

EQUIPMENT NEEDS ASSESSMENT APPLICATION
Fall 2016

Name of Person Submitting Request:	Michael Lysak
Program or Service Area:	Physics/Astronomy/Engineering
Division:	Science
Date of Last Program Efficacy:	Spring 2016
What rating was given?	Conditional
Equipment Requested	10 Tektronix Oscilloscopes TBS-1102B-EDU, 100 MHz, @ \$1100 = \$11000
Amount Requested:	\$11000
Strategic Initiatives Addressed: (See http://www.valleycollege.edu/about-sbvc/office-of-president/college_planning_documents/documents/strategic-plan-report-working-doc-8-25-15-2.pdf)	Student Success

NOTE: To facilitate ranking by the committee, submit separate requests for each item; however, multiple items can be submitted as one request if it is required that the equipment is packaged together.

Replacement Additional

Are there alternative funding sources? (for example, Department, Budget, Perkins, Grants, etc.)

Yes NO

If yes, what are they? ___N/A_____

1. Provide a rationale for your request. (Explain, in detail, the need for this position.)

The present Physics/Astronomy experimental labs are using equipment that is quite a number of years old, and, with increased use, more of this equipment is falling into disrepair. Due to this state of disrepair, the Department presently has only four adequately-functioning oscilloscopes for use in the labs, whose student enrollment can, at times, approach thirty-six; as a result, students need to wait their turn to use the oscilloscopes, a most inefficient and frustrating situation, and, the lab instructor needs to extend the lab well beyond the scheduled three hours. Thus, during evening labs which involve the use of these old oscilloscopes, the students and the instructor do not end the class until at least 10:30 pm, which not only produces an excess burden on the instructor and students, but also presents a clear hazard with respect to the safety and welfare of all concerned by needing to work through such late hours. None of our present labs use modern technology with respect to computerized data acquisition and analysis; our advanced labs use some digital multimeters and timers to perform the labs; although there is much inherent value in the students' using analog measurement methods with devices such as stopwatches, meter sticks, thermometers, calipers, micrometers, and balances, more of the labs should have digital data acquisition capabilities in order to introduce the students to more modern lab measurement methods. The digital Tektronix Oscilloscopes would be an asset for all the advanced labs, as the students at the advanced levels could more effectively make measurements in the Physics labs involving studies and investigations in electricity and

magnetism. These digital Tektronix Oscilloscopes, combined with the other data acquisition equipment that we presently use, would greatly improve our overall laboratory program.

2. Indicate how the content of the department/program's latest Efficacy Report and/or current EMP supports this request and how the request is tied to program planning. (*Directly reference the relevant information from your latest Efficacy Report and/or current EMP in your discussion.*)

One of the goals of the Physics/Astronomy Department as stated in the EMP is to "Update the Physics/Astronomy labs and their equipment needs". Further, on pg. 31 of the Physics/Astronomy Program Efficacy Report of Spring 2016, it states that "In our Physics/Astronomy labs, the department has begun to incorporate digital scales and digital electric multimeters to improve accuracy and facilitate learning; more equipment and lab updates are planned..."; on pg. 30 of this Efficacy Report: "Our level of permanent funding is often not consistent with what is required to run this program by way of lab equipment, lecture demonstration equipment, supplies, and what is used and/or consumed on a regular basis in lecture and lab". Finally, on pgs. 31-32 of this Efficacy Report: "The department is continuing the exploration of the use of Fourier Systems Data Logging Kits in the Physics and Astronomy labs if funding becomes available..."; and "In our Physics/Astronomy labs, the department has begun to incorporate digital scales and digital electric multimeters to improve accuracy and facilitate learning; more equipment and lab updates are planned, budget considerations allowing." The present oscilloscopes that the Department uses in its advanced labs are very, very old and are rapidly falling into disrepair; the Department would like to make use of the digital Tektronix Oscilloscopes in our advanced Physics courses/labs so that students will have the advantage of being able to make lab measurements in the electricity and magnetism labs with more accurate and more reliable electrical testing lab equipment. With these lab equipment improvements, the Department will be in a better position not only improve the present advanced Physics labs, but also to choose future appropriate equipment to be able to further update our Physics and Astronomy labs, both at the introductory and advanced course levels.

3. Indicate any additional information you want the committee to consider (*for example, regulatory information, compliance, updated efficiency, student success data, planning, etc.*).

The Science Division had ranked this Equipment request as 1st of all the Science division equipment requests in Fall of 2016.

4. Indicate any related costs (including any ongoing maintenance or updates) and department/program's plans to support those costs.

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5. What are the consequences of not funding this equipment?

Without the new equipment, the Physics/Astronomy program will suffer as many of our labs will continue to be outdated, more present labs will fall into disrepair, students will not have the opportunity to experience modern lab measuring and data acquisition techniques, and student/instructor safety, relative to the extension of evening lab hours, may be compromised.