CALIFORNIA STATE POLYTECHNIC UNIVERSITY, POMONA

ACADEMIC SENATE

ACADEMIC PROGRAMS COMMITTEE

REPORT TO

THE ACADEMIC SENATE

AP-025-256

New State-Support Master of Science in Computer Engineering

Academic Programs Committee –

Date: 2/11/2026

Executive Committee – Date Received and Forwarded: 4/22/2026

Academic Senate – Date:5/6/2026

First Reading

BACKGROUND:

This referral proposes creating a new Master of Science in Computer Engineering at California State Polytechnic University, Pomona. The program fills a critical gap by creating a graduate-level pathway for students completing the Bachelor of Science in Computer Engineering program. At present, these students must leave the university to pursue graduate studies in their own discipline, as the department offers only an MS in Electrical Engineering and the College of Science offers an MS in Computer Science not Computer Engineering. As a result, CPP loses many of its talented graduates to competing institutions outside the CSU system.

Establishing this program will allow CPP to retain and support these students while strengthening the pipeline of engineers prepared to lead in high-demand fields. Second, the program will foster a robust graduate research culture within the college of engineering.

The proposed program provides a structured 30-unit curriculum grounded in both hardware and software systems, with emphasis on Artificial Intelligence/Machine Learning, Cybersecurity, Robotics, Software Engineering, and General Computer Engineering. The program will prepare graduates for advanced roles in Southern California's technology, aerospace, defense, and semiconductor industries, as well as for doctoral study. **Implementation is proposed for Fall 2027 with fully face-to-face delivery at the Cal Poly Pomona campus.**

RESOURCES CONSULTED:

• College Deans and Department Chairs.

• Dr. Halima Naga, ECE Department Chair

• Dr. Anas Salah Eddin, ECE Department Associate Chair

Consultation identified no concerns.

DISCUSSION:

The Committee reviewed the proposal and found strong justification based on student demand, industry growth, and alignment with faculty expertise.

The proposed MS in Computer Engineering presents a well-structured 30-unit curriculum with a coherent core sequence and five elective emphases- General Computer Engineering, Software Engineering, Artificial Intelligence/Machine Learning, Cybersecurity, and Robotics, and satisfying the 51% graduate-level unit requirement. Student demand is strongly evidenced by survey data showing 83% interest among Computer Engineering undergraduates, a steady growth in undergraduate pipeline, and a documented regional supply gap in graduate-level Computer Engineering talent. Following is the plan for new course developments:

- Required courses *to be developed*:
  - ECE 5310 Advanced Operating Systems

- Electives courses *to be developed*:
    - ECE 5203/L VLSI (Very Large Scale Integrated) Circuit Design [Will be cross listed with ECE 4203/L]
    - ECE 5220 Image Sensors [Will be cross listed with ECE 4220]
    - ECE 5301 Cryptographic Algorithms on Reconfigurable Hardware [Will be cross listed with ECE 4301]
    - ECE 5330 Artificial Intelligence for Cyber Security [Will be cross listed with ECE 4330]
    - ECE 5315 Introduction to Deep Learning
    - ECE 5316 Computer Vision
    - ECE 5317 Reinforcement Learning

The program is supported by 14 tenure-line faculties with terminal degrees across all emphasis areas. Existing College laboratories and library resources are confirmed adequately, with no additional capital outlay required.

The program is distinct from the College of Science MS in Computer Science, which focuses on computing practice and software-oriented careers; by contrast, the MS in Computer Engineering emphasizes hardware-software integration, systems engineering, and engineering-focused research, with a separate course catalog, different PLOs, and a distinct student population, ruling out any meaningful curricular overlap between the two programs.

RECOMMENDATION:

The Academic Programs Committee recommends approval of the new state-support MS in Computer Engineering with *the note of timely development of the new required course and electives before Fall 2027 launch*.