B. Sc. Electrical Engineering (Power and Machines)

A. Basic Information

(1) Programme title: B. Sc. Electrical Engineering (Power and Machines)
(2) Program Type: Single
(3) Department: Electrical Engineering
(4) Coordinator: Prof. Dr. Sayed Abo-Elsoud
(5) External evaluator: Prof. Dr.
(was nominated by the faculty council on 19 / 12/2013)
(6) Last date of program specifications approval: faculty council on / /2013

B. Statistical information

(1) No. of students enrolled in the programme:
(2) Ratio of the students enrolled in the program this year to those who enrolled in the previous year: (see table)
(3) Number of students and percentage of success

Academic year	No. Student	Success Percentage %
First year	205	95
Second year	264	95
Third year	72	85
Fourth year	247	97

(4) No. of students who fulfilled the program and their percentage to those who were enrolled (see table)
(5) Grading: in terms of number of students and percentage

Academic year	Grade	No. Student	Percentage %
First Year	Excellent	17	8
	Very good	60	29
	Good	74	36
	Pass	24	12
	Failed in one or two subjects	20	10
	Failed in more than two subjects	10	5

Academic year	Grade	No. Student	Percentage %
Second Year	Excellent	10	4
	Very good	58	22
	Good	108	41
	Pass	61	23
	Failed in one or two subjects	14	5
	Failed in more than two subjects	13	5

Academic year	Grade	No. Student	Percentage %
Third Year	Excellent	2	3
	Very good	6	8
	Good	16	22
	Pass	15	21
	Failed in one or two subjects	22	31
	Failed in more than two subjects	11	15

Academic year	Grade	No. Student	Percentage %
Fourth Year	Excellent	39	16
	Very good	120	49
	Good	70	28
	Pass	4	2
	Failed in one or two subjects	6	2
	Failed in more than two subjects	8	3

(6) Employment of graduates:

(Electricity Holding Company, Egypt, Electricity distribution companies, Large industrial companies, Electric Power Stations, Electric Substations; etc.)

Percentages of graduates who have:

a) joined appropriate employment to their field: 86%
b) joined other employment: 05%
c) Undertaken postgraduate study: 01%
d) Engaged in other types of activity: 03%
e) Unknown destination: 05%

C. Academic standards

1. Achievement of program Intended Learning Outcomes:

Code	Course Title	Intended Learning Outcomes (ILOs)
EMP 001	Mathematics (A)	Attached Matrix
EMP 012	Mechanics	Attached Matrix
EMP 013	Physics (A)	Attached Matrix
EMP 014	Chemistry	Attached Matrix
MDE 001	Engineering drawing and isometric	Attached Matrix
GEN 001	Technical language	Attached Matrix
EMP 021	Mathematics (B)	Attached Matrix
EMP 012	Mechanics	Attached Matrix
EMP 023	Physics (B)	Attached Matrix
MDE 001	Engineering drawing and isometric	Attached Matrix

MDE 002	Engineering production	Attached Matrix
GEN 002	History of engineering science	Attached Matrix
EPE111	Principles of Electrical Engineering	Attached Matrix
EPE112	Tests (1)	Attached Matrix
EPE113	Electrical Properties of Materials	Attached Matrix
EMP171	Mathematics(2)(A)	Attached Matrix
EMP172	Physics	Attached Matrix
GEN171	Language(2)	Attached Matrix
EPE121	Tests (2)	Attached Matrix
ECE170	Electronics (1)	Attached Matrix
ECE171	Computer programming	Attached Matrix
MPE170	Mechanical engineering	Attached Matrix
EMP173	Mathematics (2)(B)	Attached Matrix
GEN173	Engineering Legislation	Attached Matrix
EPE211	Electric circuits	Attached Matrix
EPE212	Electromagnetic Fields	Attached Matrix
EPE213	Measuring Instruments	Attached Matrix
MP271	Mechanical engineering (2)	Attached Matrix
EMP271	Mathematics (3)(A)	Attached Matrix
GEN271	Technical Reports Writing	Attached Matrix
EPE221	Tests (3)	Attached Matrix
EPE222	Electrical Machines	Attached Matrix
EPE223	Electrical Power Engineering	Attached Matrix
ECE270	Electronic and Logic Circuits	Attached Matrix
EMP272	Mathematics (3)(B)	Attached Matrix
GEN272	Project managements	Attached Matrix
EPE311	Transmission & Distribution of Electrical Power	Attached Matrix
EPE312	Electrical machines (2)	Attached Matrix
EPE313	Power electronics (1)	Attached Matrix
EPE314	Automatic control (1)	Attached Matrix
EPE315	Tests (4)	Attached Matrix
GEN370	Economics of electrical energy utilization	Attached Matrix
EPE321	Switch Gear and Protection	Attached Matrix
EPE322	Analysis and Design of Electric Machines	Attached Matrix
EPE323	Tests (5)	Attached Matrix
EPE324	Computer Applications in Electrical Power and Machines	Attached Matrix
EPE325	High Voltage Engineering	Attached Matrix
GEN371	Economic and Management	Attached Matrix
EPE411	Power Electronics(2)	Attached Matrix
EPE412	Automatic control (2)	Attached Matrix
EPE413	Test and Specifications (A)	Attached Matrix
EPE415	High Voltage Engineering	Attached Matrix

EPE421	Utilization of Electrical Energy	Attached Matrix
EPE422	Test and Specifications (B)	Attached Matrix
EPE414	Project	Attached Matrix
GEN470	Environmental impacts of electrical energy	Attached Matrix
EPE442	Electrical Drive Systems (1)	Attached Matrix
EPE444	Analysis of Electrical Power Systems	Attached Matrix
EPE445	Circuit Breakers and Substation	Attached Matrix
EPE447	Computer Applications in Power and Networks Engineering	Attached Matrix
EPE448	Applications of Power Electronics	Attached Matrix
EPE454	Advanced Study in Electrical Power System Analysis	Attached Matrix

2. Achievement of program outcomes

- The market required more than graduates, due to the growth investment in the energy, development in industry
- Achievement of programme aims (100 %)

3. Student Assessment Methods

- Assignments
- Practical exam
- Oral exam
- Mid term written exam
- Final written exam
- Project
- Case study
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4. Student achievement

- Getting supported materials through searching in the internet.
- Training on laboratory instruments and testing machines.
- Preparing power point presentations for some courses.
- Field research and data collection from project sites
- Field trips to demonstrate some of the taught topics

5. Quality of teaching and learning opportunities

- Supporting the faculty with multimedia rooms, and data show equipments.
- Supporting the library with new valuable references.

6. Effectiveness of student support systems

- Excellent for some courses
- Other courses still need more attention

7. Learning resources

a) **No. of faculty members and their assistants and their ratio to students**
- No. of faculty members (---) and their assistants (---)
- Total No. of students - four years – (1338)
- Ratio of faculty members to students (---)
- Ratio of their assistant to students (---)

b) **Matching of faculty members' specialization to programme needs**
- Most of the specialist staff members are available, even some of humanities courses are taught by department staff members.
- Variety of practical and professional experience of staff members locally and abroad in design, consultancy, construction, project evaluation, contracts, cost estimation, project monitoring, quality assurance, follow-up, environmental studies, managerial, and ministry works.

c) **Availability and adequacy of program handbook**
- Available for staff members but not for students.
- Adequacy of library facilities
- More support is required
- Adequacy of laboratories
- Not enough, the supporting with modern equipments is required.

d) **Adequacy of computer facilities**
- The available laboratory is currently equipped with few numbers of computers, since 1997 (requires upgrading and increasing number of computers and providing local area network).
- Sometimes, other non departmental laboratory is used.

e) **Adequacy of field/practical training resources**
- Not enough.

f) **Adequacy of any other programme needs**
- More teaching halls for lectures and tutorials.
- Equipping lecture rooms with data show and proper sound system
- Increasing the number of teaching assistants and supporting managerial staff

8. Quality management and enhancement

a) **Availability of regular evaluation and revision system for the program**
- This is the second year for evaluation and revision.

b) **Effectiveness of the system**
- The staff members are cooperating effectively in the system

b) **Effectiveness of faculty and university laws and regulation for progression**
- Fair.

c) **Effectiveness of programme external evaluation system:**

i. External evaluators

– Prof. Dr.

ii. Students

– Through questionnaires – analysis is under progress to deduce conclusions and give recommendations.

iii. Other stakeholders

– A survey was made of some construction companies and consulting firms, during last year's employment (recruitment) fair and throughout the present academic year. Results are being assembled and analyzed and conclusions drawn.

d) **Faculty response to student and external valuations**

– Fair

9. Proposal of programme development

a) **Program structure (units/ credit hours)**

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b) **Courses, deletions and additions and modifications**

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c) **Requirements for the skill improvement of the staff and assistants**

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10. Progress of previous year's action plan

Action Identified	Person Responsible	Progress of action	Reasons for non completion
-Share all the staff members in writing of the specifications of the courses	All the staff members	complete	

11. Action plan

Action required	Person responsible	Completion date	Any cost implication (estimate)