

## VII. STANDING COMMITTEES

## A. Academic and Student Affairs Committee

The Proposed Undergraduate Degree in Aerospace Engineering: Abu Dhabi

## RECOMMENDED ACTION:

The University of Washington is proposing an undergraduate degree completion program in aerospace engineering that will be delivered in Abu Dhabi, United Arab Emirates, through an agreement that will last for a ten-year period. The program would not require any state funds and would be funded by the Mubadala Development Company, a company wholly owned by the Crown Prince of Abu Dhabi. This proposed degree would be available only in Abu Dhabi and has been designed for students residing in Abu Dhabi. It would accept students from the region, primarily from the United Arab Emirates University (UAEU) who, after their first two years of study, meet all the requirements of the University of Washington. Starting in 2013-2014, the UW would offer a two-year degree completion program and also work with the UAEU to enable them to offer their own degree in aerospace engineering. UW classes would be held in the facilities of the UAEU in Al Ain, Abu Dhabi. By 2021-2022, the UW would no longer offer the degree, which would then be solely delivered by the UAEU.

## BACKGROUND:

Context

This undergraduate degree will be offered within the context of other UW educational and research programs over the ten-year period of the agreement. The UW will admit up to 8 qualified students from Abu Dhabi to its current Aeronautics and Astronautics (A&A) degree program in Seattle. We will also offer the current online master degree in A&A to students in Abu Dhabi with onsite mentoring through the UAEU. Finally, the UW and the UAEU will collaborate on significant research projects during the 10-year agreement. Funding to the UW will total more than \$110M for the entire collaboration.

Purpose

The University of Washington hopes to achieve three goals in the delivery of this program.

1. Internationalization of Education. This degree will allow UW faculty to work with students in Abu Dhabi to better understand the demands of international education. They will begin to apply pedagogical techniques in the Abu Dhabi classroom that can be applied to a broader student base,

## VII. STANDING COMMITTEES

### A. Academic and Student Affairs Committee

#### The Proposed Undergraduate Degree in Aerospace Engineering: Abu Dhabi (continued p. 2)

including international students. The UW will also admit a small number of students (no more than 8 annually) into its regular degree program in Seattle that will further internationalize the UW and the College of Engineering. The students in Seattle will be admitted on a fee basis and will be in addition to the current number of students admitted to the A&A program. They will not displace Washington State residents from the program.

2. International Research Collaborations. Part of the agreement will fund significant research partnerships between faculty at the UAEU and the UW. This research collaboration will leverage the strengths of these two institutions and lead to international breakthroughs in aeronautical engineering. Mubadala will fund research amounting to \$10M annually for over the ten-year agreement, with funding to be divided equally between the UW and the UAEU.
3. Trade of Washington State. This program and partnership has been proposed by the Boeing Company which has been very active in Abu Dhabi. We hope that this collaborative effort will lead to increased exports for Washington State.

These goals and this program map well to the UW mission of providing access to its resources on an international scale.

#### Students

The students for the new degree program will be recruited from the United Arab Emirates, primarily from the UAEU. They must attend a local university for two years and then transfer to the UW with all the necessary requirements to be admitted into the program. The admission requirements will mirror the requirements of students who attend the UW and the UW Department of Aeronautics and Astronautics. Based upon several projections, the number of students in Abu Dhabi is expected to progressively increase from approximately 35 to 70 at which point the UW will cease to admit students and will direct students to the new aerospace engineering program at the UAEU.

#### Funding

The educational aspects of the partnership, as well as the research part of the agreement, will be completely funded by the Mubadala Development Company, a company wholly owned by the Crown Prince of Abu Dhabi.

## VII. STANDING COMMITTEES

### A. Academic and Student Affairs Committee

#### The Proposed Undergraduate Degree in Aerospace Engineering: Abu Dhabi (continued p. 3)

In addition to the financial support needed for the undergraduate degree in Abu Dhabi, Mubadala will fund three additional faculty in Seattle who will provide instruction to UW students on campus in Seattle. They represent additional resources for the A&A program in Seattle.

The funding from Mubadala will serve as a stable source for this fee-based program. Currently, Mubadala owns parts of several large international companies such as Ferrari and AMD. As a perspective, the Crown Prince and Mubadala keep \$2.3 trillion in cash as a reserve for their investment portfolio.

#### Faculty

The faculty of the degree program in Abu Dhabi will consist of three types:

- Most of the new faculty needed for this program will be recruited jointly by the UW and the UAEU specifically for this program and will represent the best faculty resources in the U.S. and Europe. They will be paid salaries in excess of their counterparts in Europe and the U.S. During the ten-year partnership, current faculty from the UAEU and the UW will recruit, interview and hire qualified new faculty. These new hires will spend a minimum of two quarters teaching, learning the curriculum and starting research collaborations with faculty at the University of Washington in Seattle. After their mentorship in Seattle, they will move to Abu Dhabi to teach in the UW program with the equivalent of tenure-track status at the UAEU and affiliate status at the UW. This process will start with two faculty in year one and repeat until a full contingent of faculty has been hired and is in place at the UAEU.
- Current UW tenure-track faculty will travel to Abu Dhabi and teach for one quarter per calendar. We expect, on average, one faculty a year to spend a quarter in Abu Dhabi, teaching in the undergraduate program. They will also consult with the UAEU about the development of their own program in aerospace engineering.
- Periodically, an industry expert from Boeing, Airbus or another company stationed in the UAEU, is expected to teach a class in the UW degree program.

## VII. STANDING COMMITTEES

### A. Academic and Student Affairs Committee

#### The Proposed Undergraduate Degree in Aerospace Engineering: Abu Dhabi (continued p. 4)

##### Program Curriculum

The program curriculum will mirror the current degree in aeronautics and astronautics with one major exception. Rather than deal with the full gamut of courses, the undergraduate degree program in Abu Dhabi will focus on the current classes in aeronautical engineering, and will not also contain an emphasis on astronautics. The department may choose to develop one or two new classes for the curriculum. In essence, the new degree will represent a very minor modification of the current curricular content of the A&A degree in Seattle. As stated above, we expect students to enter the program with 90 credits, including all the UW, College of Engineering and departmental prerequisites. Upon admission, students would be required to earn 90 more credits to complete the aerospace engineering degree.

##### Demand in Abu Dhabi

Abu Dhabi realizes that its stockpile of petroleum will vanish within twenty or thirty years. To diversify their economy, the government has identified four industries, including aerospace, which will be developed over the next five years. No program in aerospace engineering currently exists in Abu Dhabi. The planned enrollment of the academic program is based on Mubadala aerospace manpower requirements as provided through the consultancy study by Oliver Wyman and updated later by Mubadala. This study shows that by 2020 the total manpower requirements for the UAE aerospace Industry will be approximately 10,000, of which approximately 7,000 are technical with the remainder being management and administrative staff.

##### UW Degree Oversight

In addition to the UW faculty who travel to Abu Dhabi, the UW will hire and place a program director onsite at Abu Dhabi. This director would be supplemented onsite by a UW advisor, a student services specialist, and a staff person.

To recruit faculty and ensure the quality of the curriculum, an A&A faculty member in Seattle will also serve as a Seattle-based program director and have the needed support staff. The fiscal, administrative and program management staff would be provided by UW Educational Outreach for this fee-based program. UWEO would also assume the financial risk for this fee-based program.

## VII. STANDING COMMITTEES

### A. Academic and Student Affairs Committee

#### The Proposed Undergraduate Degree in Aerospace Engineering: Abu Dhabi (continued p. 5)

#### Approvals for the Degree

The degree program has been reviewed by the appropriate committees. Within the UW, formal approval has been received from the faculty in the A&A Department, the Council on Educational Policy in the College of Engineering and the Faculty Council on Academic Standards. The Higher Education Coordinating Board will be informed of the Board of Regents' action on the Undergraduate Degree in Aerospace Engineering, Abu Dhabi.