**Unit Strategic Plan**

**2017 - 2019**

**Department: Math/Engineering/Physical Science Jefferson Campus**

The Department of Mathematics/Engineering/Physical Sciences offers a broad range of courses that service the career programs of the college and that will transfer to baccalaureate degree granting institutions. The department also offers developmental mathematics courses to prepare students for college level mathematics

The Mathematics, Engineering, & Physical Sciences department will:

* Provide freshman and sophomore-level courses in Chemistry, Mathematics, Physics, Physical Sciences, and Astronomy, with emphasis on critical thinking and analytical ability that are transferable to public institutions of higher learning.
* Offer an appropriate remedial mathematics program accommodating various skill levels.
* Develop and provide courses relevant to the career and professional degree programs of the college.

**Summary of Access, Productivity and Effectiveness (Including, but not limited to, program load, success rate, retention rate, completion rate, employer surveys, student surveys):**

The Department of Mathematics/Engineering/Physical Sciences offers a broad range of courses that service the career programs of the college and that will transfer to baccalaureate degree granting institutions. The department also offers developmental mathematics courses to prepare students for college level mathematics. Many of these courses serve as degree requirements for two year career programs offered at the college. The following tables list enrollment for our transfer programs as well as the two year career programs for the years 2015 & 2016.

Spring 2015-2016

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  | **CIP\_CODE** | **MAJOR\_DESC** | **Major\_code** | **AA** | **AAS** | **AS** | **Total** |
| Spring 15-16 | 240102 | Biomedical Engineering (UAB) | T035 | 0 | 0 | 12 | 12 |
| Spring 15-16 | 240102 | Biomedical Science (USA) | T037 | 0 | 0 | 13 | 13 |
| Spring 15-16 | 240102 | Chemistry | T047 | 0 | 0 | 22 | 22 |
| Spring 15-16 | 240102 | Engineering - Aerospace | T069 | 0 | 0 | 13 | 13 |
| Spring 15-16 | 240102 | Engineering - Chemical | T070 | 0 | 0 | 9 | 9 |
| Spring 15-16 | 240102 | Engineering - Civil | T071 | 0 | 0 | 57 | 57 |
| Spring 15-16 | 240102 | Engineering - Computer | T072 | 0 | 0 | 14 | 14 |
| Spring 15-16 | 240102 | Engineering - Computer Science | T073 | 0 | 0 | 16 | 16 |
| Spring 15-16 | 240102 | Engineering - Electrical | T074 | 0 | 0 | 47 | 47 |
| Spring 15-16 | 240102 | Engineering - Industrial | T075 | 0 | 0 | 1 | 1 |
| Spring 15-16 | 240102 | Engineering - Materials | T076 | 0 | 0 | 7 | 7 |
| Spring 15-16 | 240102 | Engineering - Mechanical | T077 | 0 | 0 | 78 | 78 |
| Spring 15-16 | 240102 | Laboratory Technology | T135 | 0 | 0 | 3 | 3 |
| Spring 15-16 | 240102 | Mathematics | T149 | 0 | 0 | 12 | 12 |
| Spring 15-16 | 240102 | Meteorology (USA) | T152 | 0 | 0 | 4 | 4 |
| Spring 15-16 | 240102 | Physics | T173 | 0 | 0 | 8 | 8 |

Fall 2015-2016

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  | **CIP\_CODE** | **MAJOR\_DESC** | **Major\_code** | **AA** | **AAS** | **AS** | **Total** |
| Fall 15 | 240102 | Biomedical Engineering (UAB) | T035 | 0 | 0 | 14 | 14 |
| Fall 15 | 240102 | Biomedical Science (USA) | T037 | 0 | 0 | 12 | 12 |
| Fall 15 | 240102 | Chemistry | T047 | 0 | 0 | 26 | 26 |
| Fall 15 | 240102 | Engineering - Aerospace | T069 | 0 | 0 | 13 | 13 |
| Fall 15 | 240102 | Engineering - Chemical | T070 | 0 | 0 | 7 | 7 |
| Fall 15 | 240102 | Engineering - Civil | T071 | 0 | 0 | 74 | 54 |
| Fall 15 | 240102 | Engineering - Computer | T072 | 0 | 0 | 24 | 24 |
| Fall 15 | 240102 | Engineering - Computer Science | T073 | 0 | 0 | 22 | 22 |
| Fall 15 | 240102 | Engineering - Electrical | T074 | 0 | 0 | 44 | 44 |
| Fall 15 | 240102 | Engineering - Industrial | T075 | 0 | 0 | 2 | 2 |
| Fall 15 | 240102 | Engineering - Materials | T076 | 0 | 0 | 6 | 6 |
| Fall 15 | 240102 | Engineering - Mechanical | T077 | 0 | 0 | 85 | 85 |
| Fall 15 | 240102 | Mathematics | T149 | 0 | 0 | 12 | 12 |
| Fall 15 | 240102 | Meteorology (USA) | T152 | 0 | 0 | 3 | 3 |
| Fall 15 | 240102 | Physics | T173 | 0 | 0 | 9 | 9 |

**Internal Conditions:**

1. **Technology**

 5 lecture classrooms are equipped with computers, document cameras, and projection units. The department also has one portable projector

 unit which can be moved from classroom to lab as needed. These classrooms serve Math, Chemistry, Physical Science, and Physics.

1. **Budget**
* The academic budget for faculty and classroom (lecture and lab) supplies is currently sufficient.
* The budget for the removal of chemical waste from the Jefferson and Shelby Campus should remain the same, to provide a safe instructional environment for students and faculty.
* As there are 5 classrooms that have been equipped with computer, document camera, and projection system serving Physics and Math, a 6th classroom is in need to be upgraded with the same equipment, in order to serve our students taking Chemistry courses.
* Our Chemistry Department is due to have the Hazardous Chemical Waste picked up within the next year. This is supposed to take place every 3 to 4 years. There will need to be a bid taken from different companies specializing in doing this. Based on the past Chemical Waste pickups, the estimated cost should be around $8500.00.

1. **Staffing**

The Mathematics Department at the Jefferson Campus has 3 ½ full time math faculty members, the ½ being a faculty member who teaches 2 Math courses, a Physics course and an Astronomy course each semester. The Math department has 6 adjunct faculty members who teach 1 to 2 math courses each semester. The department has one full time Chemistry instructor who is home-based at the Shelby campus, but teaches 2 classes each semester at the Jefferson Campus and one full time Chemistry instructor, home based at Jefferson Campus, who teaches all online chemistry and 2 physical science courses per semester. Our traditional classroom physical science classes are covered by 1 adjunct instructor. We also have 2 adjunct faculty members who teach Chemistry courses. This has allowed us to be able to maintain the 50/50 full-time/part-time ratio. Our Associate Dean of Transfer Studies teaches 2 physics courses each semester

1. **Resources**

Funding to support professional development opportunities for our faculty is greatly appreciated and useful. Faculty members that request professional development tend to be met with approval and support.

1. **Enrollment**

 Enrollment numbers remain steady, with the exception of Summer 2016. Course offerings are adjusted with respect to current enrollment trends.

 Enrollment in distance education courses continue to increase as more courses are made available.



1. **Equipment**

The fax machine for the Math/Engineering/Physical Science Department is located in the adjunct faculty workroom. There is a computer and printer also in the adjunct faculty workroom to serve the part-time faculty members. There is one full-time faculty member, who teaches math, physics, and astronomy, that is assigned a laptop computer, which is used for teaching the online astronomy class. Also, 1 document camera, 1 projection unit, and 1 computer are located in CH 217, Physics classroom, and in CH 310, math classroom. A document camera with projection unit and screen is located in the following math classrooms: CH 312, RCH 321, and RCH 234.

A multifunction printer is located in Math Faculty Workroom, RCH 236 B, and a colored multifunction printer is located in

Math Department Office, RCH 322.

**External Conditions (such as state funding, accrediting agencies, advisory committees, postsecondary policy changes):**

All Math, Physics, Physical Science and Astronomy courses are regulated by the Department of Postsecondary Education. A statewide syllabus and competencies are established for each individual course offered. The competencies are reviewed and updated as changes occur.

 **2015-2016 Accomplishments:**

* The Physics Lab was remodeled and upgraded during the Fall and Spring 2016-2017 semesters.

**Unit Goals (2017-2019)**

**Goal 1. Add 2 projection units, including computer, screen, and document camera to one Math and one Chemistry classroom**.

1. Objectives
* Keeping the quality of instruction in the classroom upgraded with current up-to-date technology for faculty.
1. Method of Assessment
* Monitor the purchase and installation of equipment, while also obtaining feedback from the faculty using the equipment for instruction.
1. Additional Funding Requests
* Funding estimate to purchase 2 projection units with screen @$1,750.00, each, and document cameras @ $2,192.00, each, for Chemistry and Math classrooms.

**Goal 2.** **Continue to upgrade computers being used by full-time Faculty members**

1. Objectives
* Replace and/or upgrade computers as needed for faculty.
1. Method of Assessment
* Obtain feedback from faculty regarding the use and currency of instructional equipment used in lecture classrooms, as well as the faculties’ offices.
1. Additional Funding Requests
* Funding estimate to purchase computers for 4 full time faculty members and 1 computer for Adjunct Faculty workroom: 5 units @ $1,000 each = $5,000.

**Goal 3** **Continue to upgrade Physics/Physical Science Lab with up-to-date and state of the arc equipment.**

1. **Objectives**
* Purchase a printer for networking to computers in the Physics Lab.
1. Method of Assessment
* Obtain feedback from faculty regarding use of equipment.
1. Additional Funding Requests.
* $25,000 to update equipment in Physics Lab and to have computers networked to printer.

(Please see list of equipment needed for Physics Lab listed on next page.)

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Catalog Number** | **Description** | **Price** | **Quantity** | **Total** |
| 850 Mechanics System | Integrate Probeware & Physics equipment, includes 850 VI | $2,100.00 | 1 | $2,100.00 |
| UI-58031 | Comprehensive Electromagnetism | $2,200.00 | 5 | $11,000.00 |
| UI-5813 | Comprehensive Physics System Manual | $100.00 | 1 | $100.00 |
| ME-8999 | Dynamic Track Spring Set | $30.00 | 1 | $30.00 |
| SE-8050 | Braided Physics String | $25.00 | 3 | $75.00 |
| ME-9889 | Discover Free Fall System | $375.00 | 5 | $1,875.00 |
| ME- 8930 | Smart Timer | $260 | 5 | $1,330.00 |
| SE-9788 | Coin & Feather Tube | $79.00 | 1 | $79.00 |
| SE-9719A  | Discover Density Set | $59.00 | 5 | $295.00 |
| SE-8827 | Motor Stick | $34.00 | 1 | $34.00 |
| ME-9890 | Free-Fall Ball Accessory | $39.00 | 2 | $78.00 |
| SE-7571 | Bounce/No bounce Ball | $25.00 | 1 | $25.00 |
| SE-7355 | Van de Graff replacement belt | $29.00 | 1 | $29.00 |
| CL-6512 | RLC Circuit | $145.00 | 1 | $145.00 |
| WA-9867 | Sine Wave Generator | $260.00 | 2 | $520.00 |
| SF-9324 | Mechanical Wave Driver | $179.00 | 2 | $358.00 |
| PL-8127 | Function Generator  | $750.00 | 2 | $1,500.00 |
| SE-9751 | Patch Cord | $20.00 | 2 | $40.00 |
| SE-9415A | Patch Cord | $20.00 | 2 | $40.00 |
| **Total Page 1** |  |  |  | **19,453.00** |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Catalog Number** | **Description** | **Price Per Items** | **Quantity** | **Total** |
| WA-9607 | Cladni Plates Kit | $85.00 | 2 | $170.00 |
| SE-8690  | Glow String  | $15.00 | 2 | $30.00 |
| SE-9409 | Elastic Wave Cord | $30.00 | 1 | $30.00 |
| SE-7345 | Sympathetic Resonance Box Set | $139.00 | 1 | $139.00 |
| CL-6506B | Sound Sensor | $65.00 | 1 | $65.00 |
| **Total** |  |  |  | **$434.00** |
| **Grand Total** |  |  |  | **$19,887.00** |

**Unit Goals: 2017-2019**

**Goal 4: Continue to upgrade Chemistry Lab with up-to-date and state of the arc equipment.**

1. Objectives
* Purchase equipment in order to set up 6 work stations in the Chemistry lab, which will accommodate 24 students.
1. Method of Assessment
* Obtain feedback from faculty regarding use of equipment.

1. Additional Funding Requests.
* $2,400.00 to purchase 6 stations to update Chemistry Lab.

(Please see list of equipment needed for Chemistry lab below.)

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Item | Catalog # | Fisher Catalog # | Description | Qty | List Price | Extended | Used in CHM |
| 1 | LABQ2 | S15974ND | LabQuest 2 Data Collection Interface  | 4 | $329.00 | $1,316.00 | 111 112 221 222 |
| 2 | COL-BTA | S16008ND | 4-Wavelength Colorimeter | 4 | $115.00 | $460.00 | 111 112 222 |
| 3 | ORP-BTA | S16044ND | Oxidation Reduction Probe | 4 | $81.00 | $324.00 | 112 |
| 4 | PH-BTA | S16238ND | pH Sensor | 4 | $79.00 | $316.00 | 111 112 |
| 5 | VDC-BTD | S16274ND | Drop Counter | 4 | $99.00 | $396.00 | 111 112 |
| 6 | VP-BTA | S16072ND | Voltage Probe | 4 | $12.00 | $48.00 | 112 |
| 7 | GPS-BTA | S16052ND | Gas Pressure Sensor | 4 | $83.00 | $332.00 | 111 112 |
| 8 | TMP-BTA | S16268ND | Stainless Steel Temperature Probe | 4 | $29.00 | $116.00 | 111 112 221 222 |
| 9 | CHEM-A | S16119ND | Advanced Chemistry with Vernier Book | 1 | $48.00 | $48.00 | 111 112 |
| 10 | CWV | S16047ND | Chemistry With Vernier Book | 1 | $48.00 | $48.00 | 111 112 |
| Totals |   |   |   |   |   | $3,404.00 |   |

**Goal 5: Continue to upgrade Math Classrooms with up-to-date and state of the arc equipment.**

1. Objectives
* Purchase high rise adjustable stand-up desk to go on regular desk.
1. Method of Assessment
* Obtain feedback from faculty regarding use of equipment.

 Additional Funding Requests.

* $175.99 to purchase one per Math classroom.

**Goal 6: Maintain up-to-date curriculum and courses to prepare students for transferring to a 4 year University.**

1. Objectives
* Review course competencies on an annual basis and revise as necessary based on state guideline changes, and new editions and/or change in textbooks being used for instruction.
1. Method of Assessment
* Assessment of course competencies and the curriculum will be considered met based on the Alabama state guidelines for each course offered in the Math/Engineering/Physical Science Department.
1. Additional Funding Requests a. N/A

**Goal 7: Develop and Implement written Student Learning Outcomes (SLOs) for all courses in the department to more adequately document and enhance reporting of student progress in the department.**

1. Objectives
	* Provide guidelines/examples to insure all faculty understand the terminology used in developing SLOs.
	* Assign courses to individual faculty and or faculty groups as appropriate for developing a draft SLO for each course.
	* Conduct faculty reviews of SLOs, modify as necessary.
	* Plan methods for assessing SLOs and documenting results.
2. Method of Assessment
	* Assessment of SLOs will be based on judgment of the faculty and performance of the students. It is expected that SLOs and assessments will be continually modified as faculty determine where improvements are needed.
3. Additional Funding Requests
* To be determined based on QEP committee’s recommendations