Program Review Year 2010– 2011

Engineering Science

Program Review Team Members

Name	**Title**
Liliana Brand	Assistant Professor of Mathematics
Paul Chanley	Engineering & Electronic Technology Program Coordinator
Michael Cross	Instructor, Department of Natural Sciences
Thomas Greene	Assistant Professor, Department of English
Lori Heymans	Associate Professor Developmental Math
Habib Maagoul	Assistant Professor of Mathematics
Michael Pelletier	STEP UP Project Leader

DATE: _____3-4-2011_____

SECTION SIX: SUMMARY

I. CONCLUSIONS: PROGRAM STRENGTHS AND WEAKNESSES

A. List and describe the program's major strengths, based on information obtained in the Program Review. Cite evidence for each identified strength.

AREA OF STRENGTH	EVIDENCE
Engaging students as active learners.	SECTIONS ONE (II) (D) and II (A)
Striving for educational excellence.	SECTIONS ONE (II) (D) and II (A)
Increase in student demand.	SECTION TWO (I) (A)
Non-graduating students as well as graduating students transferring at a high rate to four year colleges to continue their education.	SECTION TWO (I) (B)
Solid minority representation in program.	SECTION TWO (I) (C)
Minority and female representation among the faculty.	SECTION FOUR (I) (D)
Recent program retention rates and positive college outcomes rates for both minorities and females are slightly higher than for the college overall.	SECTION TWO (I) (D)
The newly revised and approved curriculum, including a revised core, revised concentrations, and the development of a new course.	SECTION THREE

Well qualified faculty	SECTION FOUR (I) (D)
The program's outcomes and assessment plan	SECTION FIVE

B. List and describe the program's weaknesses or areas in which improvement is desirable, based on information obtained in the Program Review. Cite evidence for each identified weakness or area for improvement.

CHALLENGES	EVIDENCE
Low program graduation rate.	SECTION TWO (I) (B)
Low female enrollment in program.	SECTION TWO (I) (C)
Having a full-time faculty member for the physics courses sequence.	SECTION FOUR(I) (A)
Making sure funds are available each year to update the AutoCAD. Without this regular updating, both this program and the CAD certificate program would be significantly negatively impacted. The same need for regular updating applies to MATLAB.	SECTION FOUR (II) SECTION FOUR (V)
Need to continuously update the instructional technology to ensure the ongoing quality of the program.	SECTION FOUR (III) SECTION FOUR (V)
Need for faculty to stay current with respect to technology and instructional methods, through workshops, publications, and conferences.	SECTION FOUR (III) SECTION FOUR (V)
Need to implement MATLAB in the Calculus, Engineering Physics, Engineering Circuit Analysis course sequences	SECTION FOUR (II) SECTION FOUR (IV)

II. ACTION PLAN

For each identified weakness or area in which improvement is desirable, submit an Action Plan. *(When designing the Action Plan, a suggested plan would include the elements of Process Management using a Plan-Do-Study-Act (PDSA) cycle.) (Note: Add as many of the following tables as necessary.)*

Problem	Improvement Activity	Person Responsible	Date of Activity	Findings
Low program graduation rate.	(1) New curriculum which has improved sequencing, making progress more apparent to students and advisors.	(1) Already completed	(1) Spring 2011	
	(2) NECCUM training for all Engineering Science faculty advisors.	(2) Dean of Advising		
	(3) Allow Engineering Science students to declare the engineering concentration they are interested in when enrolling in the program.	(3) Unknown		
	(4) Mandate Engineering Science student testing into BA II and/or MAT115 be required to take the EET certificate	(4) Unknown		
	(5) Engineering Essentials & Design, *EST104* course will help retention and graduation rate.	(5) Already completed	(5) Fall 2010	(5) The purpose is to enroll Engineering Science students in hands on, problem solving course early on in the education cycle. The intent is to keep students interest and provide insight to the career path they have chosen.
	(6) Maximize number of advisors by assigning only Engineering Science students to the faculty that have engineering degrees.	(6) Unknown		
	(7) To avoid confusion between Technologies (Alg & Trig based) Circuit Analysis I (CTE111) & Circuit Analysis II (CTE112) with Engineering Science. Circuit Analysis (calculus based); change the Technologies course name to Applied DC Circuit Analysis and Applied AC Circuit Analysis. This eliminates the "I and II" designation. Therefore, the "I and II" can be reserved for the Engineering Science program.	(7) Program Coordinator		
Analysis:				

Problem	Improvement Activity	Person Responsible	Date of Activity	Findings
Having a full-time faculty member for the physics courses sequence. Also, Review PHS131 and PHS132 Engineering Physics I & II for proper lab equipment.	Hire full time physics teacher	Division Dean		
Analysis:				

Problem	Improvement Activity	Person Responsible	Date of Activity	Findings
Low female enrollment in program.	Recruit female students	Unknown		
Analysis:				

Problem	Improvement Activity	Person Responsible	Date of Activity	Findings
Making sure funds are available each year to update the AutoCAD. Without this regular updating, both this program and the CAD certificate program would be significantly negatively impacted. The same need for regular updating applies to MATLAB.	Secure funds	Division Dean		
Analysis:				

Problem	Improvement Activity	Person Responsible	Date of Activity	Findings
Need to continuously update the instructional technology to ensure the ongoing quality of the program.	Attend workshops and conferences	Program Coordinator		
Analysis:				

Problem	Improvement Activity	Person Responsible	Date of Activity	Findings
Need for faculty to stay current with respect to technology and instructional methods, through workshops, publications, and conferences.	Attend conferences and workshops	Program Coordinator		
Analysis:				

Problem	Improvement Activity	Person Responsible	Date of Activity	Findings
Implement MATLAB in the Calculus, Engineering Physics, Engineering Circuit Analysis course sequences,	Faculty professional development	Division Dean		
Analysis:				

III. RESOURCES REQUESTED

Complete the following chart, including quotes from vendors, diagrams for requested space, and draft postings as appropriate. *(Note: Add rows, increase row height, etc., as needed.)*

1. EQUIPMENT				
Item	Justification	Vendor (include contact information)	Cost	Date Needed
MATLAB	EST104, Northeastern University will provide the funds for first year use. NECC will need to support the course	Math Works	$2,500	Aug. 2012
AutoCad	EST110,EST111 and EST112 needs the software	Autodesk	$8,200	Aug 2011
Multisym	EST231, EST232, CTE103 and CTE101 require this software. Will also be used by the EET program	National Instruments	$1,000	Aug 2011
Faculty Development to implement MATLAB in the Calculus, Engineering Physics, Engineering Circuit Analysis course sequences,	MATLAB programming is used in four year colleges and in the workplace	Unknown	$5,000	Spring 2012
Function Generators with "Burst "mode	Required to expand the new EST104 course. Currently, working with Northeastern University and Simple Machine company for a cheaper solution.	Agilent Technology.	$5,000 $500 each, 10 needed	Spring 2012
2. PERSONNEL				
Position (identify as faculty, staff, etc.)	Justification	Credentials/area of content expertise related to curriculum	Salary	Date Needed
Website developer	Essential to develop a website for the program Also, the website would need continuous updates.	Certificate, NECC work study student	Unknown	Aug 2011

3. SPACE				
Type of space requested	Justification	Description (include square feet, construction requirements, e.g., plumbing, electricity, data ports)	Cost	Date Needed
Storage room to hold engineering lab equipment	Important to have a storage area to hold the equipment used in the Engineering Science courses.	Room already exists, TC132, The room is shared with Networking and Electronic Technology programs.	None	Already in place