6 January 2021

TO: Faculty Senate

FROM: Paul Loikith, Chair, Graduate Council

RE: February 2021 Consent Agenda

The following proposals have been approved by the Graduate Council and are recommended for approval by the Faculty Senate.

You may read the full text for any course or program proposal, as well as Faculty Senate Budget Committee comments on new and change-to-existing program proposals, at the Online Curriculum Management System (OCMS) Curriculum Dashboard.

Maseeh College of Engineering and Computer Science

New Courses

E.1.a.1

- ME 544 Microgravity & Capillary Fluid Mechanics I, 4 credits
  Liquid-gas flows behave significantly different in the near absence of gravity. Such flows are dominated by surface tension, i.e. capillary forces. The principles of capillary phenomena and applied capillary fluidics are reviewed from empirical, theoretical, and numerical perspectives: concepts of surface tension, wetting, and geometry. Simplified analyses are pursued to model spontaneous flows exploited in microfluidic engineering systems on earth and macrofluidic systems aboard spacecraft. Exposure to literature, lab demonstrations, numerics, and drop tower experimentation. Prerequisites: ME 541 (may be taken concurrently) and ME 551.

E.1.a.2

- ME 564 Microgravity & Capillary Fluid Mechanics II, 4 credits
  Advanced principles of capillary phenomena and applied capillary fluidics are pursued by empirical, theoretical, and numerical methods. Novel/publishable research projects are undertaken as teams or as individuals that exploit the unique experimental contributions of a 'low-gravity' drop tower to produce large length scale phenomena rarely observed in a terrestrial-gravity environment. Special applications are made to engineering systems aboard spacecraft. Prerequisite: ME 544.

E.1.a.3

- ME 644 Microgravity & Capillary Fluid Mechanics I, 4 credits
  Liquid-gas flows behave significantly different in the near absence of gravity. Such flows are dominated by surface tension, i.e. capillary forces. The principles of capillary phenomena and applied capillary fluidics are reviewed from empirical, theoretical, and numerical perspectives: concepts of surface tension, wetting, and geometry. Simplified analyses are pursued to model spontaneous flows exploited in microfluidic engineering systems on earth and macrofluidic systems aboard spacecraft. Exposure to literature, lab demonstrations, numerics, and drop tower experimentation. Prerequisites: ME 641 (may be taken concurrently) and ME 651.

* This course is part of a dual-level (400/500) course. For any revisions associated with the 400-level section please refer to the Undergraduate Curriculum Committee consent agenda memo.

E.1.a.4

- ME 664 Microgravity & Capillary Fluid Mechanics II, 4 credits
  Advanced principles of capillary phenomena and applied capillary fluidics are pursued by empirical, theoretical, and numerical methods. Novel/publishable research projects are undertaken as teams or as individuals that exploit the unique experimental contributions of a 'low-gravity' drop tower to produce large length scale phenomena rarely observed in a terrestrial-gravity environment. Special applications are made to engineering systems aboard spacecraft. Prerequisite: ME 644.

School of Social Work

Changes to Existing Course

E.1.a.5

- SW 532 Advocacy and Empowerment, 3 credits – remove corequisite

* This course is part of a dual-level (400/500) course. For any revisions associated with the 400-level section please refer to the Undergraduate Curriculum Committee consent agenda memo.