

Program Assessment Report (PAR) on Completed Assessment

Year 1 [2014/2015] ~ Program: Engineering Management (EM)

1. Which set of PLOs was assessed this academic year (identify each PLO)?

- SO (b) An ability to design, analyze and interpret data
- SO (d) An ability to work and function on multidisciplinary teams
- SO (e) An ability to communicate effectively both verbally and in writing
- SO (i) Skills and continuous engagement in learning

2. Describe the assessment activities below. Please provide enough detail to convey the nature of the activities.

EE 241/241L: Direct assessment: Informal lab reports with scoring rubric; formal lab report with scoring rubric; final lab project, report, and presentation with scoring rubric; ethics report with scoring rubric; ethics presentation with scoring rubric. Course exit survey for indirect assessment.

EE 252: Direct assessment: (a) In-class group work: calculate built-in voltages and currents in p-n junctions under bias (b) Direct assessment: optical devices (lasers and laser diodes) calculate light output in either case (c) Solar cells: group and individual assessment (e.g. to calculate efficiency variations at different light inputs)

EE 344/344L: Direct assessment: Informal lab reports with scoring rubric; formal lab report with scoring rubric; final lab project, report, and presentation with scoring rubric. Course exit survey for indirect assessment.

3. What were the results of the assessment activities?

EE 241/241L:

Direct Assessment:

SO (b) Met target of 85% or more of the students at the Acceptable, Good, or Excellent levels. Discuss sources of experimental error and error propagation. Keep copies of Lab 1 for assessment of data analysis.

SO (d) Did not meet target of 85% or more of the students at the Acceptable, Good, or Excellent levels. Have students peer assess for team-working skills. Have faculty assessment of team-working for lab – review ASEE literature for ideas on this. Help students find a group if they do not have one.

SO (k) Did not meet target of 85% or more of the students at the Acceptable, Good, or Excellent levels. Biggest reduction in the number of students meeting the target occurred because students did not upload work to D2L. Better promulgation of deadlines to ensure that students upload work to D2L.

Indirect Assessment: Errors with indirect assessment instrument: Had planned to use the course evaluation's additional questions to obtain an indirect assessment of SOs, but inadvertently switched the Likert scale from the university's course/instructor evaluations (where a "1" was disagree strongly and a "5" was agree strongly, to the complete opposite scale on the additional questions – a "1" was agree strongly and a "5" was disagree

strongly). This made the results suspect as some students did not read instructions and others did. This means a “1” may be either strongly disagree (if you did not read directions) or strongly agree (if you did read the directions). Oops. This has to be fixed in the future!

EE 252:

SO (b) did not meet target that 75% or more of the students were at the A, G, and E (Acceptable, Good, or Excellent) levels. More time and emphasis on optical devices is needed; additional class notes beyond textbook needed especially on optical devices as textbook is not clear on this topic; reduce time on p-n junctions, increase time on optical devices.

Action:

1. Textbooks lack in presenting sufficient (quantitative) analysis needed for current optoelectronic devices (laser diodes, solar cells, LED's); there is a need for extra class notes as a supplement to the text. Such notes will be delivered to the students during Spring 2016
2. Less time on intro-quantum mechanics of devices
3. More time on optoelectronic and power device operation

SO (d) met target that 75% or more of the students were at the Acceptable, Good, or Excellent levels.

SO (e) did not meet target that 75% or more of the students were at the Acceptable, Good, or Excellent levels.

Action

- For the next time (Spring 2016) the students will be required to collaborate and frequently present team work within regular class time.

SO (i) met target that 75% or more of the students were at the Acceptable, Good, or Excellent levels.

Action/comment

- Emphasis on p-n junctions and current optical device operation worked successfully.

EE 344/344L:

Direct Assessment:

SO (b) Met target that 85% or more of the students were at the Acceptable, Good, or Excellent levels. Biggest issue seems to be with interpretation of data. Give better guidance of what is expected. Discuss sources of experimental error.

SO (g) Met target that 85% or more of the students were at the Acceptable, Good, or Excellent levels. I think that as an EE/CE program, we can back down on the number of courses that strongly support SO(g).

SO (d) Met target that 85% or more of the students were at the Acceptable, Good, or Excellent levels. Have students assess themselves and partners for teamwork skills. Add an assessment item for instructor to assess teamwork skills in lab during project.

Indirect Assessment: Errors with indirect assessment instrument: Had planned to use the course evaluation's additional questions to obtain an indirect assessment of SOs, but inadvertently switched the Likert scale from

the university's course/instructor evaluations (where a "1" was disagree strongly and "5" was agree strongly, to the complete opposite scale on the additional questions – a "1" was agree strongly and a "5" was disagree strongly). This made the results suspect as some students did not read instructions and others did. This means a "1" may be either strongly disagree (if you did not read directions) or strongly agree (if you did read the directions). Oops. This has to be fixed in the future!

4. Where applicable, outline the steps you will take to make improvements to the program based on the results of assessment activities identified in #3.

See action/comments within answers to question 3.

5. Are there any new resources needed to make program improvements? If so, please include the resources and provide justification for each in the Budget section of the Annual Report.

The Engineering Management and the accredited Electrical/Computer Engineering Departments enrollments are steadily increasing. The EM program stands side by side to our strong EE/CE part with great prospects. Its accreditation (in the near future) will make us highly attractive to future Engineering Management students.

New Request for equipment and software support will be made for SO (b) ability to design and conduct experiments and SO (k) skills and modern tools necessary for engineering practice

*Submit to Ms. Rebecca Haggerty (Rebecca.haggerty@scranton.edu) with a notation in your Annual Report that "Program Assessment Report(s) (PAR) has been submitted under separate cover."