

October 15, 2018

DR. TRUONG NGUYEN  
Chair  
0407

**Subject:        *Electrical and Computer Engineering  
Report 2018-10***

The final report for Electrical and Computer Engineering 2018-10, is attached. We would like to thank all members of the department for their cooperation and assistance during the review.

Because we were able to reach agreement regarding management action plans in response to the audit recommendations, a formal response to the report is not requested. The findings included in this report will be added to our follow-up system. We will contact you at the appropriate time to evaluate the status of the management action plans.

UC wide policy requires that all draft reports be destroyed after the final report is issued. We also request that draft reports not be photocopied or otherwise redistributed.

David Meier  
Director  
Audit & Management Advisory Services

Attachment

cc:     Judith Bruner  
       Alexander Bustamante  
       Stephanie Navrides  
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       Steve Ross  
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# UC San Diego

## AUDIT & MANAGEMENT ADVISORY SERVICES

Electrical and Computer Engineering  
Report No. 2018-10  
Oct. 2018

### FINAL REPORT

**Performed By:**

Gabor Herman, Auditor  
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**Approved By:**

David Meier, Director

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ATTACHMENT A – Audit Results by Business Office Functional Process

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## I. EXECUTIVE SUMMARY

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Audit & Management Advisory Services (AMAS) has completed a review of Electronic and Computer Engineering (ECE) department as part of the approved audit plan for Fiscal Year 2017-18. The objective of our audit was to review ECE business practices and internal controls to evaluate whether they provided reasonable assurance that operations were effective, and compliant with University and campus policies and procedures, and resulted in accurate financial reporting.

We concluded that the internal controls in ECE were adequate to provide reasonable assurance that operations were effective, performed in compliance with University policy, and resulted in accurate financial reporting. However, we identified a few opportunities for improvements, and the ECE Business Office has agreed to implement corrective actions as summarized below.

**A. Control Process Documentation**

The Business Office will document key internal control processes.

**B. Operating Ledger Transaction Verification**

The Business Office will ensure that sampled items are reconciled timely.

**C. Effort Reporting**

ECE will formalize effort reporting oversight procedures to enhance monitoring at the department level.

**D. Asset Management**

Oversight has been enhanced as a new Operations Manager position has been created to oversee the Equipment Manager.

The Department's Equipment Manager and administration will formalize the equipment inventory process.

ECE will conduct a walkthrough of the facilities to check for missing UCID tags, and an effort will be made to complete asset records including serial numbers.

The Department will formalize equipment fabrication procedures.

The Equipment Manager Alternate will be provided with the Campus Asset Management System (CAMS) training and access.

**E. Express Card Administration and Transactions**

Express Card management and transaction review will be improved.

**F. Event Documentation and Allowability**

Expenditures will be consistently reviewed for purpose and funding.

**G. Travel Expenditure Substantiation**

Travel expenditure review will be improved.

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## II. BACKGROUND

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Audit & Management Advisory Services (AMAS) has completed a review of the Electronic and Computer Engineering (ECE) as part of the approved audit plan for Fiscal Year 2017-18. This report summarizes the results of our review.

ECE is one of six departments in the Jacobs School of Engineering. The Department offers a variety of undergraduate and graduate education opportunities, including PhD and master's degree programs. For fall of 2018, ECE expects to have 1,255 undergraduate students and 880 graduate students.

As of July 1, 2018, ECE had 53 ladder rank faculty and two teaching professors, supported by a staff of 35. In Fiscal Year 2016-17, the Department managed a total budget of approximately \$39 million including \$18.7 million (48%) in general funds, \$12 million (31%) in Federal funds, and \$ 8.4 million (21%) from other funds.

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## III. AUDIT OBJECTIVE, SCOPE, AND PROCEDURES

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The objective of our review was to evaluate whether internal controls and sound business practices were in place to provide reasonable assurance that operations were effective, in compliance with University policies, and resulted in accurate financial reporting. The scope of our review consisted of financial activities in the period July 1, 2016 through December 31, 2017.

In order to achieve our objective, we performed the following:

- Reviewed system-wide and local policies, including, but not limited to:
  - University of California (UC) Business and Finance Bulletin (BFB) G-28: Travel Regulation,
  - UC BFB BUS-29; *Management and Control of University Equipment*,
  - UC BFB BUS-43; *Materiel Management*,
  - UC Accounting Manual,
    - P-415-10: *Capitalization of Property, Plant, and Equipment*,
    - P-415-32: *Plant Accounting: Fabricated Equipment*,
  - UCOP Contracts and Grants Manual, Chapter 5, *Cost Sharing*,
  - Office of Management and Budget (OMB) Circular A-21, and
  - OMB's Uniform Administrative Requirements (OMB 2 CFR)
- Interviewed the following:
  - The Department Management Services Officer (MSO);
  - The Director of Fiscal Affairs;
  - The Department Equipment Manager / Fund Manager; and
  - The Department Equipment Manager alternate,
- Reviewed Departmental policies and procedures for key business processes,
- Reviewed the Department's operating ledger,

- Reviewed Department Administrators' responses to internal control questionnaires and the separation of duties matrices,
- Evaluated a sample of awards with respect to sponsor invoicing and cost share requirement, where applicable,
- Traced the effort reporting data for three researchers to the payroll cost allocations of the applicable awards,
- Reviewed Express Card administration and tested a sample of transactions,
- Reviewed a sample of Electronic Payroll Expense Transfers (EPETS) and Electronic Non-Payroll Expense Cost Transfers (ENPETS),
- Tested a sample of purchase transactions,
- Reviewed Express Card administration practices and tested a sample of transactions; and,
- Tested a sample of travel and entertainment event transactions.

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## IV. CONCLUSION

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Based on our review, we concluded that internal controls in ECE were adequate to provide reasonable assurance that operations were effective, performed in compliance with University policy, and resulted in accurate financial reporting. ECE has a seasoned business office leadership team that is dedicated to effective management of operations.

We observed that administrative staff worked diligently to ensure that business processes were as efficient as possible considering limited resources. However, we did identify opportunities for improvement in a number of areas. These issues are discussed in the balance of this report.

**Attachment A** provides the results of the business process review. Specific management actions planned or in process for those areas were rated "improvement needed" or "improvement suggested," as noted in the attachment.

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## V. OBSERVATIONS REQUIRING MANAGEMENT ACTION

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|   |  |
|---|--|
| <b>A.</b>   | <b>Control Process Documentation</b>   |
| During our review we noted that some key internal control processes were not documented in the ECE Fiscal Processes document. |  |
| <b>Risk Statement/Effect</b>  |  |
| The absence of key internal control steps in the documentation may result in missing internal controls where needed.          |  |
| <b>Management Action Plan</b>   |  |
| A.1   | The Business Office will enhance key control processes in the ECE Fiscal Processes document. |

**A. Control Process Documentation – Detailed Discussion**

During our review, we observed that ECE had not documented some key control processes in the Fiscal Processes document. The processes that were not described in the document were: Operating Ledger Transaction Verification, Overdraft Funds Review, Effort Reporting, and Physical Inventory. Statement of Audit Standards (SAS) 112 states that key internal control activities are to be documented in order to demonstrate that internal controls have been implemented. Documentation formalizes procedures so that they may be consistently carried out over time, and are available for cross-training, and staffing transitions. Without formally documented processes, there is increased risk that controls will not be completed consistently and completely.

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| <b>B.</b>  | <b>Operating Ledger Transaction Verification</b>   |
| ECE has not reviewed all operating ledger transactions selected by the campus Transaction Sampling system in a timely manner.  |  |
| <b>Risk Statement/Effect</b>   |  |
| Incomplete reconciliation of selected samples increased risk that transactions were non-compliant with University policy and/or federal requirements (Uniform Guidance). |  |
| <b>Management Action Plan</b>  |  |
| B.1  | The Business Office will ensure that sampled items are reconciled timely. Specifically, the Fiscal Manager will run the Transaction Sampling Manager Report on a monthly basis to ensure that sampled transactions are reconciled. |

**B. Operating Ledger Transaction Verification – Detailed Discussion**

ECE had not completed the entire operating ledger transaction sample, covering select periods for two of its 11 organizations. The main organization (416208), for November and December 2017, had 278 transactions sampled, and 262 transactions were reviewed. Organization 786208, for the period from July – December 2017, had 126 transaction sampled of which 125 were reviewed.

As a practical matter, ECE also completes a 100% transaction review. The process is initiated by two student workers who start with a review of prior months operating ledger. They attempt to reconcile transactions using a set of parameters which they recently documented and has not yet been reviewed by departmental administration. The transactions that remain unreconciled are sent to the respective fund managers for completion. There is no process to assure that the results of this work are used to complete or update the Transaction Sample, which remains incomplete.

An incomplete reconciliation leads to an increased risk that transactions were non-compliant with

University policy and/or federal requirements (Uniform Guidance). For federal awards, non-compliant transactions may lead to disallowance of expenditures in the event of a federal audit.

ECE utilizes the campus transaction sampling process for monthly review of non-payroll expenditures in the operating ledger. Transaction sampling is an operating ledger review process overseen by the Controller's Office in which the system randomly selects financial transactions for review during the monthly operating ledger reconciliation and account validation process. This sampling process is intended to reduce the ledger review workload versus a 100% reconciliation of the ledger. Department participation is contingent on the timely reconciliation of all sampled items. Ledger review, whether accomplished via 100% review or based on statistical sampling, is a key internal control to ensure that expenditures are appropriate and supported by adequate documentation.

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| <b>C.</b>  | <b>Effort Reporting</b>   |
| We noted nine instances of overdue effort reports.   |   |
| <b>Risk Statement/Effect</b>   |   |
| The absence of certified effort reports puts payroll and benefit expenses charged to federal awards at risk in the event of a federal audit. |   |
| <b>Management Action Plan</b>  |   |
| C.1  | The ECE will formalize effort reporting oversight procedures to improve effort report monitoring at the department level. This will include steps taken to notify faculty that they need to complete effort reports, processes for tracking completion (via ECERT and QueryLink), processes for elevating overdue reports to the Chair and MSO, and consequences for non-completion). |

### **C. Effort Reporting – Detailed Discussion**

Nine ECE effort reports for the ECERT reporting period of January – June 2017 were uncertified.

The University of California has implemented a semi-annual effort reporting process. The Electronic Certification of Effort Reporting Tool (ECERT) generates reports for each employee which lists all the employee's federal research funding. Once the effort reporting period is closed, Principle Investigators (PIs) or other persons with first-hand knowledge about employee's work may then make adjustments based on the work completed and then certify the effort report.

ECERT retains data for two years, and has reporting capability for monitoring completion. In addition, QueryLink, a web-based tool that allows authorized staff to retrieve information from UCSD's Data Warehouse, also features effort reporting queries that may also be used to monitor compliance with effort reporting requirements.



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| <b>D.</b>  | <b>Asset Management</b>  |
| During our review, we noted some asset management activities that were not conducted in strict compliance with University Policy.                          |  |
| <b>Risk Statement/Effect</b>   |  |
| Weaknesses in asset management (accounting, inventory, and fabrication activities) increase the risk that resources are inaccurately tracked and reported. |  |
| <b>Management Action Plans</b>   |  |
| D.1  | Oversight has been enhanced as new Operations Manager position has been created who will oversee the Equipment Manager.                                    |
| D.2  | The Department's Equipment Manager and administration will formalize the equipment inventory process.  |
| D.3  | ECE will conduct a walkthrough of the facilities to check for missing UCID tags, and that an effort be made to complete asset records with serial numbers. |
| D.4  | The Department will develop and formalize fabrication administration procedures.   |
| D.5  | The Equipment Manager Alternate has been provided with the Campus Asset Management System (CAMS) training and access.                                      |

#### **D. Asset Accountability – Detailed Discussion**

Inventory processes, as practiced and described by the ECE equipment manager, did not call for reporting of overall results to Department Management. Per Policy BUS-29, Section III, A. and UCOP Contracts and Grants Manual, Chapter 15-300, *(t)he head of the custodial department (i.e. the department that has custody of the equipment) and the Principal Investigator have primary responsibility for the care, maintenance, physical inventory, control, and disposition of inventorial equipment and other University or extramurally-funded property.*

The inventory process, as described, contained no test procedures to provide for a reasonable chance of finding any errors that research assistants reported as part of their equipment reporting.

During our equipment inventory testing we observed that four of the ten items selected featured serial numbers, whereas none was reported in the CAMS record that corresponded to these items. In one location, the same type and model of the equipment selected for testing was observed without UCID tags. A further CAMS review indicated that a newly acquired vehicle has a CAMS record that is also missing a serial number.

Inventorial equipment costing more than \$5,000 should be tracked through UCSD CAMS system. Per Policy BUS-29, equipment records are incomplete when a serial number is not recorded. Having an

accurate serial number record is essential for positive identification when UCID tags fall off and maintenance is request as per service contract. University Policy (BUS-29) further requires that all vehicles, regardless of costs, are to feature a Vehicle Identification Number (VIN).

Per UC Accounting Manual P-415-32 Plant Accounting: Fabricated Property, cost for fabrication projects that extend beyond the fiscal year-end must be capitalized annually during the University’s fiscal closing process. Fund managers are responsible for reviewing charges to contracts and grants to ensure that correct expenses are included in the cost of fabrication. Per Policy BUS-29, equipment under fabrication should be identified and tracked. Progress should be recorded periodically, either as it occurs or on a predetermined cycle of not less than annually.

At present, ECE fabrications are tracked in CAMS and non-inventorial number. There are no procedures to track and report on fabrication projects although the department spends twice as much on fabrications than it does on other equipment purchases.

We also noted that the Department’s Equipment Manager Alternate has not received CAMS access or training.

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| <b>E.</b>   | <b>Express Card Administration and Transactions</b>                                   |
| We noted that the department’s Express Card Department Administrator (ECDA) is tasked with overseeing 22 cardholders, that policy violations had taken place, and that training is overdue. |   |
| <b>Risk Statement/Effect</b>  |   |
| Weaknesses in ECE Express Card administration increased the risk of non-compliance with policy.   |   |
| <b>Management Action Plans</b>  |   |
| E.1   | A supplemental ECDA has been trained to assist with transaction review.               |
| E.2   | All personnel will be brought up to date on training to be current with requirements. |

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| <b>E. Express Card Administration and Transaction – Detailed Discussion</b> |
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In the transaction sample that we reviewed, we noted one instance where a single transaction exceeded the \$5,000 individual transaction limit. We noted two other transactions that appear related, and when combined appear to be a split purchase that exceeded the transaction limit. One transaction did not feature an invoice to substantiate the transaction. In addition, ECE has one ECDA to oversee 22 cardholders. With respect to training, the ECDA and 18 cardholders were overdue on their annual training.

The Express Cards system is an automated process which eliminates most paperwork previously associated with low-value purchase orders. For transactions below \$5,000 the primarily electronic process eliminates purchase orders, statements and checks. At each transaction the cardholder

authorizes both the purchase and the payment for goods and services, a process that is supported by the BUS-43 requirement that both cardholders and ECDA complete mandatory initial and annual refresher training.

Cards are issued upon completion of initial training and completion of the *Express Card Holder Agreement* form. The form outlines compliance with policy, violations and consequences. It further references BUS-43 and Blink with respect to card use policy. The agreement represents a re-delegation of purchase authority from the campus Materiel Manger to the undersigning UCSD employee; the cardholder.

Express Card Policy violations include spending more than \$4,999 in whole or in part by splitting the purchase into multiple transactions. Maximum spending per cardholder should generally not exceed \$10,000 per month, although ECE has received central approval for higher limits for four ECE Express Cardholders. Violations to the agreement or to express card policy may range from a written warning, additional mandatory training to cancelation of purchasing authority and termination. These specifics are covered in the cardholder agreement, on Blink and in the express cardholder training module.

The ECDAs are ultimately responsible for reviewing all transactions. If there are more than ten Express Cards assigned to a single ECDA, at least one transaction reviewer must be designated to assist in the review process. Because ECDAs bear review responsibility, the best practice is to train more than one ECDA and assign more than one transaction reviewer to a cardholder to serve as backup.

Regarding transaction documentation, it is the Cardholder's responsibility to either provide purchase documentation to the ECDA or electronically attach and itemized receipt via the Express Card Attachment Tool. Incomplete or missing documentation is a violation of procedure, delays transaction review, and increases the risk of inappropriate use.

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| <b>F.</b>   | <b>Event Documentation and Allowability</b>   |
| We noted instances where awards were charged event expenses that were not in the budget; one instance where the business purpose of the event was not documented; and other instances of overdue expense reporting. |   |
| <b>Risk Statement/Effect</b>  |   |
| Charging research awards for unbudgeted events, and non-compliance with University policy, may place the expenses at risk in the event of a federal audit.  |   |
| <b>Management Action Plans</b>  |   |
| F.1   | The ECE Fiscal Manager will clarify the transaction approval process calling for Fund Managers to validate provision for event expenditures. The unbudgeted event for the non-FDP award will be moved to a discretionary fund source. |
| F.2   | The ECE Fiscal Manager will clarify the existing approval processes for Fund Manager to emphasize that business purpose must be identified for every event and that expenditure must be submitted timely.                             |

## F. Event Documentation and Allowability

During our review, we noted that two federal awards were charged unbudgeted event expenses in the form of business meals. One of these awards was not a Federal Demonstration Project (FDP) award, and as a result, the PI was not allowed to re-budget for the event without agency approval. Our review of each award's proposal, the award budget and contract did not identify a budget for the expense.

We observed four instances out of a sample of nine events reviewed, where the submission of actual expenditures was after the 21 day requirement. The requirement is documented in Blink and the policy strives to ensure that all expenditures, regardless of nature, are reported timely.

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| <b>G.</b>  | <b>Travel Expenditure Substantiation</b>  |
| During our review we observed one travel event with expenses that were not substantiated with supporting documentation.  |   |
| <b>Risk Statement/Effect</b>   |   |
| Reimbursement for travel related expenses without supporting documentation violates University policy (BFB G-28), and may result in a taxable transaction to the recipient per Internal Revenue Service regulations. |   |
| <b>Management Action Plans</b>   |   |
| G.1  | The ECE Fiscal Manager will clarify the travel approval process for Fund Managers regarding host gifts. The documentation for the actual expenditures will be secured to support the transaction. |

## G. Travel Expenditure Substantiation – Detailed Discussion

On a travel event reviewed, a host gift was claimed without a receipt. Although the value of the gift claimed was within G-28 limits; however, gift expenses for more than \$25 must be substantiated with receipts.

Per policy, when a traveler lodges with a friend or relative while on official business for the University, a non-cash gift, such as flowers, groceries, or a restaurant meal, may be provided to the host. The actual cost of such a gift may be reimbursed up to \$75. Policy also states that under IRS regulations, a receipt must be provided for gifts costing \$25 or more. Only one gift per stay may be provided to a host.

**Electrical and Computer Engineering  
Audit Results by Business Office Functional Process  
Audit & Management Advisory Services Project #2018-10**

| Business Office Process                           | AMAS Audit Review Procedure         |   |  |  | Risk & Controls Balance Reasonable (Yes or No) | Audit Conclusion <sup>1</sup> | Comments  |
|---|-------------------------------------|---|--|--|--|-------------------------------|---|
|   | Analytical Review of Financial Data | Internal Control Questionnaire/ Separation of Duties Matrix | Process Walk-through (Ltd Document Review) | Transaction Testing (Sample Basis)   |  |                               |   |
| Timekeeping & Payroll                             | √                                   | √   |  | Reviewed timesheets and select absence slips.  | Yes  | Satisfactory                  | Supporting documentation was maintained.  |
| Transaction Processing - Non-Payroll Expenditures | √                                   | √   | √  | Reviewed randomly selected transactions; traced to supporting documents.               | Yes  | Improvement Needed            | Express Card administration and training should be brought into compliance with BUS-43. |
| Travel  | √                                   | √   | √  | Reviewed 8 trips totaling \$43,380; traced to vouchers (TEV's) & supporting documents. | Yes  | Improvement Needed            | ECE should document support for travel expenditures.                                    |
| Events  | √                                   | √   | √  | Reviewed nine events for documentation, and funding allowability.                      | Yes  | Improvement Needed            | Funding sources should be validated and business purpose consistently documented.       |

<sup>1</sup> Scale: Satisfactory - Improvement Suggested - Improvement Needed - Unsatisfactory

**Electrical and Computer Engineering  
Audit Results by Business Office Functional Process  
Audit & Management Advisory Services Project #2018-10**

| Business Office Process                       | AMAS Audit Review Procedure         |   |  |  | Risk & Controls Balance Reasonable (Yes or No) | Audit Conclusion <sup>1</sup> | Comments  |
|---|-------------------------------------|---|--|--|--|-------------------------------|---|
|   | Analytical Review of Financial Data | Internal Control Questionnaire/ Separation of Duties Matrix | Process Walk-through (Ltd Document Review) | Transaction Testing (Sample Basis)   |  |                               |   |
| Operating Ledger Review & Financial Reporting | √                                   | √   | √  | Examined operating ledgers and financial reports. Reviewed control tracker for applicable business processes and timely certification. | Yes  | Improvement Needed            | ECE should ensure that sampled transactions are reconciled timely, that control tracker certifications are timely, and reflect documented key controls per SAS 112. |
| Contract & Grant Activity (Post Award Admin.) | √                                   | √   | √  | Reviewed 3 awards totaling \$14.7 million; evaluated journal vouchers, non-payroll and payroll expenses.                               | Yes  | Satisfactory                  | Controls over federal contract and grant activity appear adequate.  |
| Effort Reporting                              | √                                   | √   | √  | Reviewed ECERT Reports and data; traced to Payroll Expenditure Transfers.  | Yes  | Improvement Needed            | ECE should formalize effort report monitoring at department level per QueryLink.  |
| Payroll Expenditure Transfers                 |                                     | √   |  | Verified adjusted payroll charges per operating ledgers & distribution of payroll  | Yes  | Satisfactory                  | The purpose for the transfers was explained.  |

**Electrical and Computer Engineering  
Audit Results by Business Office Functional Process  
Audit & Management Advisory Services Project #2018-10**

| Business Office Process                      | AMAS Audit Review Procedure         |   |  |   | Risk & Controls Balance Reasonable (Yes or No) | Audit Conclusion <sup>1</sup> | Comments   |
|--|-------------------------------------|---|--|---|--|-------------------------------|--|
|  | Analytical Review of Financial Data | Internal Control Questionnaire/ Separation of Duties Matrix | Process Walk-through (Ltd Document Review) | Transaction Testing (Sample Basis)  |  |                               |  |
|  |                                     |   |  | expense reports (DOPE's).   |  |                               |  |
| Non-Payroll Expenditure Transfers            |                                     | √   |  | Reviewed timeliness, and business justifications for reasonableness.  | Yes  | Satisfactory                  | The purpose for the transfers was explained.   |
| Asset Management – Equipment & Fabrications. | √                                   | √   | √  | Reviewed inventory procedures, equipment and fabrication records in CAMS. Validated a sample of CAMS records to the equipment in use. | Yes  | Improvement Needed            | ECE should formalize asset management procedures per BUS-29 and UC Accounting Manual P-415-32, and ensure CAMS records are complete. |
| Information Systems Environment              |                                     |   |  | N/A   | N/A  | N/A                           | Information Systems are management by Jacobs School of Engineering.  |
| Cash and Recharge                            |                                     |   |  | N/A   | N/A  | N/A                           | ECE does not have cash accounts or recharge any activities.  |