FOOTHILL COLLEGE
Program Planning and Review
(650) 949-7240 | http://www.foothill.edu/staff/irs/

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I. Department/Program Mission

1. State the department name and everyone who participated in creating the comprehensive program plan.	Engineering and Nanotechnology (Sue Wang, Lianne Wong (PT), Robert Cormia, Peter Murray)
2. State the program's mission. If you don't have one, create one.	Provide undergraduate education founded on a rigorous, applied treatment of engineering fundamentals coupled with modern engineering tools.
3. Explain how the program/department mission is aligned with the college mission?	The department commits itself to providing access to outstanding educational opportunities for all of our students

II. Department and Program Description & Data

1. What are your hours of operation? 08:00 – 23:00	Our offices open at: Closed for Lunch: No ☒ or Yes ☐ If yes, when: Our offices closed at:

	Times offered:	Locations offered:	Types Offered:	Status Offered:
2. What types of classes do you offer, at what locations, and at what times? **Most classes are face-to-face on FH main campus.**	☒Morning (6AM-12PM) ☒Afternoon (12PM-4PM) ☒Evening (4PM-10PM)	☒FH Main Campus ☐Middlefield ☐Off campus	☒In Person ☒Hybrid ☐Distance	☒Credit ☐Non-credit

3. List current positions and descriptions for all personnel in your area on the chart below (include position titles only, not individual names).

Faculty Positions by Discipline	Full-time Headcount	Part-time Headcount	Brief Description of duties
Engineering	0	.68	Instruct & COR Development
Position Title	0	0	
Position Title	0	0	
Position Title	0	0	
Position Title	0	0	
Position Title	0	0	

Management and Classified Positions	Full-time Headcount	Part-time Headcount	Brief Description of duties
Lab Technician	.25	0	Combined with Physics
Position Title	0	0	
Position Title	0	0	
Position Title	0	0	

Student Worker Positions	Hours per Week	Months per Year	Brief Description of duties
Position Title	0.00	0	
Position Title	0.00	0	
Position Title	0.00	0	

4. Given the data, describe the trends in enrollment, FTES, and Average Class size. What are the implications for your department?	Engineering is in a steady state until 2012F when PSEC opens. FH turned over a lot of their equipment to DA in late 1990 and the program was minim zed. Engr 45 (Material Engineering) was offered in 08S & 09S using SJSU's lab but had limited enrollment so has been put on hold. The Nanotechnology courses have been delayed until they have been updated under the NSF/ATE course. The Nano-51 course will be offered in 10F.
5. Student Achievement: Given the data, describe the trends in overall success rates, retention rates, and degrees and certificates awarded. What are the implications for your department?	The retention rates and success are higher than expected based on the level of prerequisites and difficulty of the course material. The numbers are so small with respect to underrepresented, there are no trends evident. What is notable is ENGR/FH success rate is 24% higher than ENGR/DA.
6. Student Equity: Given the data, describe the trends with respect to underrepresented students. How will your program address the needs/challenges indicated by the data?	The majority of students are Asian, white or none which match the physics 4 series populations. Engineer 20 (Intro to Engineering) has more underrepresented students, including women than the other Engineering courses. The department will create a pathway going forward by working with counseling and Outreach to encourage students in STEM pathways. The NSF/ATE grant will focus on underrepresented and women.
7. Given the data, discuss how the FTEF trends and FTEF/FTES ratio will impact your program. Include any need for increasing or reducing your program faculty. What are the implications for your department?	The number of Engineering course offerings will remain constant until 2012F. In 10F Nano courses will be offered in a limited sequence as part of a NSF grant. At some point a FT Faculty will be required to guide the departments.
8. Given the data for distance learning, describe the trends related to success, retention, and student satisfaction. Discuss solutions to ensure that rates match or exceed those of comparable traditional format courses.	The online is limited to hybrid and the use of technology augment in class teaching.
9. Optional: Provide any additional data relevant to your program. (Indicate the source of the data).	Engr-45 requires equipment and Engr-6 requires software that is not available at this time. When the full sequence is offered the WSCH should double.
10. Are you seeing trends that are not reflected in the data cited	

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above? If yes, please explain.	

Summary of Planning Goals & Action Plans				
11. Identify 3-6 operational goals and link them to one or more college strategic initiatives or to your operations.				
Department Operational Goals	**College Strategic Initiatives**			
Identify 3-6 operational goals	Building a Community of Scholars	Putting Access into Action	Promoting a Collaborative Decision-making Environment	Operations Planning
Nanotechnology Technician	☒	☒	☐	☒
Sustainable Energy	☒	☒	☐	☒
Develop Partnerships	☒	☒	☐	☐
New Learning Technologies	☒	☐	☐	☐
Develop K-12 Teachers	☒	☒	☐	☐
Increase number of STEM students	☒	☒	☐	☒

12. What is your plan for accomplishing your goals?		
Department Operational Goals	**Activities**	
Nanotechnology Technician	• Our program will develop an integrated curriculum focused on the application of fundamental nanoscience principles to the design, engineering, and fabrication of new materials, and requisite materials characterization to support process development. The students will use problem solving and QA/QC skills, including image analysis and microscopy, spectroscopy, chromatography, and engineering process measurements, to support high tech manufacturing in both regional and national technology centers. • Our scenario-based laboratory	• Requires access to equipment and materials from partners. • FT Faculty required in three years

	curriculum will ensure that students will be productive and effective within the demanding environments found in start-up engineering and manufacturing firms, and additionally have a strong multidisciplinary foundation to extend the tenure of their careers. This advanced engineering program will combine multidisciplinary curriculum in chemistry, physics, engineering, and materials science, with scenario-based hands-on practice using state of-the-art characterization tools. Integration of engineering and characterization curriculum will reinforce the paradigm of process => structure => properties, where students will learn to fabricate and characterize nanostructures to derive new material properties	
Sustainable Energy	• Develop and strengthen interdisciplinary "systems" approaches for educational programs in the natural and social sciences that focus on environmental, social, and economic issues fundamental to the future energy economy. Examples of systems approaches that would be applied to the energy economy include the use of ecosystem life-cycle and whole-system analyses; consumer behavior information; and economic net value of technologies,	• Requires access to energy data from Foothill Facilities, in particular PSEC. This needs to be designed into the Foothill energy infrastructure. • Requires platform and sustainable energy equipment (solar, wind, exchanger). Estimated cost of $400K. • Current funding is from grants and donations. • This will require a Fulltime Faculty in two years.

applications, and systems. Enhance interdisciplinary educational programs that develop discuss Sustainable Engineering practices in nanotechnology, physics, chemistry, biology, social sciences and economics. An example is nanotechnology as applied to solar and battery technology or the software required to develop a "smart grid".

- Strengthen science and engineering partnerships within Silicon Valley. Support partnerships for building clean and sustainable energy science and engineering initiatives among, universities, and the private sector. International entities should be an essential part of many of these partnerships. This would include increased collaboration with Stanford, UC Santa Cruz and SJSU.

- Create new and strengthen existing programs to train students, teachers, researchers, and technicians for a sustainable energy workforce. Through the KCI, PSME's Aurora K-12 Aurora program, and Physics shows promote interest in the fields of science and energy in K–12 education by developing and disseminating programs designed to teach students about energy, the environment, and

	related technology and economic issues. Foothill has already started this through a $75K grant from the Chancellor's Office.	

Develop Partnerships	• Strengthen science and engineering partnerships within Silicon Valley. International entities should be an essential part of many of these partnerships. This would include increased collaboration with Penn State (PSU), Stanford, UC Santa Cruz and SJSU. This would include increased collaboration with:
	
	o Stanford – Stanford Nanocharacterization Laboratory
	  o Provide lab analysis, faculty training, and instrument shadowing
	o San Jose State University (SJSU)
	  o Provide lab analysis, faculty training, and instrument shadowing
	o UC Santa Cruz (UCSC) at NASA
	  o Provide lab analysis, faculty training, and instrument shadowing
	o EAG Labs – Evans Analytical Group
	  o Provide instrument analysis, shadowing, and
		• Requires regular meetings and sharing resources.
		• Current funding from Grants. U
		• p to $1,000 per year for meetings and partnerships from B-Budget

classroom training

- o Asemblon – Surface chemistry and surface analysis
  o Provide nanochemistry kits, materials for analysis, and analytical spectra
- o Unidym – carbon nanotubes
  O Provide carbon nanotubes
- o Boeing – advanced materials fabrication and characterization
  o Provides scenario based engineering and curriculum development

- Encourage international collaboration in sustainable energy since many of our students have a broad international background; first, second and third generation. There already exit exchange and intern programs between the US Colleges and Denmark and Great Britain.

- Connect multiple microgrids together to share telemetry.

- Strengthen science and engineering partnerships within Silicon Valley. This will require interfacing with numerous companies to incorporate current technology issues. Research internships will be developed at local

	universities.	
New Learning Technologies	• Our scenario-based laboratory curriculum will ensure that students will be productive and effective within the demanding environments found in start-up engineering and manufacturing firms, and additionally have a strong multidisciplinary foundation to extend the tenure of their careers. The students will need access to a wide range of equipment based on the approach for solving the generic problem.	• The scenarios require student access to new technology. Grant funding has been used. • Courses offered at local high schools using teaching techniques to make learning part of life skills. • Requires release time (.111) per quarter to update courses to be scenario based.
Develop K-12 Teachers	• Create new and strengthen existing programs to train students, teachers, researchers, and technicians for a sustainable energy workforce. Through the KCI, PSME's Aurora K-12 Aurora program, and Physics shows promote interest in the fields of science and energy in K–12 education by developing and disseminating programs designed to teach students about energy, the environment, and related technology and economic issues. Foothill has already started this through a $75K grant from the Chancellor's Office.	• Yearly funding of $25,000. Current funding is from grants.
Increase number and success fo engineering students	• Expand introductory courses to underrepresented students including woman. • Ensure students are adequately prepared in high school for Engr-20.	• Yearly MentorNet enrollment • Requires $1,000 from B-Budget

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13. Are additional resources needed to accomplish your department operational goals? If yes, identify the resource, as well as the purpose and rationale for each resource.

Identified Resource	Purpose	If requesting funding, provide a rationale of how each request **supports one or more college strategic initiative and/or supports student learning.**

III. Curriculum

Curriculum Overview	
1. How does your curriculum address the needs of diverse learners?	Scenario based learning permits a diverse students to become engaged.
2. How does your curriculum respond to changing community, student, and employer needs?	The courses are being updated and revised to meet student needs.
3. How does your curriculum support the needs of other certificates or majors?	The Engr courses transfer and prepare students to approach problems in a structured manner.
4. Do your courses for the major align with transfer institutions?	Yes.
5. Do your courses have appropriate and necessary prerequisites? Identify any challenges and plans to address the challenges.	The only course which may have to raise the prereq is Engr-20.
6. Review the attached curriculum report for currency. What is your plan to address the deficiencies? (Consider: Title V, course deactivation, updated prerequisites, cross-listed courses, measuring student learning outcomes, curriculum sheets, certificates and degrees).	The courses are current.
7. Does your program offer distance education courses?	No.
8. If you offer distance education courses, list one or two short examples of how your distance education courses provide for effective interaction between students and faculty.	
9. If you offer distance education courses, list one or two short examples of how your distance education courses provide for effective interaction among students.	
College Skills (Pre-collegiate) Overview (Data Available Fall 2009-filling out this section is optional)	
10. What college skills should a student have before entering your program?	
11. Given the data, comment on the effectiveness of the assessment and placement of college skills students into your program. (For MATH, ENGL and ESL only).	

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12. In what ways are you addressing the needs of the college skills students in your program?	
13. How are faculty in your program collaborating with other disciplines and services to meet the needs of college skills students?	
Program Mapping	
14. If applicable, identify any sequence of courses that are part of your program. List in the order that they should be taken by students.	N/A
15. For your courses that are part of a sequence – are the student learning outcomes well aligned with the next course in the sequence? Please work with the college researcher to answer this question - once your sequence of courses is identified.	
16. If applicable, describe any capstone course, signature assignment (project, service learning, portfolio), or exam that demonstrates knowledge, skills, and abilities, indicating successful program completion?	
Course Scheduling & Consistency	
17. Given available data, describe the trends in the scheduling of morning, afternoon, and evening classes, as well as Friday, Weekend, and distance education classes. Comment on the feasibility of offering classes at non-standard times.	The lecture classes can be scheduled anytime. The lab classes a best offered in the afternoons.
18. Are required courses scheduled in appropriate sequence to permit students to complete the program in the prescribed length of time? If yes, describe the rationale upon which the sequence is based. If no, what is the plan to change the scheduling pattern? What are the barriers that prohibit implementation of the changes? Explain.	Yes. The courses are in the PSME Tracks.
19. How does the department determine that classes are taught consistently with the course outline of record?	The courses are closely monitored by the Dean.
Summary of Planning Goals and Action Plans	
20. What are your goals with respect to curriculum and how will those goals be measured?	

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21. Are additional resources needed to accomplish your curriculum goals? If yes, identify the resource, as well as the purpose and rationale for each resource.			
Identified Resource	Purpose	If requesting funding, provide a rationale for how each request **supports one or more college strategic initiative and/or supports student learning.**	
Release Time	More scenarios for student learning	Supports scholars and student learning	

IV. Student Learning Outcomes		
Student Learning Outcome Assessment		
1. **Be sure and complete your student learning outcomes assessment for each course online through the C3MS system. When the program review form is online, the resources that you tie to your student learning outcomes will be included here on this form.**		
2. Are additional resources needed to accomplish your student learning outcome goals that were not included in C3MS report? If yes, identify the resource, as well as the purpose and rationale for each resource.		
Identified Resource	Purpose	If requesting funding, provide a rationale for how each request **supports one or more college strategic initiative and/or supports student learning.**
PSME Center Staff	Tutoring to bring students up to speed	Student learning
Assessment Staff	Determine the students level of core knowledge	Student learning

V. Departmental Engagement

1. What standing committees, if any, does your department maintain? What are the committee charges and membership?	None at this time. There is no FT Faculty
2. What interdepartmental collaboration beyond college skills has your department been involved in during the past 4 years?	The physics and math coordinate.
3. What has your department done since its last program review to establish connections with schools, institutions, organizations, businesses, and corporations in the community?	Working with Engineers without Borders, Eastside Prep and public HS.
4. In what ways if any, are you or have you worked with area high schools to align curriculum from the high school to your course?	This is not possible since the engineering courses need to articulate with 4 year colleges.
5. In what ways if any, are you working with CSUs, UCs, private, or out-of-state institutions to align courses and develop articulation agreements?	This are complete for Engineering. Nanotechnology is waiting for 4 year colleges to identify their courses. Working closely with UCSC.

Summary of Planning Goals and Action Plans

6. What are your goals with respect to departmental engagement and how will those goals be measured?	The department is too small for the moment.

7. Are additional resources needed to accomplish departmental engagement goals? If yes, identify the resource, as well as the purpose and rationale for each resource.

Identified Resource	Purpose	If requesting funding, provide a rationale for how each request **supports one or more college strategic initiative and/or supports student learning.**

VI. Professional Development		
1. List a sampling of professional development activities that faculty and staff have engaged in during the last two years.	None	
2. What opportunities does your department take to share professional development experiences with colleagues?	None; just PT faculty.	
3. In what ways have faculty shared, discussed, and used professional development activities to improve program effectiveness?	NA	
4. In what ways have staff shared, discussed, and used professional development activities to improve program effectiveness? What professional development needs do you have in the coming years?	NA	
5. Are there unmet or upcoming professional development needs among faculty in this program? If yes, then please explain a proposed plan of action for addressing this need and any necessary resources.	NA	
Summary of Planning Goals and Action Plans		
6. What are your goals with respect to professional development and how will those goals be measured?	NA	
7. Are additional resources needed to accomplish professional development goals? If yes, identify the resource, as well as the purpose and rationale for each resource.		
Identified Resource	Purpose	If requesting funding, provide a rationale for how each request **supports one or more college strategic initiative and/or supports student learning.**

VII. Support Services			
Support Services			
Consider the support services needed by your program when reflecting over the following questions			Comments or explanations of barriers and solutions.
1. Is there adequate clerical or administrative support for this program?	**Yes** | No		
2. Are there sufficient college and departmental computer labs available to support this program?	Yes | **No**		Requires PSEC
3. Are the library and media resources provided by the college sufficient to support up-to-date program instruction?	**Yes** | No		Could use access to digital engineering databases
4. Are adequate services provided in compliance with program needs for meeting health and safety guidelines?	**Yes** | No		There are none.
5. Are the custodial services to this program in compliance with program needs for meeting health and safety guidelines?	**Yes** | No		
6. Are accommodations for students with disabilities adequate, including alternative media, testing, and tutorial?	**Yes** | No		
7. Are general tutorial services adequate?	Yes | **No**		Need funding for graduate students with degrees in engineering.
8. Are academic counseling and advising services available and/or adequate to support students enrolled in the program?	Yes | **No**		Counseling is unfamiliar with engineering courses and transfer.
9. Do students have access to and can they effectively use appropriate information resources?	Yes | **No**		Engr-49 discusses resources and careers. Students have access to MentorNet.
10. Specifically related to distance learning, do you have appropriate faculty support services and/or effective training for faculty teaching online?	Yes | No		NA
Marketing & Outreach			
11. What impact do you feel the college catalog, class schedule, and online schedule of classes have on marketing your program? Does the marketing accurately reflect your program, requirements, and services available?			They are very important to making students aware.

12. What impact does the college or departmental website have on marketing your program?	This will become more important when updated.	
13. Is there any additional assistance from marketing that would benefit your program? If yes, explain.	No. Need for fund raising.	
14. If you were to collaborate with the Outreach staff, what activities would be beneficial in reaching new students?	No. They are ineffective.	
Programs, clubs, organizations, and special activities for students		
15. List the clubs that are designed specifically for students in this program. Describe their significant accomplishments.	Engineering Club, Engineers without Borders and special events.	
16. List any awards, honors, scholarships, or other notable accomplishments of students in this program.	Annual PSME Awards	
Summary of Planning Goals and Action Plans		
17. What are your goals with respect to support services and how will those goals be measured?	Need to establish PSME unique student services.	
18. Are additional resources needed to accomplish your support services goals? If yes, identify the resource, as well as the purpose and rationale for each resource.		
Identified Resource	Purpose	If requesting funding, provide a rationale for how each request **supports one or more college strategic initiative and/or supports student learning.**

VIII. Career and Technical Education Programs	
Response to Labor Market Demand	
1. How does your program meet labor market demand? Cite specific examples and sources.	**DOES NOT APPLY**
2. Given the number of enrollments projected for the program and necessary to support the program, are there enough openings locally to permit placement of the expected number of graduates?	
3. Has the job market been: declining slowly? steady? growing slowly? growing rapidly? newly emerging?	
4. What is the average starting salary a student can expect to make after completing a certificate or degree?	
5. What is the projected average percentage of salary increase in 2 years? 4 years?	
Response to Program Credibility/Viability	
6. If advanced degrees are typically needed for career advancement, will the courses required for this program transfer towards completion of the requirements for those degrees?	
7. If yes, are the courses in your program aligned and/or articulated with the four-year institutions.	
8. Will this preparation permit students to stay current in their field? Does the program teach basic principles and theory, as well as applications? Is it current? Is it of sufficient rigor to assure the capacity to continue to follow the literature and learn new techniques? Is it of sufficient generality to allow for later shifts in career?	

9. Does this preparation provide a significant secondary expertise to primary careers? If yes, explain the purpose of the training – is it designed primarily or in part to meet the needs of those already employed for upward mobility, entrepreneurship, or other career upgrade?	
10. Describe any pre-collegiate or noncredit pathways that exist to direct students into the program?	
11. How does this program prepare students for competitive employment?	
Advisory Board	
12. List your advisory board members. The list of advisory board members should include their job titles as well as their affiliations, and an accompanying explanation should make clear that the professionals on this committee represent those within the industry who would hire graduates of a proposed CTE program.	
13. List the dates and number of members attending of your most recent advisory board meetings.	
14. What have been the major outcomes of your advisory board meetings? Of those outcomes, which have been acted upon, and what is your plan of action with regard to other outcomes discussed?	
Program Accreditation	
15. Is this program subject to approval by specialized state, regional, or national accrediting agencies?	
16. What is the program's accreditation status?	
17. Indicate recommendations of the most recent accreditation evaluation of the program and corrective actions taken or planned. Most recent accreditation report and all additional pertinent documentation and explanations should be available on site for consultant review.	
18. Provide a brief analysis of student performance on licensure or board exams on first attempt.	

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19. What indicators does your program use to determine success of our students after completion?	
20. Does your program survey employers for satisfaction of our students who have earned a degree/certificate? Provide brief analysis of employer satisfaction.	
21. Does the department's analysis of labor market demand, advisory board recommendations, and accreditation status (if applicable) reflect the data?	
22. Have any/all issues been identified in the program plan and are they adequately addressed with appropriate action plans? Explain.	

Summary of Planning Goals and Action Plans

23. What are your 4-year goals based on areas identified in the Career and Technical Education section of the program plan and how will those goals be measured?	

24. Are additional resources needed to accomplish career and technical education goals? If yes, identify the resource, as well as the purpose and rationale for each resource.

Identified Resource	Purpose	If requesting funding, provide a rationale for how each request **supports one or more college strategic initiative and/or supports student learning.**

IX. Resource Planning: Personnel, Technology, Facilities, and Budget

Faculty	
1. How does your PT/FT ratio impact the program?	Will require a FT Faculty in next year.
2. What staffing needs do you anticipate over the next four years. (Consider: retirements, PDL, reassigned time, turnover, growth or reduction of the program)	There are no FT. This is driven by PT.

Classified Staff	
3. What staffing needs do you anticipate over the next four years. (Consider: retirements, PDL, reassigned time, turnover, growth or reduction of the program)	Need graduate students in PSME Center. Estimate is $5K/year.

Technology and Equipment	
4. Are the existing equipment and supplies adequate for meeting the needs of the instructional program?	Hopefully funded in PSEC.
5. Do you have adequate resources to support ADA needs in your physical and/or online courses and classrooms?	Yes.
6. Is the technology used in your distance education courses appropriate to the nature and objectives of your courses? Please explain how it is appropriate or what changes are underway to make it appropriate. Explain.	NA

Technology & Equipment Definitions

- **Non-instructional Equipment and Supplies:** includes equipment for "office use" that is non-instructional and that is not used in a lab or classroom – it includes non-programmatic equipment for individual instructors and staff, such as a desktop computer for office use. Desktop technology (computers, printers, scanners, faxes) and software requests are processed through your Dean or Director. .
- **Instructional Equipment and Supplies:** includes technology, software, and supplies used in courses or labs, including occupational program equipment. Instructional program equipment requests are prioritized by the department and then by the Dean or Director. **Need computers for PT faculty for course development**
- **Durable Equipment and Furniture:** includes non-instructional, non-technology equipment (chairs, tables, filing cabinets, vehicles, etc.) necessary to improve the operational functioning of the program/department.
- **Note:** It is recommended that divisions perform and maintain an inventory of all their technology and equipment.

Facilities	
7. Are your facilities accessible to students with disabilities?	**Yes**

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8. List needs for upgrades for existing spaces	NA
9. List any new spaces that are needed	
10. Identify any long-term maintenance needs.	
11. Are available general use facilities, such as classrooms, laboratories, and faculty office/work space adequate to support the program? Please explain.	
12. Are work orders, repairs, and support from district maintenance adequate and timely? Please explain.	
Budget	
13. Are the A-budget and B-budget allocations sufficient to meet student needs in your department?	**Will not once NSF grant ends in 3 years.**
14. Describe areas where your budget may be inadequate to fulfill program goals and mission.	
15. Are there ways to use existing funds differently within your department to meet changing needs?	**The amount is too small to reallocate.**

Summary of Planning Goals and Action Plans

16. What are your goals with respect to resource planning and how will those goals be measured?	

17. Are additional resources needed to accomplish your resource planning goals? If yes, identify the resource, as well as the purpose and rationale for each resource.

Identified Resource	Purpose	If requesting funding, provide a rationale for how each request **supports one or more college strategic initiative and/or supports student learning.**

X. Final Summary of Goals, Commitments to Action, and Resource Requests

1. Upon completion of this program plan, provide a comprehensive summary of your goals and action plans for the next 4 years.

- Our program will develop an integrated curriculum focused on the application of fundamental principles to the design, engineering, and fabrication of new materials, and requisite materials characterization to support process development. The students will use problem solving and QA/QC skills, including image analysis and microscopy, spectroscopy, chromatography, and engineering process measurements, to support high tech manufacturing in both regional and national technology centers.

- Develop and strengthen interdisciplinary "systems" approaches for educational programs in the natural and social sciences that focus on environmental, social, and economic issues fundamental to the future energy economy.

- Create new and strengthen existing programs to train students, teachers, researchers, and technicians.

- Through the KCI, PSME's Aurora K-12 Aurora program, and Physics shows promote interest in the fields of science and energy in K–12 education by developing and disseminating programs designed to teach students about energy, the environment, and related technology and economic issues.

- Our scenario-based laboratory curriculum will ensure that students will be productive and effective within the demanding environments found in start-up engineering and manufacturing firms, and additionally have a strong multidisciplinary foundation to extend the tenure of their careers.

- Strengthen science and engineering partnerships within Silicon Valley. International entities should be an essential part of many of these partnerships.

			Note: If you are requesting resources this year, these items have to be included in your current program review. If you want the college to understand your full range of need, then list every current and upcoming resource need in each section above.
2. Final Resource Request Summary: **When the program planning and review form is online – the section below will automatically fill in with your responses from each section.**			

Resource	Purpose	Rationale	Estimated Cost
1 FTEF	**Develop core nanotechnology, sustainable engineering and system engineering program.**	**The engineering program has been limping along for 5 years without direction from a FT Faculty. The grants and programs have been developed on the backs of shared FT and PT faculty.**	$100,000
Equipment	**Used in labs for student learning.**	**New equipment is required to teach the new disciplines as well as stay current with 4 year colleges**	$100,000 hopefully funded by grants & PSEC
PSME Graduate Students	**Assist students**	**Students need experienced help in understanding engineering, energy and nanoscience concepts.**	$7.500/year
Release time	**Develop additional courses in energy and nanoscience**	**How we teach science and engineering is changing to be more environmental and hands-on. Need to encourage students to develop an interest in Engineering.**	.222 load per year
Counselors, career counselor and outreach counselor dedicated to PSME	**Provide knowledgeable counseling and advice to students.**	**Students need recruited to come to FH for STEM, to be placed (assessed) correctly, given schedules that will permit they to be successful in the minimum amount of time, and have multiple options when leaving FH.**	Reorganization and some training

Supervising Administrator Signature	*Completion Date*