Las Positas College
ANNUAL PROGRAM REVIEW TEMPLATE
Review of AY 2011-12

Name of Program	Division	Author(s)
Engineering	STEMPS	Keith Level

INSTRUCTIONS:

1. This Annual Program Review covers the time frame academic year 2011-2012.
2. The planning should be for the academic year 2014-2015.
3. Use the Save As feature in Word to save this template with your program name, so that you do not overwrite the original template (*e.g.*, Bio, math, EOPS)
4. In each section, click in the box under the instructions and fill in your information. The box will expand as you type. If a section is not pertinent to your program enter N/A in the box; do not leave it blank.
5. To see how other programs completed sections in the Annual Program Review, visit the Examples Template on the PR website. The examples are from a variety of programs and may give you ideas of how to respond for your own program.
6. When you have completed the form, run the spell-checker (**click inside the text in the first box**, then click on the Review tab and find Spell-Check in the far left corner of the ribbon).
7. Please address your questions to your Program Review Committee representatives or the PR co-chairs Jill Carbone and Teri Henson. Concerns, feedback and suggestions are welcome at anytime to PRC representatives or co-chairs.
8. Instructions for submitting your Annual Program Review will be available at the start of the fall semester.

STATEMENT OF PURPOSE:

- Review and reflect on the student experience, with the goals of assessing and improving
    - student learning and achievement
    - services for students
    - program effectiveness.
- Provide a forum for each program's findings to be communicated to Administration
- Create written records of what is working well, what can be improved, and specific plans for implementing chosen improvements.
- Collect information that will contribute to institutional assessment and improvement.

I. MISSION

State the current program mission
(A mission statement should address the unique role and scope of the program. Consider the operating mission of your program. Identify specific purposes within your program (e.g., certificates, degrees, general education, matriculation, assessment). Avoid vague, overbroad language.)

> To provide lower division courses and advising to Engineering Transfer Students, in order to facilitate their transition in transferring as an Engineering major from Las Positas College to a four-year university.

The mission of Las Positas College is:

Las Positas College is an inclusive, student-centered institution providing learning opportunities and support for completion of transfer, degree, basic skills, career-technical, and retraining goals.
(**NOTE:** this is the draft mission statement, currently under review.)

Discuss how the program supports the college mission.

> The Engineering Transfer Program is primarily focused on providing courses and support for completion of transfer.
>
> The Engineering Transfer program at LPC has had approximately 25 students transfer in the Engineering major to a 4-year university in each of the last 4 years.
>
> In addition to its primary focus on transfer, the program also provides Engineering majors, and other majors, an opportunity to learn about different technical careers.

II. PROGRAM ANALYSIS

A. Courses (For Instructional Programs Only)

1. Will any course outlines be revised or updated in the academic year 2014-2015?

   (Highlight the appropriate box to type in an X.)

   YES x   NO ☐

   If yes, in the table below, please list which courses will be revised or updated and the reason for the revision.

   (Click in the box under Courses to start entering information. Tab to move to the next box. Tab in the last box to create a new row.)

Course(s)	Reason for Revision
ENGR 10 (*Intro to Engineering*)	Last revision date: 7/1999
ENGR 35 (*Statics*)	Last revision date: 9/2007

2. Will new curriculum (*e.g.,* course outlines, degrees) be submitted to the Curriculum Committee for the academic year 2014-2015?

   YES ☐   NO x

   If yes, please describe briefly what new curriculum is planned.

Click here to enter text.

B. New Initiatives (AY 2014-15)

Are any new initiatives planned for the academic year 2014-15?
(Examples of new initiatives include, but are not limited to: new degrees or certificates, new pathways, new outreach efforts.)

YES x   NO ☐

If yes, please describe briefly what new initiatives are planned.

> Development of a Distance-Learning course in either ENGR 35 (*Statics*) or ENGR 44 (*Intro to Circuit Analysis*)

C. SLOs/SAOs

1. Status of course SLOs/SAOs and assessments for AY 2011-12.

    (Since the Program Review process is beginning in 2013 and the assessments for AY 2012-13 will not be complete, analyze the assessments for the AY 2011-12). Click in the box under Number of Courses Offered. Press Tab to move to the next box. Press Tab at the end of the row to create a new row.

Number of Courses Offered (AY 2011-12)	Number of Courses with SLOs (AY 2011-12)	Number of Courses Assessed within the last TWO years (AY 2010-11, AY 2011-12)
6	5	4

2. How frequently have course SLOs/SAOs been assessed? (e.g: every semester, every other semester, once a year.)

    (This is a summary; it is not a list of courses and their assessment frequency.) Click in the box and begin typing. The box will expand as you type.

    > Approximately once a year.

3. Status of program-level SLOs/SAOs and assessments for AY 2011-12.

Number of degrees/certificates offered	Number of degrees/certificates with SLOs	Number of program level SLOs/SAOs
0	N/A	0

4. Analysis of SLO/SAO data for AY 2011-12.
    (Attach a summary of the program's AY 2011-12 SLO/SAO data as an appendix.)

    a. Please describe the program-wide dialogue on assessment results, including assessment of distance education courses. Where would one find evidence of this dialogue?

        (This section concerns the type and variety of dialog regarding assessment results, not the assessment results themselves. For examples of evidence, consider: meeting notes, program coordinator's records of dialogue, or email.) For each of these questions, click in the following box and begin typing. The box will expand as you type.

        > At this point, there have not been enough assessments to be statistically valid, and I hope to change that in the next 6 months. It is difficult to demonstrate evidence of dialogue in a one-person department. I do, however, discuss many issues related to teaching engineering at the community college level with colleagues who also teach engineering at other community colleges. I attend meetings with the Engineering Liaison Council

(www.caelc.org) twice each year, and I belong to other smaller groups who are also involved in engineering education. I am attempting to add a program-level assessment of measuring the number of successful engineering transfer students who start at Las Positas College. I believe that this assessment, once in place, will be the most important measure of the success of the engineering program. I have collected data for several years now, and will enter it once the Program-Level Assessment is added to e-Lumen.

b. Please summarize what was learned from the assessments, including distance education courses. How will these results be used for improvement/s?

(Please provide at least two paragraphs. One paragraph should address face-to-face assessments, the other paragraph should address distance education assessments. If the course is taught in both face-to-face and distance education modes include a paragraph comparing the assessment results.)

At this point, there have not been enough assessments to be statistically valid. Assessment data, plus other evidence, is incorporated into my approach to teaching Engineering Transfer courses. I am planning to possibly modify ENGR 10 (*Intro to Engineering*) to allow it to articulate directly to San Jose State University.

c. To what extent will, and how, do assessment results support resource requests for AY 2014-15?

At this point, there have not been enough assessments to be statistically valid. The assessment results do not do a very good job of reflecting the need for increased resource requests. Ironically, my main resource request is for some release time as coordinator of the Engineering transfer program and chair of the Engineering department. A lack of release time has limited my time available to work on SLOs and SLO assessments.

d. What are the general plans for assessments in the upcoming academic year AY 2014-15 (*i.e.* additional assessments or reassessment)?

1. Adding a program-wide assessment that will track the numbers of Engineering Transfer students after each Spring semester.
2. Increasing the number and frequency of assessments.

D. Student Data

1. Analyze the student data provided by the Office of Institutional Research (http://www.laspositascollege.edu/researchandplanning/ProgramReview.php) and other data as appropriate (for example: SARS-TRAK data, library student surveys).

a. Please describe the program's dialogue about the student data. Where would one find evidence of this dialogue?

(This dialog should be occurring as you write your Program Review of 2011-2012. Examples of evidence may include: agenda or minutes from workshops or meetings, internal reports. Smaller programs may want to consider discussing their data with related programs, their Dean, the Institutional Researcher or, for academic programs, adjunct faculty in the program.) For each of these questions, click in the following box and begin typing. The box will expand as you type.

Student headcount for Fall Semester in ENGR increased from 69 to 113 between 2007 and

2011, a 64% increase.   Total Student Enrollments in ENGR classes in that same time increased from 74 to 126, a 70% increase. The number of full-time equivalent faculty, which is currently 2.16 over 2 semesters, has virtually stayed unchanged over the same 2007-2011 time period

Student demographic data indicate that the biggest change between 2007-2011 has been in the number of Latino students in ENGR classes, which increased from 12 to 26 students, a 117% increase. I believe that this is a trend that will likely continue, and that Las Positas College, now more than ever before, needs to establish a MESA program, similar to that found at about 30 community colleges statewide. I have discussed this with Dr. Neal Ely and floated the topic at a breakout session during a flex activity, but my perception is that, although important, it is not a high priority. I strongly believe that it should be a very high priority at Las Positas.

Other student demographic data indicate that the percentage of women in ENGR has stayed close to the 10% of all ENGR students for the 2007-11 time span. This is slightly lower than the national average of about 18% of women in ENGR. Having taught at several other community colleges, I was surprised that the percentage of women in ENGR at Las Positas was so low. The sample size is small, but I have seen a slight increase in this percentage in the last 2 years in 2nd year ENGR classes.

A high percentage of students list Transfer as their goal, the Success Rate in ENGR between 2007-11 increased from 61% to 74%, and the Course Completion Rate increased from 78% to 90%.

I would also like to comment on the fact that, of the 10 units in ENGR that are typically taken in the last year before a student transfers, only 3 of those units (in ENGR 35) are taught in the Fall Semester. The data considered in this study does not seem to reflect any enrollment numbers from Spring Semester, which is significant in ENGR because 7 of the 10 units taken by transfer students in the Spring semester do not show up on the data.

I have shared data regarding the LPC Engineering Program with the following individuals:

1. Kevin Walthers, Former LPC President (LPC Engineering Transfer statistics)
2. Rajinder Samra, LPC Institutional Researcher (LPC Engineering Transfer statistics)
3. STEMPS Dean Dr Lisa Everett
4. STEMPS Dean Dr Neal Ely

Note that I have individually surveyed exiting students in each of the six years that I have taught at LPC.

I have informally exchanged some of this information at STEMPS division meetings, but surprisingly (in my opinion) have not gotten the impression that there was much division-wide interest in seeing which of our students have transferred where, and in which majors.

Engineering Transfer students enroll in a wide variety of STEMPS (and other courses), and are "shared" by many different departments.

Since I am a one-person department, I am limited by whom I can discuss Engineering curriculum (and other) issues on campus. I do actively participate in off-campus organizations, that frequently allow me to communicate with other community college engineering faculty. The groups that I participate with include:

1. Engineering Liaision Council (or ELC) (www.caelc.org). The ELC is a statewide Engineering articulation organization with representatives from the UC, CSU, Private, and Community College segments.

2. Summer Engineering Teaching Institute (SETI), Canada College, Redwood City, CA, 2010-2012

3. Presenter, American Society of Engineering Education, Pacific Southwest Section (ASEE-PSW), UC Riverside, Spring 2013. Title of Paper: *Using Mastering Engineering Software-Based Homework System in Statics and Circuits Classes*

4. Dublin High School Engineering Academy Advisory Board

b. Please summarize what the program learned from the student data. How will these results be used for improvement/s and planning?

(Briefly discuss trends or significant findings regarding student retention, success rates, different cohorts of students, etc. Student data may suggest the need for changes in course offerings, scheduling, teaching methodology, outreach, processes, etc., or may lead to the creation of a new SLO/SAO.)

WSCH in Engineering grew from 220 in Fall 2007 to 453 in Fall 2011, a 106% increase in WSCH over a four-year period. The main conclusions that I have drawn from this are (a) the rapid growth is an encouraging trend, and perhaps not a trend that will continue indefinitely, and (b) if growth continues at this rate, our traditionally very small program will need to make some significant changes.

c. To what extent, and how, do the student data results support resource requests?

(If relevant, briefly explain how your student data may be improved by acquiring new or additional resources (eg: faculty, classified personnel, instructional equipment, facilities) that you plan to request. You will be asked to provide more detailed information on the resource request forms; this is just a brief summary.)

I'm not convinced that the data collected will reflect the impact of resource requests. Engineering is a unique major and a unique program at a community college, in many different ways. I believe that measuring the number of successful transfer students will continue to be the best measure of the Engineering program's effectiveness.

2. Enrollment Management **(Instructional programs only)**

   a. What total FTEF was approved for the program in 2012-13? This data is found in your Discipline Plans.

2.17 FTEF approved for 2011-12, 2.17 FTEF approved for 2012-13.

   b. If this amount differs from 2011-12, describe what changes have occurred.

   (To find Total FTEF for AY 2011-2012 consult the Enrollment Management data on the IR website. (http://www.laspositascollege.edu/researchandplanning/ProgramReview.php). If your allocation was less than the previous year, comment on the types of courses that were cut. If the allocation was more, indicate which classes were added and why.)

No change in FTEF from 11-12 to 12-13.

   c. Describe and explain any changes you anticipate in course offerings for the academic year 2014-15.

Depending on enrollments, the following changes may be necessary: ■ Adding an additional ENGR 44 (Intro to Circuit Analysis) laboratory section to the Spring schedule. During Spring 2013, 32 students enrolled in the course, and our facilities and equipment were inadequate in serving all 32 students in one lab setting. ■ Possibly revising ENGR 35 (Statics) or ENGR 44 (Intro to Circuit Analysis) so that they can be taught in a hybrid distance education format. This has been done successfully at a few Bay Area community colleges, and I would like to introduce this approach into either ENGR 35 or ENGR 44.

E. Human Resources (in AY 2011-12)

1. Please complete the following table.

   (Enrollment Management data is posted on the IR website:
   (http://www.laspositascollege.edu/researchandplanning/ProgramReview.php).

Total FTEF*	FTEF from Full-Time Faculty*	% FTEF from Full-Time Faculty **
2.17	2.17	100%

   *   If your program consists of multiple rubrics (eg: Anatomy, Ecology, Microbiology) sum values from all rubrics

   ** If your program consists of multiple rubrics, use the following equation to calculate the % FTEF from Full-Time Faculty: Divide the FTEF from Full-Time Faculty by the Total FTEF and multiply by 100.

Type of	Number	Shared? With whom?	No. of	No. of

Personnel		If shared, state % of time assigned to the program	hrs/wk	mo/yr
full-time classified staff*	1	Shared with Physics, Astronomy, and GIS	40	10
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	Click here to enter text.	Click here to enter text.	Click here to enter text.	Click here to enter text.
regular hourly classified staff**	0	Click here to enter text.	Click here to enter text.	Click here to enter text.
student assistants	0	Click here to enter text.	Click here to enter text.	Click here to enter text.

*   full-time: 20 hrs/wk (50%) to 40 hrs/wk (100%)

**   regular hourly: 18 or fewer hrs/wk (45% or less)

2. Will human resources be adequate for the academic year 2014-15?

YES x   NO ☐

If No, briefly describe. Provide any data which support these needs.

Click here to enter text.

3. Are there Staff Development needs for the academic year 2014-15?

YES x   NO ☐

If yes, elaborate. Provide any data which support these needs.

On-going training in the teaching of Properties of Materials labs.

F. Technological Resources

Are there any **new** technological needs for the academic year 2014-15?

(Do not discuss your existing technology, including replacements and repairs of existing technology. DO discuss new needs.)

YES   NO x

If yes, briefly describe. Provide any data which support these needs.

(Examples of relevant data might include: enrollment information related to the growth of your program, workforce demands/trends, obsolete or outdated equipment and/or software.)

Click here to enter text.

G. Facilities, Equipment, and Supplies Resources

Are there any new facility, equipment or supply needs for the academic year 2014-15?

(In this section consider new facilities, equipment and/or supplies that are needed to support your program. This does not include your current items that need replacement. Definitions of these terms may be found in the glossary.)

YES x   NO ☐

If yes, briefly describe. Provide any data which support these needs.
(Examples of relevant data might include: data on program's growth, change in curriculum, ADA regulations, etc.)

> Upgrading/Repair or replacement of the following ENGR 46 (*Materials of Engineering*) laboratory equipment:
>
>   1. Terco Tension Testing Machine
>   2. Terco Torsion Machine
>   3. Rockwell Hardness Machine
>   4. Terco Fatigue Machine
>   5. Mounting / Polishing Machine
>
> There is no real data to support these needs, but rather an observation that the equipment listed above will either (a) malfunction or (b) provide results that are inaccurate. This equipment is essential in the teaching of a Materials Lab; I'm not clear as to what type of data would reflect this need.

H. Financial Resources

1. Is there a Program budget for the academic year 2014-15? (Include any co-curricular funds)

    YES x   NO ☐

    If yes, please briefly describe amount and general uses.

    > Equipment budgets for Engineering have been between about $1000-$1500 / year for the last 3-4 years. In recent years, budget monies have been more uncertain. Most of this money has been for maintenance and supplies for laboratory equipment used in ENGR 44 (*Intro to Circuit Analysis*) and ENGR 46 (*Materials of Engineering*)

2. Are there any **new** financial needs for the academic year 2014-15?
    (Examples of new financial need might include: new funding needed for upcoming events, new initiatives, changes in curriculum that require new training beyond what staff development can provide, request for release time for something new, etc.)

    YES x   NO ☐

    If yes, briefly describe. Provide any data which support these needs.

    > There is currently no release time whatsoever for coordinating the Engineering Transfer Program, nor for chairing the Engineering department. The job responsibilities for both of these are too significant to be done purely on a voluntary basis.
    >
    > Most of the laboratory setups in Engineering classes are designed for lab sections between

> 10 and about 18 students at most. If Engineering were to grow, either in offering additional Engineering courses and/or additional Engineering course sections, there would need to be significant improvements and expansions in the laboratory equipment and materials needed.
>
> WSCH in Engineering grew from 220 in Fall 2007 to 453 in Fall 2011, a 106% increase in WSCH over a four-year period. Any further growth will require some significant laboratory improvements.
>
> LPC needs a MESA coordinator, and an on-campus MESA program. LPC is on the verge of becoming an Hispanic Service Institution (HSI), and introducing an MESA program would provide services and support to many faculty and programs, in particular Engineering.

I. Other information pertinent to the program.

In the space below, discuss any other information which is pertinent to the program. Examples include

- Internal or external impacts on program
- (*e.g.*, mandates from state, curriculum changes in one program that impact another, loss of resources due to budget cuts, changes in college mission, goals, etc.)
- Other internal or external data *(data not discussed above)*

> There is a very real external impact on the Engineering Transfer Program, which is that four-year universities ultimately decide on which transfer students to admit, and which to deny admission. When the 4-year universities are faced with budget challenges, as has been common in the last 3+ years, it is common for community college transfer admissions to decline. I am made aware of these events, but have virtually no control over these events, yet they can and do have a significant impact on students in terms of (a) which classes students take at LPC vs. other community colleges, (b) which universities and university majors students apply to, and even (c) whether students remain an engineering major or pick some alternate major.

III. SUMMARY

A. **Summarize objectives accomplished since the Program Review Update (2012)**

(The 2012 Academic Program Review Updates can be found on the Grapevine

http://grapevine.laspositascollege.edu/programreview/ipr2010-11.php

(Click on your discipline name.) Your brief discussion may include objectives accomplished since the 2010 program review, even if not discussed in the Update.)

> Enrollments have been maintained until Spring 2013. Although enrollments are down in 2 Engineering courses in Fall 2013, It is not believed that this will be a long-term trend.

B   Summarize objectives not accomplished since the program review update (2012) and why not.
(Your brief discussion may include objectives not accomplished since the 2010 program review, even if not discussed in the Update.)

> There continues to be no compensation provided for the Engineering Transfer Coordinator / Engineering Department Chair.

C.   What are the objectives for the academic year 2014-15?
(Summarize briefly the objectives you plan to accomplish or begin in 2014-15. You will describe your plan to implement/achieve these objectives in the Program Effectiveness Plan in Part IV.)

> 1. To gain compensation for the Engineering Transfer Coordinator / Dept Chair position (currently performed on a voluntary basis)
> 2. Add a distance education component to one of the 2nd-year Engineering courses.
> 3. Continue to expand upon and improve laboratory setups/equipment used in ENGR 44 (*Intro to Circuit Analysis*) and ENGR 46 (*Materials of Engineering*)

D.   For all needs identified in Part II, summarize how these needs will affect student learning/achievement and impact the program.
(This brief summary should capture the effects on students and the program if the needs are met or unmet.)

> Increase student interest in internships and work experience in Engineering requires more time than I am able to provide.
>
> As both Engineering instructor and Engineering Transfer Coordinator, I am stretched thin in my ability to perform both jobs equally well, and also have the time and energy to anticipate and plan for future trends. It is difficult to measure that effect on students, yet I believe there is a real impact.

Continue to the next page to complete the form.

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IV. PROGRAM EFFECTIVENESS PLAN

Instructions: In the table below, indicate how you plan to measure the effectiveness of each objective summarized in Part III and the resources needed.

Suggested: 0-5 Objectives (focus on a few)

Rank	Priority 1=essential 2=important 3=nice to have	Objective	SLO's/SAO's linked to objective	College goal(s) linked to objective‡	How will effectiveness be measured?	Category*	Resources needed	Committee
1	1	*Provide some release time to Engineering Transfer Program Coordinator*	*Program Level SLO (not yet established) measuring numbers of successful ENGR transfer students.*		*Numbers of transfer students* *Numbers of new internships and other engineering-related work experiences for students.*	*Financial*	*Release time*	*Unsure*
2	2	Add a distance-education component to either ENGR 35 or ENGR 44.	Unsure		Numbers of enrolled students in class, compared to historical averages	*Human Financial*	*Time to development methods and resources*	Distance Education Committee
3	2	Expand upon and improve ENGR 44 and	Lab Skills:		Student surveys	Human	Financial Technological	Unsure

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		ENGR 46 labs						
4	Click here to enter text.	Click here to enter text.	Click here to enter text.		Click here to enter text.	Click here to enter text.	Click here to enter text.	Click here to enter text.
5	Click here to enter text.	Click here to enter text.	Click here to enter text.		Click here to enter text.	Click here to enter text.	Click here to enter text.	Click here to enter text.

*human, technological, facilities/supplies, financial, other

‡When College Goals become available, this column will be activated.