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**Docket Item:** 6.1 CONSENT ITEM: Blue Mountain Community College | Unmanned Aircraft Systems, AAS

**Summary:**

Blue Mountain Community College proposes a new Associate of Applied Science degree in Unmanned Aircraft Systems. Higher Education Coordinating Commission (HECC) staff completed a review of the proposed program. After analysis, HECC staff recommends approval of the degree as proposed.

**Staff Recommendation:**

The HECC recommends the adoption of the following program: Blue Mountain Community College AAS in Unmanned Aircraft Systems.

**Recommended Motion:**

Move to approve the following degree: Blue Mountain Community College AAS in Unmanned Aircraft Systems.



**Blue Mountain Community College seeks the Oregon Higher Education Coordinating Commission's approval to offer an instructional program leading to an Associate of Applied Science in Unmanned Aircraft Systems.**

**Program Summary**

The Unmanned Aircraft Systems AAS is designed to graduate a professional workforce who operate on par with manned aviation organizations. Students will learn how to operate UAS in a variety of different settings including surveying and mapping, search and rescue (S&R), environmental monitoring, and police surveillance. Advanced skills in mission planning, pre-flight inspections, programming, equipment testing, troubleshooting, and maintenance, Beyond Visual Line of Sight (BVLOS), data collection, and analysis, are emphasized.

**1. *Describe the need for this program by providing clear evidence.***

1. The UAS industry is rapidly growing and UAS technologies are being readily adopted by many other industries. Recently published research by Business Oregon found the total economic impact of the UAS industry on the Oregon economy to be nearly \$840 million and supports 2,500 total jobs. At the Pendleton UAS Range, 20 to 30 jobs are available at any given time that can be filled by students completing this training.
2. Labor statistics for UAS are tracked with manned aviation. The Bureau of Labor Statistics projects a faster-than-average employment trend (11%) of Commercial Pilots in Oregon (data acquired via O\*Net OnLine). According to qualityinfo.org, employment in aerospace engineering is projected to grow by 25.4% by 2030.
3. According to qualityinfo.org, salary ranges east of the Cascades for aerospace engineers from \$31.31/hour to \$66.70/hour with an average annual salary of \$98,322. Bureau of Labor Statistics shows commercial pilots in Eastern Oregon earn on average \$73,900 annually and \$81,310 annually across the State.
4. There are two Community Colleges offering UAS programs East of the Cascades in Oregon; one offers a certificate and non-credit training certificates, and the other offers an AAS.

**2. *Does the community college utilize systemic methods for meaningful and ongoing involvement of the appropriate constituencies?***

1. The Unmanned Aircraft Systems Advisory Committee includes representatives from several key local, regional, and national businesses in the UAS industry, as well as representatives from the city of Pendleton, Eastern Oregon Workforce Board, and InterMountain ESD.
2. During program development, Advisory Committee meetings were held every 2 to 3 months in order for the working group to provide updates on the progress of the UAS curriculum and program

development and receive feedback from the committee. After program approval, Advisory Committee meetings will be held quarterly.

3. Cayuse Technologies has offered to provide scholarships and internship opportunities for interested students to ensure this program takes off and students do not have to rely only on Federal Financial Aid.

4. The college works very closely with the Pendleton UAS Test Range to cultivate relationships with employers working at the test range and develop internship and employment opportunities with students.

3. ***Is the community college program aligned with appropriate education, workforce development, and economic development programs?***

1. Industry has reported that current higher-education UAS programs at both community colleges and universities across the country are not providing all of the necessary skills required for current job offerings. The student learning outcomes and proficiencies of this program align with the skills and knowledge the industry requires, including those they have identified are currently lacking in other programs.

2. UAS are used in a wide variety of industries, including but not limited to, fire science, agriculture, forestry, and natural resources. Additionally, the main purpose of UAS use is to collect data, thus computer science and data science industries are intrinsically tied to UAS industries. Students in the UAS program can benefit from BMCC's Fire Science, Agriculture, Precision Agriculture, Computer Science, and Data Science programs. Likewise, students in those programs can benefit from classes offered in the UAS program. Crossover classes have been incorporated to this end.

3. As a result of the initial training in this program, students will prepare to take the FAA's Part 107 knowledge test to earn their Part 107 Remote Pilot Certificate, mission planning, specialized training on industry-leading auto-pilot software and conducting Beyond Visual Line of Sight (BVLOS) operations.

4. The UAS program is designed to give students the skills and knowledge required for entry-level positions in the UAS industry and provide the first step towards the future UAS AAS. The one-year certificate is comprised of the first-year classes of the AAS so students who wish to return to school later, or who decide to continue their education while in school can complete the AAS degree without missing a beat.

4. ***Does the community college program lead to student achievement of academic and technical knowledge, skills, and related proficiencies?***

1. Students will have to complete Math 111 or higher, Writing 227, and Human Relations in Business (BA 285) for graduation.

2. Additional academic skills include computer programming and electrical theory.

3. Technical training includes, but is not limited to, training on the flight and maintenance of multiple UAS Types including multicopter, fixed-wing, and fixed-wing vertical take-off and landing (VTOL), operating in controlled and uncontrolled airspace, aviation safety, aviation communication, UAS sensors, data collection, data analysis, Visual Line of Sight (VLOS) and Beyond Visual Line of Sight (BVLOS)

mission planning, Crew Resource Management (CRM), and Aeronautical Decision Making (ADM).

4. Workplace readiness skills include critical thinking, problem-solving, team management, and teamwork. These skills are developed in both the classroom and labs via exponential learning.

5. Continuous improvement will be based on student performance and student course reviews.

Discussions of these metrics and appropriate planning will be part of the biannual advisory committee meetings.

5. ***Does the community college identify and have the resources to develop, implement, and sustain the program?***

1. Several grants have been awarded to create a curriculum and purchase equipment to start the program.

2. BMCC has analyzed the costs of the program and will be able to financially support this program via tuition and fees.

3. Student base will be built and maintained through continued recruitment efforts within the service district via high school visits that include hands-on workshops, career fairs at local schools, and other community events.

4. Local employers will provide internship and sponsorship opportunities for students to complete the program.

***Assurances***

Blue Mountain Community College has met or will meet the four institutional assurances required for program application.

1. *Access.* The college and program will affirmatively provide access, accommodations, flexibility, and additional/supplemental services for special populations and protected classes of students.

2. *Continuous Improvement.* The college has assessment, evaluation, feedback, and continuous improvement processes or systems in place. For the proposed program, there will be opportunities for input from and concerning the instructor(s), students, employers, and other partners/stakeholders. Program need and labor market information will be periodically re-evaluated and changes will be requested as needed.

3. *Adverse impact and detrimental duplication.* The college will follow all current laws, rules, and procedures and has made good faith efforts to avoid or resolve adverse *intersegmental* and *intra*segmental impact and detrimental duplication problems with other relevant programs or institutions.

4. *Program records maintenance and congruence.* The college acknowledges that the records concerning the program title, curriculum, CIP code, credit hours, etc. maintained by the Office are the official records and it is the college's responsibility to keep their records aligned with those of the Office. The college will not make changes to the program without informing and/or receiving approval from the Office.