

CALIFORNIA STATE POLYTECHNIC UNIVERSITY, POMONA

ACADEMIC SENATE

ACADEMIC PROGRAMS COMMITTEE

REPORT TO

THE ACADEMIC SENATE

AP-025-234

New State-Support Bachelor of Science in Materials Engineering

Academic Programs Committee

Date: 03/07/2024

**Executive Committee
Received and Forwarded**

Date: 10/02/2024

Academic Senate

**Date: 10/16/2024
First Reading
11/06/2024
Second Reading**

BACKGROUND:

The proposed new degree for the B.S. in Materials Engineering (BS MTE) prepares students for a career in engineering or graduate schools by providing them with foundational knowledge on the processing, application, selection and use of materials. The materials engineering curriculum, in addition to a sound foundation in general education, includes basic courses in chemistry, biology, physics, and mathematics. Advanced courses in science and engineering will be an integral part of the program.

The proposed program will be the only BS MTE program in a Southern California CSU, with the other two current programs being at CP SLO and SJSU. Southern California's regional industries such as aerospace, energy, biomedical, manufacturing, etc., depend upon a reliable availability of qualified graduates in the field of materials engineering. The demand for the program is also evident by the enrollment number (100+) of MTE minor being one of the largest on campus. The units required are 123 units due to ABET accreditation.

RESOURCES CONSULTED:

Associate Deans

Department Chairs

Dr. Erin Questad, Chair, Biological Sciences Department.

Dr. Greg Barding, Chair, Chemistry and Biochemistry Department.

Dr. Laila Jallo, Chair, Chemical and Materials Engineering Department.

DISCUSSION and RECOMMENDATION:

The Biology department had a comment on the need to include biology or biochemistry courses in the curriculum for student with interest in biomaterials or biomedical applications. The CME department responded, "*The proposed curriculum (like the current curriculum for Chemical Engineering) will have students take a biology class as a GE B2 (CPP Bio 1110 or a transfer equivalent) life science course that also satisfies ABET requirement for Math and Science.*" CME department also referred to faculty research in biocompatibility of novel alloys as collaborative research between BIO and CME faculty members which provides opportunities for students working in this domain.

The Chemistry and Biochemistry department commented that they have capacity to accommodate students in CHM 1210 and 1220. They have also inquired about the lack of organic chemistry in the curriculum. The CME department responded:

"Materials engineering programs do not require organic chemistry. Please know that we have discussed the curriculum at length in our department and have made benchmark comparisons to programs within the CSU as well as others including UCs. We have also paid great attention to accreditation criteria (ABET) – both general and subject criteria - for materials engineering. Of course, if we did not have restrictions on units, we would have liked to include several other courses in our curriculum. Unfortunately, we are

working with a fixed upper limit on total units." The CME department cited reference curriculums from CPSLO and SJSU.

The AP committee received no additional comments from the other department chairs or associate deans.

The Academic Programs Committee commends the detailed work by the CME department and recommends approval of the new State Support BS in Materials Engineering degree.