

INSTRUCTIONAL EQUIPMENT REQUEST

2018-2019

SEP 13 2018

Internal Use
IE #: Fall-42
Total \$: _____

Requester Name: LEVEL / LOzano

Division Name: SITEM
Las Positas College

SUMMARY INFORMATION

Title of Item: Tektronix AFG1062 Arbitray Function Generator

Equipment Location Building: 1800

Room: 1822

Location Comments:

Engineering Lab

SECTION 1: EQUIPMENT DESCRIPTION

The equipment is: ☐ A Replacement ☐ An Upgrade ☒ New Equipment/Technology

Describe the specific equipment requested and how it will be used to replace, upgrade or provide new technology to LPC from what is currently in place:

LPC - RECEIVED

SEP 28 2018

ADMINISTRATIVE SERVICES

SECTION 1: EQUIPMENT DESCRIPTION (contd)

If applicable, describe the legal requirement, mandate, or safety concern for purchase of this equipment, making specific reference to the legal requirement or regulation:

There are no applicable legal requirement, mandate or safety concern.

SECTION 2: LPC MISSION STATEMENT AND LPC PLANNING PRIORITIES

LPC MISSION STATEMENT:

LPC is an inclusive learning-centered institution providing educational opportunities and support for completion of students' transfer, degree, basic skills, career-technical, and retraining goals.

LPC PLANNING PRIORITIES:

- ❖ Accreditation: Establish regular and ongoing processes to implement best practices to meet ACCJC standards.
- ❖ Curriculum: Provide necessary institutional support for curriculum development and maintenance.
- ❖ Tutoring Services: Expand tutoring services to meet demand and support student success in Basic Skills, CTE, and Transfer courses.
- ❖ Professional Development: Coordinate available resources to address current and future professional development needs of faculty, classified professionals, and administrators in support of educational master plan goals.

Specify how the equipment supports *LPC's Mission Statement* and *Planning Priorities*:

Providing engineering students with solid practical lab skills using more current electronic instrumentation technologies is important and essential for students transferring to a 4 year degree program. Electronic instrumentation technology changes continuously so it is important to keep the lab program as current as fiscally possible in order to provide students with current and competitive skills.

SECTION 3: EDUCATIONAL ITEMS – PROGRAM REVIEW

Specify the educational programs this equipment supports:

Engineering and Engineering Tech
Engr12 Intro engineering (limited use)
Engr44 Circuits
Future Engineering Tech Courses

If this equipment is included in your Program Review, please include the exact wording. If equipment is not included, explain why:

Specific Equipment is not stated in our program review. However, the need for increasing and upgrading equipment is:
From program review:

Section C line 2.

Continue to improve/maintain laboratory equipment, with specific emphasis on the ENGR 46 (Materials of Engineering) [Engr 44 Circuits] lab.

It is difficult to know exactly what equipment is need as the department is growing at a faster rate than in previous years, and new innovations with respect to how we run the labs are continuously evolving.

SECTION 4: TEACHING AND LEARNING

Describe in detail the impact this equipment will have on teaching:

There are several existing Engineering 44 lab exercises involving operational amplifiers that require the use of function generators. The scope of these lab exercises is somewhat limited by the capability of the existing function generators. Having a wider variety of waveforms available will enhance the lab demonstrations and exercises to broaden students experience with more complex and current lab equipment.

These arbitrary function generators will also enhance this year's radio receiver project because these function generators are capable of AM and FM modulation. This capability will provide an opportunity for a more in-depth exploration of amplitude and frequency modulation.

Describe in detail the impact this equipment will have on learning:

Students will not only get the opportunity to learn how to operate and utilize much more current electronic instrumentation, they will be able to explore more advanced circuit concepts, such as the integration of complex waveforms.

Each academic year, this equipment will impact: 2 # of classes/sections 60 # of students

SECTION 5: OUTCOMES (SLOs)

Using your documented SLOs, specify how the equipment will enable student learning outcomes to be achieved.

SLO - "While working in groups, utilize electronic equipment to physically measure and analyze electrical circuits"

This new equipment will provide an opportunity for the students to utilize more current electronic equipment, providing them with knowledge and skills that will be more competitive for future educational and employment opportunities

SLO - "Upon completion of Engr 44, students will be able to demonstrate their ability to analyze 1st-order RL and RC electrical circuits, including analysis of boundary conditions"

These function generators will enhance the opportunities to explore first order circuits, e.g. operational amplifier circuits with more complex waveforms.

What are the consequences related to learning outcomes if request is not funded?

Students will not get the experience and knowledge obtained from utilizing more current laboratory instrumentation. We also would not be able to come up with new or innovative experiments that will engage the students.

SECTION 6: TOTAL COST OF OWNERSHIP (FINANCIAL & SUSTAINABILITY)

What is the potential life span of the requested equipment?

8 - 10 years

If new storage is needed what are the storage requirements, location requirements, and costs associated with the new equipment: (NOTE: Specific storage costs should be detailed in the "Part A: Initial Start-up Costs" section below.)

no new storage is needed

If this equipment replaces old equipment but the old equipment will not be retired, are there on-going storage requirements, location requirements, and costs associated with the old equipment? If so, provide details.

No new storage required to retain old function generators

What will be required to maintain the equipment, such as regular servicing or upkeep? (Specific on-going costs should be detailed in the "Part B: On-Going Annual Operating Costs" sections below as applicable.)

There no maintenance required on a regular basis.

Explain how this equipment meets or exceeds basic sustainability efforts and/or provides renewable resources to the college:

The equipment is a bit more energy efficient than older models making a small impact with regard to energy uses.

SECTION 6: TOTAL COST OF OWNERSHIP (contd)**Part A: Initial Start-up Costs**

<u>Item</u>	<u>Cost</u>	<u>Comments</u>
Equipment or Materials	8864.20	
Taxes (9.5%)	673.95	
Shipping or Delivery Charge	100	Estimate
Installation Costs *	0	
Miscellaneous Costs:		
Facilities Modifications		
Operator Training		
Maintenance & Repair Training		
Storage		
Other:		
Vendor Discount	1770	Education Discount
Grand Total:	7768.15	

*For items requiring installation, requesters are required to check with District Purchasing (Victoria Lamica) regarding District policies.

Part B: On-Going Annual Operating Costs

<u>Item</u>	<u>Cost</u>	<u>Comments</u>
Annual Service or Maintenance	0	
Estimated Parts Replacement Per Year	0	
Outside Standardization or Calibration Costs	0	
Storage Costs	0	
New Supply Costs	0	
Miscellaneous Costs:	0	
Maintenance & Repair Labor	0	
Other:		
Annual Operating Costs:	0	

Indicate the source of funding for on-going annual operating costs:

SECTION 6: TOTAL COST OF OWNERSHIP (contd)

Part C: Incremental Labor Costs

OPERATOR:

Indicate the key operator: Lab Tech / Students

Is this in their current scope of duties? Yes

Indicate cost to train key operator (include in Initial Start-up Costs above): 0

Indicate amount of time per month key operator will use equipment: 6/mo

MAINTENANCE & REPAIRS:

Indicate the person performing maintenance and repairs: Lab Tech

Is this in their current scope of duties? Yes

Indicate cost to train for maintenance and repairs: 0

Indicate amount of time per month maintenance will be required: 0

APPROVALS

Funded requesters will be expected to respond to a brief RAC feedback survey by a requested deadline. Requests for computer-related equipment and printers must be reviewed by the LPC IT Department.

Signatures:

[Signature]
Requester

9/12/2018
Date

IT Department (if required)

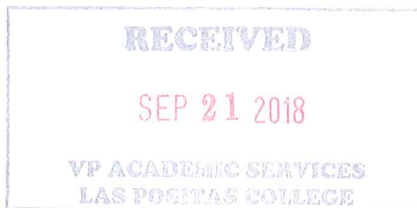
Date

Nan 17
Dean/Manager

9-13-18
Date

[Signature]
Vice President

9/21/18
Date



2377 Crenshaw Blvd., Suite 210
TORRANCE CA 90501-3347

QUOTATION

Chabot-Las Positas Community College Dis
7600 DUBLIN BLVD FL 3
DUBLIN CA 94568-2909
USA

ATTN: Andrew Lozano
alozano@laspositascollege.edu

Employee Resp:	Ken Barnard 80sales@conres.com (310)782-1522
Fax#	
Sales Contact:	Hank Haight hhaight@conres.com
Fax#	

QUOTE NO. 20162879		QUOTE DATE 09/07/2018	CUSTOMER NO. 128827	SALES GROUP Torrance, CA	VALIDITY PERIOD 09/07/2018 - 10/07/2018	
ITEM	QTY	PRODUCT	DESCRIPTION		UNIT PRICE	AMOUNT
0010	10	AFG1062	*** New Equipment Sale ***		886.42	8,864.20
0011	10		Arbitrary/Function Generator: 2Ch 60MHz			
			Educational Discount *		177.00-	1,770.00-
			* Subject to manufacturer's terms and conditions.			
			Total w/o Taxes, Freight, Ins.			7,094.20

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