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

## Table of Contents

| I. Department/Program Mission | |
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| 1. State the department name and everyone who participated in creating the comprehensive program plan. | Physics (Sue Wang, David Marasco, Frank Cascarano, Jenny Liang, 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 physic's fundamentals coupled with experiential experiences and a broad commitment to generate and disseminate knowledge. |
| 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

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| 1. What are your hours of operation? 08:00 – 23:00 | Our offices open at:<br>Closed for Lunch: No ☒ or Yes ☐ If yes, when:<br>Our offices closed at: | | | |
| 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.** | Times offered:<br>☒ Morning (6AM-12PM)<br>☒ Afternoon (12PM-4PM)<br>☒ Evening (4PM-10PM) | Locations offered:<br>☒ FH Main Campus<br>☐ Middlefield<br>☐ Off campus | Types Offered:<br>☒ In Person<br>☐ Hybrid<br>☐ Distance | Status Offered:<br>☒ Credit<br>☐ 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** |
|---|---|---|---|
| Phsyics | 3 (from sheet) | 2 | 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 | 1.0 | | Lab Prep for Physics + Engineering |
| Position Title | 0 | 0 | Maintains PSME software baseline |
| Position Title | 0 | 0 | |
| Position Title | 0 | 0 | |
| **Student Worker Positions** | **Hours per Week** | **Months per Year** | **Brief Description of duties** |
| PSME Graduate Student | 16 | 8 | Summer limited support |
| Position Title | 0.00 | 0 | |
| Position Title | 0.00 | 0 | |

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| 4. Given the data, describe the trends in enrollment, FTES, and Average Class size. What are the implications for your department? | Physics FTES is increasing at a constant rate of about 12% year-over-year. The PSME 2006-7 is an aberration and not consistent with the YOY growth. Much of the growth is in the transfer level Phys 2 & 4 series. Class size is fixed by lab size and safety. |
| 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 are higher than expected based on the level of prerequisites and difficulty of the course material. The success is improving but is much lower than what faculty would like to achieve. What is not shown is the course sequence success, which needs to be increased. Also the entry level students are underprepared and need additional support, especially in Phys 4A. |
| 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, Hispanic or none which match the enginerring series populations. The department will create a pathway going forward by working with counseling and Outreach to encourage students in STEM pathways. |
| 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 Physics course offerings will increase until 2012F and when PSEC opens will increase even more. |
| 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 the use of technology augment in class teaching and homework. |
| 9. Optional: Provide any additional data relevant to your program. (Indicate the source of the data). | 2003 Report by Johnstone; http://research.fhda.edu/researchreports/file_library/B17%20-%20Sequence%20Course-Grade-Success%20v4.0.pdf |
| 10. Are you seeing trends that are not reflected in the data cited above? If yes, please explain. | The student success is the course sequence is much lower than desired. Physics 2A/2B/2C and Physics 4A/4B/4C/4D. |

| Summary of Planning Goals & Action Plans | | | | |
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| 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 |
| Increase student success in sequence courses. | ☒ | ☒ | ☐ | ☒ |
| Expand course offerings | ☒ | ☒ | ☐ | ☒ |
| Improve teaching consistency | ☒ | ☒ | ☐ | ☐ |
| New Learning Technologies | ☒ | ☐ | ☐ | ☒ |
| Develop K-12 Teachers | ☒ | ☒ | ☐ | ☒ |
| Lower book costs. Adopt an open source text? | ☒ | ☒ | ☐ | ☒ |

| 12. What is your plan for accomplishing your goals? | | |
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| **Department Operational Goals** | **Activities** | |
| Increase student success in sequence courses.<br><br>Improve teaching consistency | • We tend to believe the best approach (I believe SJSU does this) is to have two physics 4 sequences – an accelerated sequence that gets through the material in 4 quarters (our current pace) and a slower pace sequence that requires five quarters to cover the same material. At SJSU you are required to test into the accelerated class. Our thoughts are keeping it voluntary at first and try to sell the benefits the way Math My Way does. We believe the extra time is needed mostly for 4A and 4B, so we would turn these two 1-quarter classes into a three quarter set. In addition, we could look at a "Pass the Torch" approach, where we hire successful students to tutor struggling students.ideas.<br>o The students will use appropriate | • Increase PT Faculty required<br>• Release time for FT faculty |

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| | technology throughout the course including computers for data acquisition and analysis, sophisticated instrumentation, and software models. | |
| Encourage K-8 students to be interested in physics (STEM) | • Strengthen the Silicon Valley K-8 science programs. Foothill will encourage students to study science via the annual Physics Show. | • Requires funding for show and student stipends. |
| Expand course offerings | • See Physics 5 series (5 quarter sequence; see above)<br><br>• Interdisciplinary blending of Science, Technology, Engineering and Mathematics (STEM) to provide the students an appreciation for symbiotic relationships and not view them as separate disciplines. Research has shown the best predictor for a student's success in science is their math competency. Also the physics program will introduce students to other disciplines such as nanoscience, biology and environmental sciences; each requires unique instrumentation.<br><br>• Also, we may want to have a math booster for the 2 series to make our 2 series transferable to Berkeley (the only place that doesn't take it). That way students would have an option – regular 2 series or 2 series with a one unit calculus booster. I believe Ohlone College does this with their Phy 120 (with 120A calculus supplement) and Phy 121 (with 121A | • Release time for faculty<br>• Capital equipment budget for instrumentation |

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| | supplement). | |
| New Learning Technologies | • The students will need access to a wide range of equipment based on the approach for solving the generic problem. | • Requires release time (.111) per quarter to update courses to be scenario based. |
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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.** |
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| III. Curriculum | |
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| *Curriculum Overview* | |
| 1. How does your curriculum address the needs of diverse learners? | The instruction has shifted to inquiry based versus the traditional lecture. Alternate materials provided to supplement existing materials.<br><br>A diversified approach to learning in the lecture sessions is key to reaching quiet/struggling/ESL students, that is to say, less lecturing and more hands-on activities that engage the students and gives them ownership of their success. |
| 2. How does your curriculum respond to changing community, student, and employer needs? | The courses are being updated and revised to meet student needs.<br>potential new course offerings:<br>(1) To create Physics 5 (see prior)<br>(2) team teaching with physics to offer a course targeted at high school science teachers who need to refresh their content knowledge (many teachers have a general science background and are thrown into teaching courses outside of their specialty or degree, or perhaps it has just been a long time and they would like a refresher course) |
| 3. How does your curriculum support the needs of other certificates or majors? | The Physic 2 series directly support nursing and some Allied Health programs. The Physics 2 & 4 series support the science and PreMed students. |
| 4. Do your courses for the major align with transfer institutions? | Yes.<br>The Physics 2 and 4 series map directly into CSU, UC and private colleges. |
| 5. Do your courses have appropriate and necessary prerequisites? Identify any challenges and plans to address the challenges. | Yes. Consistent with UC & CSU. Phys 2A needs higher level mat just for UC Berkeley. |

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| 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. Just for supplements and homework. Phys 6 has been offered online during the summers. | |
| 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? | Physics in HS, study skills, and strong foundation in math.. | |

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| 11. Given the data, comment on the effectiveness of the assessment and placement of college skills students into your program. | Looking at the data our success in physics is very good given the difficulty and time demands of the subject matter. We are consistently in the 70-75% range overall. It has gone down, mostly for the increase in Physics 2 series classes. Our success with the underrepresented (minority) groups falls by 10-20% compared to the average, not inconsistent with the rest of the campus. Since the data does not give retention and success rates for each sequence as asked in the question, it is assumed the average of 76% for 2008-09 fiscal maps into a sequence.<br><br>**However, most students that do not succeed in general physics fail because of inadequate math skills or too little time outside of class to study.** Average (C) students have an unrealistic expectation of their own success in the core science classes, They have already shown by their C average they are not ready for a prime-time core science curriculum.<br><br>To improve success in general physics we propose four items 1develop a math test to adequately gauge a student's math skills entering 2A & 6, 2) stress to the students the time commitment needed in physics for success and 3) counsel each student that appears to be at risk mathematically or cannot commit the necessary time, and 5) keep class sizes small. Curriculum changes may help as well, it is still unclear if the Mastering Physics program has increased success or is simply another thing students feel they have to just get done, and don't see it as a learning tool. | |
| 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* | | |

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| 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. | Physics 5, 4A, 4B,4C, 4D<br>Physics 2A, 2B, 2C | |
| 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. | The SLOs are aligned in as a sequence. We are currently evaluating the lecture portion by pre- and post-testing. This is done in a constant rotation and professors are meeting to exchange feedback and ideas. The labs are evaluated by looking at specific experiments. | |
| 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. The faculty need release time to assist with PT monitoring, especially in the evenings. The large turnover in PT faculty has caused both a mentoring and monitoring issue. | |
| **Summary of Planning Goals and Action Plans** | | |
| 20. What are your goals with respect to curriculum and how will those goals be measured? | | |
| 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 | Course development and update | Supports scholars and student learning | |
| Release Time | Monitor and Mentor PT Faculty | Supports scholars and student learning | |
| Physics Tutors | Maintain course quality and increase number of sections. | Supports scholars and student learning | |
| Release Time | For the labs, we should tackle the ones that are in most dire need first, identify what equipment could be purchased to improve them, and then make the $$$ requests. | Supports scholars and student learning | |
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## 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; A supplemental course with gateway assessment offering that will enhance otherwise missing math/problem-solving skills is going to be a powerful boost to retaining students in Physics.** |
| Reassign Time | Modify labs to be more hands on/ | For the labs, we should tackle the ones that are in most dire need first, identify what equipment could be purchased to improve them, and then make the $$$ requests. |
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| V. Departmental Engagement | | |
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| 1. What standing committees, if any, does your department maintain? What are the committee charges and membership? | There are regular department meetings.<br>Over the past few years the Physics department has had strong off-campus outreach. This has been done via the Physics Show, AAPT, PTSOS, DEEP/UCSC, talks with Hayward, S&E field trips and Stanford internships. | |
| 2. What interdepartmental collaboration beyond college skills has your department been involved in during the past 4 years? | The chemistry, physics , math and biology coordinate and collaborate on scheduling, articulation and grants.<br><br>The sciences are very collaborative and often work together. | |
| 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 local K-12 schools. Participate in CSUEB and SJSU articulation meeting. | |
| 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 physics 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 is complete for Physics. | |
| **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 needs to continue doing cooperative work such as scheduling and internships at Stanford. | |
| 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.** |
|---|---|---|
| Release time | Write proposals | New interdisciplinary programs. |
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| VI. Professional Development | | |
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| 1. List a sampling of professional development activities that faculty and staff have engaged in during the last two years. | | Most of the faculty have attended one or more sessions of the NSF Physics program in Arizona.<br>AAPT + PTSOS meetings, PDL |
| 2. What opportunities does your department take to share professional development experiences with colleagues? | | The faculty are part of the PSME Technology program. |
| 3. In what ways have faculty shared, discussed, and used professional development activities to improve program effectiveness? | | The FT faculty share their online web information. |
| 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? | | SEE BELOW |
| 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. | | AAPT + PTSOS meetings, |
| **Summary of Planning Goals and Action Plans** | | |
| 6. What are your goals with respect to professional development and how will those goals be measured? | | HAZMAT inspection results minimized<br>PT faculty have adequate support materials and training. |
| 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. |
| **$3K** | **Phsics Show** | **Building a Community of Scholars** |
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## VII. Support Services

| *Support Services* | | |
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| 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 | Use the PSME shared resources. |
| 2. Are there sufficient college and departmental computer labs available to support this program? | Yes \| **No** | Requires PSEC. The number and variety of classes are currently restricted in 5400. |
| 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 research databases |
| 4. Are adequate services provided in compliance with program needs for meeting health and safety guidelines? | Yes **\| No** | |
| 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 physics. |
| 8. Are academic counseling and advising services available and/or adequate to support students enrolled in the program? | Yes \| **No** | Counseling is unfamiliar with physics courses and transfer. The student's class plans don't use the tracks so students can complete all their courses in a timely fashion. |
| 9. Do students have access to and can they effectively use appropriate information resources? | **Yes** \| No | |
| 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. The development of class schedules for marketing is too inflexible. | |

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| 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. | | |
| 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 STEM 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.** |
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| VIII. Career and Technical Education Programs | |
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| *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? | |

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| 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.** | |
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| IX. Resource Planning: Personnel, Technology, Facilities, and Budget | |
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| *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) | We anticipate 1 retirement in the next 3 years. Physics will continue to grow, especially when PSEC opens in 2012. |
| *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) | Will require additional PT Classified Lab Tech if the number of sections increase. This will definitely be required in PSEC.<br><br>Need graduate students in PSME Center. Estimate is $15K/year. |
| *Technology and Equipment* | |
| 4. Are the existing equipment and supplies adequate for meeting the needs of the instructional program? | Hopefully funded in PSEC.<br>*New 4B lab equipment<br>* New equipment so the same lab can be offered in two rooms at the same time.<br>Require B-Budget funding for equipment maintenance. |
| 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.<br>• **Need a PDF scanner .** | |

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| • **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.<br>• **Need laptop computers for PT faculty for course development and presentation. The faculty take the laptops into the lecture rooms and labs which just have projectors and NO desktop computers.** | | |
| • **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** | |
| 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? | **Need A budget for additional FT and PT faculty.**<br>**Need B-Budget for PSME Center Graduate Students**<br>**If Lottery $ remains, B-Budget is adequate in these tight times.** | |
| 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. |

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|---|---|---|---|
| **Equipment Maintenance** | **Keep existing equipment functioning.** | **Required for student learning and meeting articulation requirements. $7K/Year; new lab equipment** | |
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## 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.

- Increase student success in sequence courses and improve teaching consistency.
  - Mentor and monitor PT faculty, in particular the evening sections. Create consistency in level of teaching.
  - Develop a math test to determine the preparedness for physics
  - Create booster classes (workshops) and gateway testing in PSME Center to raise student's foundational skills
  - Train PT faculty to instruct in a diversified manner to reach struggling and ESL students
  - Continually (at least once per year) update the SLOs and modify the courses accordingly
  - Create a 5 quarter calculus based physics series.
  - Develop a "pass the torch" like program for physics
  - Develop a math test to adequately gauge a student's math skills entering 2A
  - Stress to the students the time commitment needed in physics for success and
  - Counsel each student that appears to be at risk mathematically or cannot commit the necessary time,
- PSME's Aurora K-12 Aurora programs promote interest in the fields of science education by developing and disseminating programs designed to teach students about educational requirements.
- Increase the number of sections and course offerings:
  - Offer more sections based on student's demand and lab space available.

| 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.** | | | 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. |
|---|---|---|---|
| **Resource** | **Purpose** | **Rationale** | **Estimated Cost** |
| **1 FTEF** | **Increase student success and increase number of sections and courses** | **The annual growth is 7% year over year. It is becoming too difficult to hire and retain qualified PT faculty. This will permit continued growth. Sue Wang also teaches in Engineering.** | **$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. If develop Physics 5 series, will require equipment for new labs.** | **$59,000 hopefully funded by grants & PSEC** |
| **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 them to be successful in the minimum amount of time, and have multiple options when leaving FH.** | **Reorganization and some training** |
| **PSME Graduate Students** | **Assist students** | **Students need experienced help in understanding physics. They will also support booster classes and gateway testing in PSME Center.** | **$15,000/year** |
| **Release time** | **Develop additional courses and modify existing labs** | **How we teach physics is changing to be more environmental and hands-on. PT faculty need to be trained and mentored** | **.3333 load per year + $5K for PT stipends** |

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|---|---|---|---|
| **Student Stipends** | **For "Physics "pass the torch"<br>Support Physics show** | **Having students engage promotes student success.** | **$6,000/year** |
| | | | |
| *Supervising Administrator Signature* | | *Completion Date* | |