Industrial Electronics Department - Advisory Committee – Second Meeting AY 23-24

April 12, 2024
West Campus – Sierra Hall 114
Time 3:00 PM

Agenda - MINUTES

1. Refreshments – Social.

Members of our community came and were greeted by the MJC family. The ELTEC department faculty prepared displays of student projects with an implementation of a PLC program (ELTEC 232,) a functional display of the ELTEC 221 class (Instrumentation) trainers, three motor control projects (ELTEC 223 and 226,) and a fully functional Wiring Aisle with the complete projects of students in ELTEC 225 (Residential Wiring) and ELTEC 229 (Commercial and Industrial Wiring.) One of the ELTEC students – Felipe Gonzales – stay around the projects ready to answer questions of the attendees.

2. Welcome – Introductions.

In attendance from industry:

- Antonio De La Torre (Sonoco – Engineering Department Manager)
- Greg Gallagher (Advanced Technology Consultants - Representative)
- Herman Roest (Hilmar Cheese – E&I Coordinator)
- Jessica Saldana (Cal-Cat Industries – General Manager)
- Johnny Karaguez (Technician)
- Le Truong (Gallo Glass - Technician)
- Linda Dalla (Hilmar Cheese – Maintenance Trainer)
- Lucio Salazar (Grower Direct Nut – Company Owner)
- Marc Percival (Hilmar Cheese - Strategic Operations Manager)
- Walter McClung (Hilmar Cheese – Maintenance and Facilities Manager)

In attendance from education and workforce development

- Cecelia Hudelson (MJC Technical Education, Business, and Public Safety – Dean)
- Doug Murdock (LLNL – Retired – M/MJAC)

- Guadalupe Sanchez (MJC Workforce Development Specialist)
- Jon Kropp (MJC – INTEC/ELTEC Faculty – Retired)
- Kevin Fox (Stanislaus COE – CTE Director)
- Liliana Pulido (MJC Career Program Planning – Director)
- Mike Wright (Sonoco – Retired Plant Manager – M/MJAC)
- Rebecca (MJC - Senior Administrative Secretary)
- Richard Carnes (MJC Community Lifelong Learning & Workforce Development Director)

In attendance for the ELTEC department

- Adrian De Angelis – Faculty
- John Coate – Faculty
- Michael Ryun – Faculty

3. Department News.
    - Strong Workforce Perkins IV award

From 2022-2023 funding - $1.4M in FESTO training equipment, new HMI/Servos Trainers, update of programmable controllers processors, and new computers with updated software for ELTEC 232, ELTEC 234, and ELTEC 236.

- CP Labs – Three full Cyber-Physical 6-stations setting with automatic delivery system, autonomous robot, and a UR robotic arm at each cyber-physical lab setting. – In process.
- Level 1 trainers: 3351 – Fundamentals of Electricity (25) – Delivered and in use, 8036 – Motor Controls (7) – In process, TP 1311 – Sensors (1) – Delivered, 3555 – PLC Allen Bradley (1) – Delivered, 3555-A – PLC Siemens (1) – Delivered, 46100 - Mechanical Drives Learning System (1) – Delivered, Pneumatic/Hydraulic trainer (1) – Delivered.
- HMI/Servos Trainers (10) – In Process.
- Update of programmable controllers processors – In Process.
- New computers with updated software for ELTEC 232, ELTEC 234, and ELTEC 236 – In Process.

From Carl D. Perkins & Strong Workforce Program - 2024-25 Funded Year - $115,069.80 in miscellaneous items (Detailed application attached.)

- New layout of classes for Industrial Electronics starting Fall 24

ELTEC 205 has been deactivated and replaced with ELTEC 236 for the Industrial Electronics CoA and AS degree.
ELTEC 265 and ELTEC 229 has been sent to curriculum review. ELTEC 265 to be increased from 1 credit to 2 incorporating lab-time. ELTEC 229 to be increased from 3.5 credits to 4 for a half-hour more of lecture and class-work time (not lab.) These modifications affect several programs and the changes were included in the overdue review of ELTEC courses and programs.
The upgrade of ELTEC 265 fulfils requests of earlier advisory committees.

- Our work on class schedules

During a recent meeting, counselors raised the limitation of accommodating students in entry-level classes for the lack of sufficient sections. As a consequence, the department will increase the number of sections for ELTEC 322 and ELTEC 223. Increasing the number of students taking ELTEC 322 fulfils requests of earlier advisory committees.
The Department is planning on offering four classes as entry-level classes affecting all programs year around (FA, SP, and SU). The classes are ELTEC 322, ELTEC 320, ELTEC 223, and ELTEC 265. To increase the number of sections offered avoiding the overlapping of classes in the limited space available to the Department, Sierra 114 is being reconditioned as the lab space for all programming classes. The ICS Automation Panels used for ELTEC 232 and ELTEC 234 are already deployed in Sierra 114.

- Program Review – Statistics

The department failed to present a Program Review for the 2021 cycle (AYs 21-22 and 22-23.) The department completed the Program Review for the 2023 cycle (AYs 22-23 and 23-24.) The analysis was made based on data provided by the Office of Planning, Research, Innovation, & Institutional Effectiveness (PRIIE) of Modesto Junior College. The findings of this research show good results in employability of our students, but poor results in retention and completion. See attachment of the presentation given to the Committee.

- State of projects

- FESTO

Incomplete. Delayed by administrative and logistics difficulties. To be completed this year.

New curriculum is being developed to be served with the new CP Lab equipment: ELTEC 238 – Automation Technology Integration (3 credits)

- HMI panels

Incomplete. Delayed by administrative and logistics difficulties. To be completed this year.

New curriculum is being developed to be served with the new CP Lab equipment: ELTEC 237 – Introduction to Motion Control (3 credits)

- New laptops w/software

Incomplete. Delayed by administrative and logistics difficulties. To be completed this year.

4. Challenges.
    - State budget and new funding formula.
    - The need for mini certificates
    - Presentation of new general arrangement for the program
        - Needed changes

All these items were addressed with a presentation (attached.) The conclusions were:

- The department has to increment the number of sections for classes that facilitate the flow though more advanced and demanding classes, and
- The ELTEC programs need to be reshaped to offer a better service to our students. The present format of programs difficult the flow of the students in a logical progression and is counterproductive for the purposes of retention and completion.

Both reforms will benefit …

- Students, because more of them will accomplish a full cycle of technical training, from modest to full technical tracks.
- Companies, because the department will be able to quantify the level of training of students not able to complete the full track of a major award, and by doing so facilitating hiring and training practices.

- The College, because it will be able to show an increasing level of retention and completions in compliance with the Guided Pathway project and the new funding formula from the CCCCO.
- The reform was presented as follows:
    - The three major certificates (Industrial Electronics, Electrician, and Electro-Mechanic) are divided into stackable sub-certificates that complete some level of training and provide orientation for the vocational preference of the students. The presentation made to the Committee was commented and illustrated with examples of sequence of courses.
    - An initial certificate made with four classes that are at entry-level and are part of the core for all three programs: ELTEC 322 (Technical Measurements,) ELTEC 320 (Electrical Safety,) ELTEC 223 (Industrial Electrical Components and Devices,) and ELTEC 265 (Troubleshooting Techniques.) It was explained that an important feature of this reform is to have ELTEC 265 upgraded from 1 credit to 2 credit incorporating lab time for the implementation of troubleshooting techniques such as Root Cause Analysis – theme requested in former advisory committee meetings.
    - The following certificates will incorporate more of the core classes and provide as electives those classes that later make the concentration of each of the specialties (Industrial Electronics – oriented to instrumentation and automation – Electrician – for maintenance and construction – and Electro-Mechanic – focused on industrial maintenance.) In that way, the following certificate will incorporate ELTEC 208 (Fundamentals of Electricity and Electronics – a conceptual physics class,) and ELTEC 226 (Motors, Controls, and Controllers;) and as electives, the list of classes will provide the basis of an orientation for automation, electrical technology, or electro-mechanic work. The completion of the certificate will improve the employability of the student at the same time of allow for experimentation with one of the fields. If the student decides that it is not of their liking, it incurs in a minimum cost for the reorientation of their effort.

- Following the same philosophy, the next level will bring the student closer to the major awards. In this third level ELTEC 229 (Commercial and Industrial Wiring) is part of this third stage of training, and it is combined with a set of electives that will define if the student wants to continue in an electrical/automation or in an electro-mechanical direction. That decision will be manifested in the selection of the elective classes. ELTEC classes to go in the direction of electrical/automation, and welding or machining classes in the direction of electro-mechanical work. Although it is possible to select an incorrect mix of classes for the purpose of reaching in optimal time a major certificate, the student greatly benefits with the building of skills that are recognized by the College as a certifiable level of technical skills, and by employers as a recognizable employable profile. The student always has the opportunity of produce corrections in the direction of their interests or opportunities with a minimum cost of time and tuition.
- The title of these sub-certificates must be representative of the level of skill the student has worked on. So, words such as “basic” and “assistant” put a limit to the rest of technical words used on the title. In that way, students and recruiters are well served with an honest description of the level of technical training received by the student.
- Special considerations were given to: 1) The conversion of the skill recognition awards (SRs) – Automation Technician – and – Electrical Installer – into certificates, also reformed into a program of stackable awards; and 2) the implementation of an associate degree as the academic continuation for these students with the Electrician and Electro-Mechanic certificates.

5. Floor open to discussion and comments.

The news and initiatives were well received. There was a general sense of approval, however some concerns were raised around …

- The character, usefulness, and value of some of the proposed reforms. E.g.: The Residential Electrician CoA (9 CUs)
- The place and implementation of Credits for Previous Learning (CPLs)
- The educational and fiscal impact of the proposed reforms

Please refer to the Raw Notes of the meetings for the detail description of questions, answers, and other interventions.

The reached consensus around the themes presented and the concerns expressed by the members of the Committee. To summarize the three points identify before ..

- The implementation of electrical installation classes respond to the need to expand the employability horizon beyond our industrial/manufacturing focus.
- The department will honor CPLs but also must abide by MJC policies in that respect.
- The educational impact of these reforms and new curriculum is to be seen, but it the response of the department to the conflation of a lack of enough people at acceptable levels of work readiness and the technological shift of Industry 4.0. There is no fiscal impact for all the measures announced.

The Committee was invited to vote and to include a commentary on the topics presented or in any other of their interest.

6. Vote.
    - Eleven votes: Two for the reform of Skill Recognition awards into Certificates and nine for the introduction of new awards.

The tally of the vote item by item to be presented individually in each request for a new certificate. As a summary for the purpose of this minutes enough to point that all eleven proposals were accepted. MJC faculty did not vote, and three attendees had to excuse themselves before the vote. From the sixteen committee members that stayed to the end, all approved the concept of the new stackable certificates.

The Advisory Committee unanimously expressed its approval for the implementation of a:

Associate Degree in Applied Electrical Technology

7. Next meeting tentative day. Adjourn.

November – TBD

Final Comment:

Several members of the Committee left positive comments and encouraging words for the department. Thank you very much!

Some members also left suggestions and themes that can be incorporated in the next meeting.

- Color code course numbers by certificate.
- Correlate IBEW apprenticeship training to MJC classes.
- Change “basic training” for “core competencies.”
- Themes of interest: Preventive and Predictive Monitoring Methods, Condition Based Monitoring, Vibration Analysis, Thermal Analysis, Asset Reliability Management.
- Courses that were highlighted as particularly useful: “**Instrument Devices**” (*perhaps is a reference to ELTEC 221 or ELTEC 223*) ; “**Motors, Controls, and Controllers**” (*ELTEC 226*) ; “**World of Electricity and Electronics**” (*ELTEC 208 – changed name to Fundamentals o Electricity and Electronics*) ; “**PLC classes**” (*ELTEC 232 and 234*) ; “**Troubleshooting Techniques**” (*ELTEC 265*).