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MEMORANDUM

To: Cindy L. Hasselbring, Senior Policy Advisor, Assistant Director, STEM Education, Office of Science and Technology Policy, Executive Office of the President

From: Crystal Maguire, Executive Director

Re: STEM Designated Degree Program List Revision

Issue

Aviation technical programs in the U.S. attract students from all over the globe. Industry needs—and a school's interest in providing their students with practical experience—drives demand for international student employment opportunities. Unfortunately, some aviation technical program students are not able to take advantage of employment opportunities available to students in very similar fields of study since the U.S. government's classification system does not consider all aviation technical programs to be STEM-related fields of study.

The U.S. Optional Practical Training (OPT) program allows foreign nationals holding an F1 student visa to obtain employment, while in school or directly after graduation, for up to 12 months. Students that earn a degree in a designated Department of Homeland Security (DHS) "STEM field of study" may apply for a 24-month [STEM OPT Extension](#), which effectively allows an international student to work in the U.S. for up to three years after graduation.

However, the majority of aviation technical programs are not considered a STEM field of study for purposes of the OPT extension. Work opportunities for students of the "non-STEM field" programs are therefore limited, since aviation employers are not generally willing to hire an employee they know will only be available for 12 months.

Alternatively, if the employer knows the individual will be available for 36 months (i.e., through the OPT Extension), it is more likely to hire that individual. If both parties are agreeable, the employer will also be more likely to sponsor that individual to stay in the U.S. through another visa program (e.g., H1B, etc.) once the OPT extension has expired. This would help address a worker shortage in the industry, while also allowing schools to better serve their students with practical experience before they return to their home country.

Aviation technical programs with a non-STEM field designation are also limited in their ability to apply for certain STEM-designated grants and other funding sources, given the DHS STEM field framework is often utilized by grantors (e.g., federal government and states) in their eligibility criteria.

Background

The National Center for Educational Statistics (NCES) controls the [Classification of Instructional Programs](#) (CIP) which provides a taxonomic scheme supporting the tracking and reporting of fields of study. The CIP codes are used by U.S. institutes of higher education to categorize the programs they offer.

The [STEM Designated Degree Program list](#) is a complete list of fields of study that DHS considers to be STEM fields of study for purposes of the 24-month STEM OPT extension. The designation is limited to fields of study categorized as engineering, biological sciences, mathematics, and physical sciences, or a “related field” (i.e., those involving research, innovation, or development of new technologies, etc.).

The following CIP codes are used to classify aviation technical programs, but only some of the classifications (indicated with an “*”) are considered “STEM fields” by DHS—

- ***15.0801 Aeronautical/Aerospace Engineering Technology/Technician.** A program that prepares individuals to apply basic engineering principles and technical skills in support of engineers and other professionals engaged in developing, manufacturing and testing aircraft, spacecraft and their systems. Includes instruction in aircraft/spacecraft systems technology, design and development testing, prototype and operational testing, inspection and maintenance procedures, instrument calibration, test equipment operation and maintenance, and report preparation.
- ***29.0402 Air and Space Operations Technology.** A program that focuses on the principles, technology and maintenance of systems and equipment used in aerospace operations. Includes instruction in astronomy and astronautics, solid state theory, air and space operations, electronics, computer science, aviation and space flight safety, life support systems, flight operations management systems, programming, propulsion systems, weaponry, maintenance management and applications to specific systems and operations.
- ***49.0101 Aeronautics/Aviation/Aerospace Science and Technology, General.** A program that focuses on the general study of aviation and the aviation industry, including in-flight and ground support operations. Includes instruction in the technical, business, and general aspects of air transportation systems
- **47.0607 Airframe Mechanics and Aircraft Maintenance Technology/Technician.** A program that prepares individuals to apply technical knowledge and skills to repair, service, and maintain all aircraft components other than engines, propellers, avionics, and instruments. Includes instruction in layout and fabrication of sheet metal, fabric, wood, and other materials into structural members, parts, and fittings, and replacement of damaged or worn parts such as control cables and hydraulic units.
- **47.0608 Aircraft Powerplant Technology/Technician.** A program that prepares individuals to apply technical knowledge and skills to repair, service, and maintain all types of aircraft powerplant and related systems. Instruction includes engine inspection and maintenance, lubrication and cooling, electrical and ignition systems, carburetion, fuels and fuel systems, propeller and fan assemblies.
- **47.0609 Avionics Maintenance Technology/Technician.** A program that prepares individuals to apply technical knowledge and skills to repair, service, and maintain all types of aircraft operating, control, and electronic systems. Includes instruction in flight instrumentation, aircraft communications and homing systems, radar and other sensory systems, navigation aids, and specialized systems for various types of civilian and military aircraft.

CIP codes 47.0607, 47.0608, and 47.0609 (the “47 codes”) are often considered the most appropriate descriptors of aviation technical programs, but since they are not considered a “STEM field” for purposes of the 24-month STEM OPT extension, schools with these categorizations are not able to recommend their aviation technical program international students for work visas after they graduate.

Some schools have petitioned their administration and the Student and Exchange Visitor Program (SEVP) to change their program’s CIP code designation to one that is on the STEM list (i.e., 15.0801, 29.0402, or 49.0101), but often times the description is not the best fit so they—rightly so—have a hard time “selling” the classification change. A classification change may also negatively impact internal frameworks that drive financial aid and other administrative aspects.

Resolution

Petition the Department of Homeland Security to add the 47 codes to the DHS’s STEM designated list. ATEC believes that aviation technical programs are valid STEM-related fields of study, and should fall under the “related fields” DHS definition, given that these aviation programs train students in innovative materials and processes, aircraft familiarization, fundamentals of equipment and tooling, new technologies, etc.

An inquiry was made to SEVP by the STEM Education Coalition on behalf of ATEC on Feb. 3, 2017, according to the instructions provided on the DHS website. A response was not received.

We understand that changing the DHS designated degree program list is arduous. It does not appear that the current list has been updated since 2016, and changes require publication in the federal register. It could be that there is another path to getting the designation changed, through the Department of Education, but we have been unable to identify another viable route.