TOPIC: **RECOMMEND APPROVAL OF MASTER OF SCIENCE AND DOCTOR OF PHILOSOPHY DEGREES IN ENVIRONMENTAL ENGINEERING AT UNIVERSITY OF COLORADO BOULDER**

PREPARED BY: **DR. IAN MACGILLIVRAY, DIRECTOR OF ACADEMIC AFFAIRS**

I. SUMMARY

This item recommends approval for University of Colorado Boulder (UCB) to offer Master of Science and Doctor of Philosophy degrees in Environmental Engineering.

II. BACKGROUND

COMMISSION AUTHORITY

The Colorado Commission on Higher Education's role and responsibility in the review and approval of new academic programs at institutions operating under a performance contract is defined in §23-5-129(6)(b), which states that new and modified program proposals shall be reviewed and approved only on the basis of fit with the institution's statutory role and mission.

III. STAFF ANALYSIS

OVERVIEW OF PROPOSED PROGRAM

The following is summarized from UCB's proposal:

> One of the central challenges of our time is the need to protect human health, welfare, and the environment in the face of expanding human population, urbanization, and undisciplined material consumption. Advances in scientific understanding and development of new technology are required to cost effectively meet pressing needs for minimizing and managing wastes, controlling water and air pollution, providing potable water and designing more sustainable products and infrastructure. The proposed Master of Science (M.S.) and Doctor of Philosophy (Ph.D.) program in Environmental Engineering will prepare graduates for advanced professional practice and research aimed at addressing these key societal needs. The graduate program builds on the success of the undergraduate Environmental Engineering Program (EVEN), currently ranked 17th in the country (10th among public schools) by the U.S. News & World Reports (2014), and that of 20 engineering faculty members in the Departments of Civil, Environmental, and Architectural (CEAE) and Mechanical Engineering (ME) who conduct environmental

engineering and science research. The proposed degrees do not explicitly include collaboration between campuses, although CU-Boulder works closely with CU-Denver such that Ph.D. degrees in Civil Engineering, including those with an environmental emphasis, can be awarded through the CU-Boulder Ph.D. program. We would investigate a similar approach with the proposed environmental engineering program. Areas of collaboration are being actively explored between the proposed program and the newly formed School of Environment and Sustainability (SES) in the College of Arts and Sciences at CU-Boulder. Professor Summers, current EVEN Director, is a member of the SES implementation committee and has been active in defining pathways of collaboration between environmental engineering and this new school. In addition, 16 engineering faculty members active in environmental engineering research will be moving to the new facilities at the Sustainability, Energy, and Environment Complex (SEEC) on the east campus of CU-Boulder. "SEEC will bring together under a single roof some of the best minds in environmental and sustainability research at CU and in federal labs…. The complex is designed to generate interaction and collaboration, fostering chance encounters that can generate sparks of discovery."

Additional information on this proposed degree, unrelated to fit with statutory role and mission, is in Appendix A.

ROLE AND MISSION SUPPORT

This degree supports UCB's statutory role and mission, which states:

> *The Boulder campus of the university of Colorado shall be a comprehensive graduate research university with selective admission standards. The Boulder campus of the university of Colorado shall offer a comprehensive array of undergraduate, master's, and doctoral degree programs. The Boulder campus of the university of Colorado has exclusive authority to offer graduate programs in law. The Colorado commission on higher education, in consultation with the board of regents, shall designate those graduate level programs that are the primary responsibility of the Boulder campus of the university of Colorado. The university has the responsibility to provide on a statewide basis, utilizing when possible and appropriate the faculty and facilities of other educational institutions, those graduate level programs. The commission shall include in its funding recommendations a level of general fund support for these programs. [§23-20-101(1)(a), C.R.S.]*

Pursuant to Colorado Revised Statutes 23-5-129(6)(b), department staff finds the proposed degrees are consistent with the institution's statutory role and mission. CU's Board of Regents approved the programs at its April 17, 2015 meeting.

IV. STAFF RECOMMENDATION

Staff recommends that the Commission approve University of Colorado Boulder's proposal to offer Master of Science and Doctor of Philosophy degrees in Environmental Engineering.

STATUTORY AUTHORITY

C.R.S. §23-5-129 Governing boards - performance contract - authorization – operations

(6) While operating pursuant to a performance contract negotiated pursuant to this section, the governing board of a state institution of higher education:

(b) Need not consult with nor obtain approval from the Colorado commission on higher education to create, modify, or eliminate academic and vocational programs offered by the institution, so long as such creations, modifications, and eliminations are consistent with the institution's statutory role and mission. Institutions shall submit information to the department demonstrating that the creation or modification of an academic or career and technical education program is consistent with the institution's statutory role and mission. The Colorado commission on higher education shall have the authority to override the creation or modification of an academic or vocational program if the change made by the governing board is inconsistent with the institution's statutory role and mission.

APPENDIX:

Appendix A: Supplemental Information

APPENDIX A: SUPPLEMENTAL INFORMATION

This supplemental information is unrelated to the proposed degree's fit with the institution's statutory role and mission. The following is summarized from the institution's proposal:

EVIDENCE OF NEED

The U.S. Bureau of Labor Statistics has identified environmental engineering as a relatively high growth occupation, with projected growth of 22% over the decade from 2010 to 2020.3 Money Magazine ranked environmental engineering 20th on its list of "Best Jobs in America" for 2012, due to strong salaries, the outlook for job growth, and the opportunity to contribute to solving societal problems. Compared to other engineering disciplines, the field enjoys relatively strong participation from women. Growth in the environmental engineering field is driven by pressing societal needs, including the need to improve the design and operation of the built environment to make more efficient use of land, water, materials and energy; the need to replace aging infrastructure; the need to expand basic services including clean water and electric power in parts of the world where access is currently lacking; the need to mitigate and adapt to climate change; and an overarching need to help public and private entities enhance the sustainability of their operations and products.

DUPLICATION

Department staff confirms that Colorado School of Mines offers master's and doctor of philosophy degrees with the same CIP code.