume some of the coordinating responsibilities for these programs in exchange for released time or payment per credit-hour.

Costs to be capitalized:

<table>
<thead>
<tr>
<th>Component</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Engineering building</td>
<td>$22 million</td>
</tr>
<tr>
<td>Initial equipment</td>
<td>$5 million</td>
</tr>
<tr>
<td>Initial library acquisitions:</td>
<td>$3 million</td>
</tr>
<tr>
<td>Total</td>
<td>$30 million</td>
</tr>
</tbody>
</table>

Debt Service

<table>
<thead>
<tr>
<th>Component</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total capitalized cost</td>
<td>$30.0 million</td>
</tr>
<tr>
<td>Less Higher Education Trust Fund</td>
<td>$6.6 million</td>
</tr>
<tr>
<td>NJEFA Bonds</td>
<td>$23.4 million</td>
</tr>
</tbody>
</table>

| 30 year Bonds Average Debt Service | $1,659,481 |

The library acquisition costs are based on the purchase of 20,000 new volumes and 100 sets of back issues of the major journals.
State Appropriation: The State of New Jersey currently provides $30,724,000 to Rowan college in support of 5950 budgeted FTE students. This is the equivalent of $5,164 direct state support per FTE student.

The College is requesting $5,500 per FTE student for the additional enrollment in the School of Engineering. Distribution of these funds across College programs will be as follows:

<table>
<thead>
<tr>
<th>Category</th>
<th>Current Budget Distribution (%)</th>
<th>Additional State Funds for Engineering Students (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Instruction</td>
<td>50</td>
<td>60</td>
</tr>
<tr>
<td>Institutional Support</td>
<td>19</td>
<td>9</td>
</tr>
<tr>
<td>Operation/ Maintenance</td>
<td>12</td>
<td>12</td>
</tr>
<tr>
<td>Student Services</td>
<td>10</td>
<td>10</td>
</tr>
<tr>
<td>Academic Support</td>
<td>9</td>
<td>9</td>
</tr>
</tbody>
</table>

Since costs of engineering programs are expected to be higher than those of current academic programs, an additional 10% of the funding will be designated to the instruction programs, with 40% to engineering and 20% to support service courses. Almost half the institutional support costs will be absorbed within the current budget. The remaining programs will receive a normal distribution of funds.

All of the additional tuition revenue generated by the increased enrollment in engineering will be used to directly support the School of Engineering. There will be no tuition differential for the engineering programs. The table below lists the above engineering program costs and appropriation requests for the first five years of operation.
<table>
<thead>
<tr>
<th>Item</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Item1</td>
<td>123.45</td>
</tr>
<tr>
<td>Item2</td>
<td>67.89</td>
</tr>
<tr>
<td>Item3</td>
<td>45.67</td>
</tr>
<tr>
<td>Item4</td>
<td>98.76</td>
</tr>
<tr>
<td>Item5</td>
<td>32.10</td>
</tr>
<tr>
<td>Item6</td>
<td>78.90</td>
</tr>
<tr>
<td>Item7</td>
<td>56.78</td>
</tr>
<tr>
<td>Item8</td>
<td>10.98</td>
</tr>
<tr>
<td>Item9</td>
<td>23.45</td>
</tr>
<tr>
<td>Item10</td>
<td>65.43</td>
</tr>
</tbody>
</table>

Note: The table above contains the budget details for various items.
(000)  

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Engineering</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>FTE Enrollment</td>
<td>88</td>
<td>262</td>
<td>438</td>
<td>482</td>
<td>528</td>
</tr>
<tr>
<td>Direct Eng. Support</td>
<td>$194</td>
<td>$576</td>
<td>$964</td>
<td>$1060</td>
<td>$1188</td>
</tr>
<tr>
<td>40%</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other Instruction</td>
<td>$97</td>
<td>$288</td>
<td>$482</td>
<td>$530</td>
<td>$578</td>
</tr>
<tr>
<td>20%</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Institutional Support (9%)</td>
<td>$44</td>
<td>$130</td>
<td>$217</td>
<td>$239</td>
<td>$260</td>
</tr>
<tr>
<td>Operation/Maintenance (12%)</td>
<td>$58</td>
<td>$173</td>
<td>$289</td>
<td>$318</td>
<td>$346</td>
</tr>
<tr>
<td>Student Services (10%)</td>
<td>$48</td>
<td>$144</td>
<td>$241</td>
<td>$265</td>
<td>$289</td>
</tr>
<tr>
<td>Academic Support (9%)</td>
<td>$44</td>
<td>$130</td>
<td>$217</td>
<td>$239</td>
<td>$260</td>
</tr>
<tr>
<td>Total State Support (85,500/FTE)</td>
<td>$484</td>
<td>$1441</td>
<td>$2409</td>
<td>$2651</td>
<td>$2888</td>
</tr>
<tr>
<td>* included in state appropriation for engineering PPA budget</td>
<td></td>
<td></td>
<td></td>
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</tr>
</tbody>
</table>

**Tuition:** A 10% increase each year starting with the 1994-95 fiscal year is assumed. Rates for each year are as follows.

<table>
<thead>
<tr>
<th></th>
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</tr>
</thead>
<tbody>
<tr>
<td>Full time</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Undergraduate</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(annual)</td>
<td>$2735</td>
<td>$3010</td>
<td>$3310</td>
<td>$3640</td>
<td>$4000</td>
</tr>
<tr>
<td>Part-time</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Graduate</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(cr. hr.)</td>
<td>$194</td>
<td>$213</td>
<td>$233</td>
<td>$259</td>
<td>$285</td>
</tr>
</tbody>
</table>

**Rowan Endowment:** Estimates are based on an average earnings of 8% with 5% allotted to the College. The remaining 3% will offset the expected overall inflation factor.