KENT STATE UNIVERSITY
CERTIFICATION OF CURRICULUM PROPOSAL

Preparation Date **13-Nov-17** Curriculum Bulletin _____

Effective Date **Fall 2018** Approved by EPC _____

2019 pending final approvals

Department	**AERN**
College	**AR - Aeronautics and Engineering**
Degree	**MS - Master of Science**
Program Name	**Aviation Logistics and Management** Program Banner Code
Concentration(s)	**None** Concentration(s) Banner Code(s)
Proposal	**Establish program**

Description of proposal:

Establish an Aeronautics specific Logistics and Management MS to support the growing need for logisticians in NE Ohio and nationally.

Does proposed revision change program's total credit hours? ☐ Yes ☐ No

Current total credit hours: **33** Proposed total credit hours

Describe impact on other programs, policies or procedures (e.g., duplication issues; enrollment and staffing considerations; need; audience; prerequisites; teacher education licensure):

The program combines Aeronautics unique management education with existing MIS courses through the COB. There are no duplication conflicts. Staffing will include the eventual need for faculty as enrollment grows and some online education support. This will be provided by a vendor or internally. The Bureau of Labor Statistics projects a 7% growth in logisticians through 2025 and most of that growth is due to transportation of goods and people. The audience is working aeronautics professionals wishing to advance their career and current undergraduate AERN students. Prerequisites are standard as set by Graduate Studies. Faculty experience will be graduate faculty qualified AERN faculty and some industry professional adjuncts; initially until faculty hiring.

Units consulted (other departments, programs or campuses affected by this proposal):

College of Business, MIS, Dr. Pratim Datta, consulted for inclusion of some MIS courses in the program.

REQUIRED ENDORSEMENTS

_____ 11/14/17

Department Chair / School Director

_____ ___/___/___

Campus Dean (for Regional Campuses proposals)

_____ 11/14/2017

College Dean (or designee)

_____ ___/___/___

Dean of Graduate Studies (for graduate proposals)

Senior Vice President for Academic Affairs and Provost (or designee)

New Graduate Degree Program Full Proposal
MS Aviation Management and Logistics

The new name of College of Aeronautics and Engineering (2017) represents a dramatic evolution of the unit from a primarily teaching school at the beginnings of Kent State to a modern Aeronautics and Engineering focused unit. The college will be referred to as CAE in this proposal. Under the guidance of our new Dean and in conjunction with faculty we now have three areas of study. Aeronautics, Engineering, and Engineering Technology. The college has programs accredited by the Aviation Accreditation Board International (AABI) and The Association of Technology, Management, and Applied Engineering (ATMAE) and the Engineering Technology Commission of ABET (ETAC ABET). The college has a new building (2015) and is an institutional fund raising priority to expand the facility to allow for more laboratory space and faculty hires. We have multiple labs unique to aeronautics and engineering that can better serve students by being expanded. The college is the primary operator at the university's own airport. Construction is underway on a 7-million dollar academic and administration building at the airport largely using funds donated by Federal Express.

The Division of Aeronautics has within it six undergraduate degrees. There is a BS in Aeronautics with majors in Flight, Air Traffic Control, Aeronautical Studies, and Aviation Management. Additionally there is a BS in Aeronautic Systems Engineering Technology and Aerospace Engineering. Aerospace Engineering is the first and only pure engineering degree offered at Kent State.

The proposed MS in Aviation Management and Logistics will be a natural extension and provide a seamless transition to graduate studies for the Flight, Air Traffic Control, Aeronautical Studies, and Aviation Management undergraduate programs and also provide expanded study opportunities for students in the Executive MBA program offered by the College of Business. This proposed degree is to be offered 100% on-line to meet the needs of our very mobile alumni and other current working professionals globally. Aerospace Engineering students will need their own MS degree to be proposed at a later date.

The Master of Science in Aviation Management and Logistics is intended to be a broad-based education for persons seeking to advance their careers or better prepare themselves for careers in management at aviation related companies. It is developed in response to the significant current and projected growth in the movement of people and goods via air transport. It will support both graduate and undergraduate research in alignment with Kent State institutional priorities and current national trends in higher education. The global focus will help with current institutional priorities in making Kent State a global university.

The proposed degree is unique structurally in that it retains a cadre of traditional research and inquiry course work while combining that work with both business (Management Information Systems) and aeronautics course work focused on the discipline.

This MS is unique educationally and no other institutions in Ohio or surrounding states offer the degree. Purdue University has Aeronautics and Astronautics, Middle Tennessee has Aeronautical Science with Management, but neither include logistics or inculcate some of the other subject matter in this proposal. Other graduate level degrees in the field are Engineering, Safety, or Aerospace/Astronautics oriented.

Academic Quality

Although the degree is being developed with a focus on Aeronautics, many of the courses can and will be taught by faculty from all college program areas. As such, in the CAE there 14 members of the graduate faculty. In addition to the aeronautics, applied engineering and engineering professors, Management Information Systems and Marketing faculty from the College of Business will be teaching some of the content; also graduate faculty. Of the required courses, six are currently being taught as part of existing graduate programs. In anticipation of the degree being approved, there is currently an approved search underway for a full-time tenure track professor who will be 100% dedicated to the program. As such, there is sufficient expertise within the faculty to teach the courses. Part-time faculty members will also be employed as needed. It is anticipated that additional hires will be made as the program grows.

The table below indicates professors, ranks, degrees, and anticipated courses to be taught. Some courses may have multiple instructors. This is to facilitate faculty workload and availability.

NAME	RANK	DEGREE	COURSES
Christina Bloebaum	Professor	Ph.D. Aerospace Engineering Degree: Univ. of Florida	Individual Investigation in Aeronautics
Richard Mangrum	Professor	Ed.D. Educational Studies Airline Transport Pilot, Aircraft Dispatcher, Airframe and Powerplant Mechanic, Flight Instructor,10yrs. USAF Degree: Oklahoma State	Weather for Aviation Logistics Planning Aeronautics Practicum
A.R. Chowdhury	Professor	Ph.D. Industrial Engineering Degree: West Virginia Univ.	Six-Sigma Applications for Technology
Butje Eddy Patuwo	Professor	Ph.D. Degree: Virginia Tech	Operations, Service and Supply Chain Management
I.Richmond Nettey	Professor	Ph.D. Aeronautics Transportation Safety Institute Certificate in Civil Aviation Security (hijacking) Degree: University of Houston	Air Cargo Security, Modeling and Forecasting for Aviation Logistics Planning
Alan Brandyberry	Associate Professor	D.B.A. Decision Sciences Degree: Southern Illinois Univ. Carbondale	Global Technology Strategy
Rouzbeh Razavi	Assistant Professor	Ph.D.	Analytics for Decision Making

Md Amiruzzam	Assistant Professor	Ph.D. Evaluation and Measurement Ph.D. Mathematics Education Ph.D. Computer Science Degrees: All Kent State	Quantitative Methods in Technology Research Methods in Technology
Chang-Guen Oh	Assistant Professor	Ph.D. Engineering, Industrial and Human Systems Degree: Wright State	Aviation Safety Management Systems
Maureen McFarland	Assistant Professor	Ph.D. Educational Psychology 12 years Logistics Officer, USMC, Lt. Col. (ret.) Degree: Kent State	Logistical Strategies in Aviation Management Modeling and Forecasting for Aviation Logistics
Thomas Long	Assistant Professor	MBA – Management American Association of Airport Executives – Accredited Airport Executive Degree: Golden Gate Univ.	Airline Transportation Operations Aviation Economics and Fiscal Management
Jason Lorenzon	Assistant Professor	Juris Doctorate Ohio State Bar Association Aviation Law Committee; Chair 2016-2018 Degree: Cleveland Marshall College of Law	Legal and Regulatory Issues for Air Cargo Management Air Cargo Security
Robert Priestly	Assistant Professor	Aerospace Management and Logistics Degree: Southeast Oklahoma	Seminar: Emerging Issues in Aviation Logistics

Institutional Support

Our new Dean proposed and has both executive level and faculty approval for the re-structuring of the CAE. This restructuring is now in progress and has created a new position at the Associate Dean level (Research and Faculty Affairs). This Associate Dean position will be dedicated to the two-fold mission of funded research and support of graduate education programs within the college. The search and filling of the position will be completed within AY 18-19, with an expected start date of July 2019. The Graduate Coordinator is the primary manager of the degree and will report to the Associate Dean for Research and Graduate Affairs.

In addition to the Research Associate Dean two other Associate/Assistant Dean positions will be created.

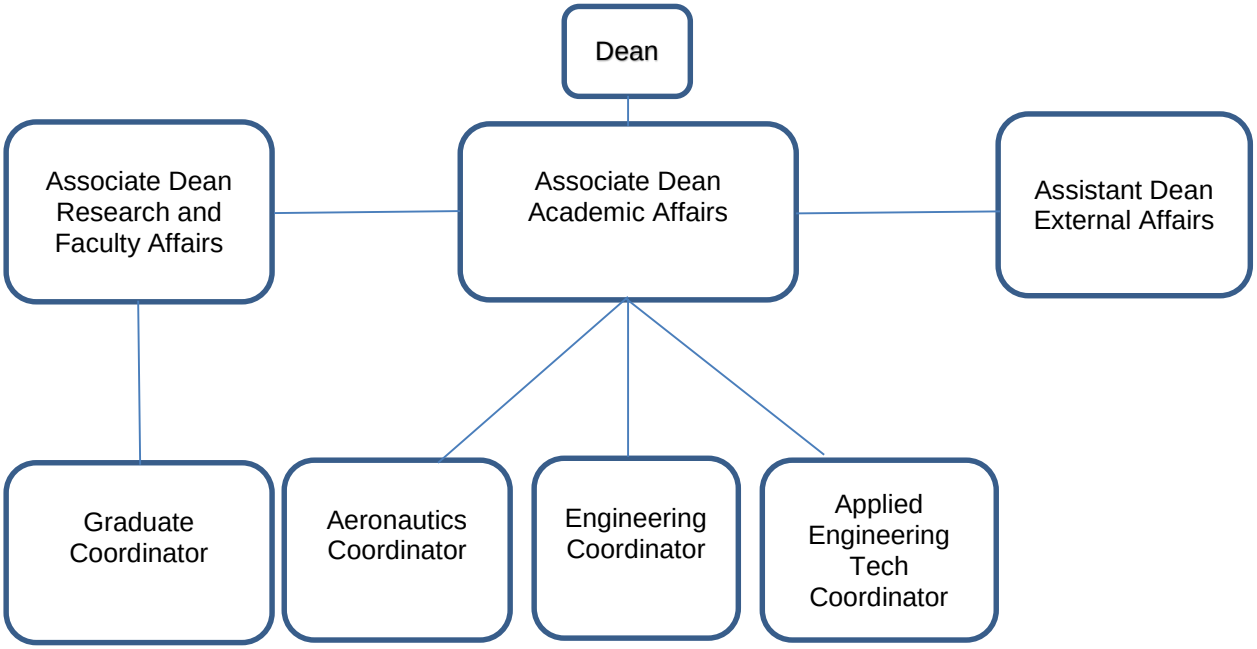
These positions are being filled internally. Of particular note is the Asst. Dean for External Affairs. This person is to connect the CAE to external partners e.g. industry. By capitalizing on existing relationships and forming new ones with industry throughout Ohio and the Region, this proposed MS will have a strong presence as part of these new, continuing, and developing relationships.

In order to assist faculty with creating new web delivered material and converting existing conventionally delivered courses to an on-line format in compliance with Quality Matters, a dedicated, full-time Instructional Designer has been assigned to the CAE. This person is due on-site by the beginning of the Spring 19 semester.

The CAE also has its own in-house and full-time Senior Director of Marketing. The efforts of this position and in conjunction with university level resources will provide an ample megaphone to students and the industry for visibility and connections regarding the new degree program. A full organizational chart is available in Appendix B.

The fact that the CAE is currently searching for a full-time faculty member for a program not yet approved, and has been given approval for three new administrative positions, two of which directly positively impact the success of the proposed program indicate strong institutional support.

New Structure of the College of Aeronautics and Engineering



Enrollment in the new MS degree will come from several sources. This proposed degree will be the only

such offering in the state and as such provides an exciting new opportunity for both students and employers.

Universities in Ohio with Master Degrees in Aeronautics		
Institution	**Degree**	**Differences**
Ohio State University	Aeronautical and Astronautical Engineering	Does not address Management, Logistics or Operations
University of Cincinnati	Aerospace and Mechanical Engineering	Does not address Management, Logistics or Operations
Case Western	Aerospace Engineering	Does not address Management, Logistics or Operations
Wright State University	Aerospace Systems Engineering	Does not address Management, Logistics or Operations
Ohio University	None	
Bowling Green	None	

There are over 500 Ohio firms directly supporting the aerospace and aviation industry. This provides a large pool of employees working in the industry who may wish to seek an advanced degree. Ohio ranks 8th in the nation in employment in Aerospace and Defense industries. Each of these industries make extensive use of management and logistics. Ohio Aerospace Employment.

In addition to the significant aerospace employment pool in Ohio, nationally, and globally, there is an existing pool of undergraduate Aeronautics students that number over 450 students per the most recent college enrollment numbers. In particular, the new degree will be attractive for aviation management, flight, air traffic control, and aeronautical studies. This represents a potential pool of approximately 425 students. Aerospace Engineering numbers are not included in these counts. Second, because the program is to be delivered online, the large pool of aeronautics alumni may wish to pursue an advanced degree. Finally, also given that the proposed degree is unique among Ohio aviation-degree granting institutions, aviation and aeronautics students at those institutions may find this degree attractive.

A sample survey of currently enrolled students taking classes in the CAE was conducted. Students from all of the undergraduate disciplines were told about the proposed MS in Aviation Management and Logistics. The result was 45 out of 104 students who replied (43%) indicated they are interested in pursuing the degree. The sample was taken from select Sophomore, Junior and Senior level classes.

An alumni survey was conducted and indicates strong support for the program and interest in taking the degree; see Appendix C.

Description of the curriculum:

The proposed curriculum, in total containing 33 credit hours, contains both thesis and non-thesis options. A thesis option is provided for students who may wish to continue their education with a Ph.D. program or who are interested more specifically in research. Regardless of which option the student chooses, all students are required to take the same 29 credits: ten (10) credit hours of aeronautics, six (6) credit hours of business, nine (9) credit hours of technology and four (4) credit hours of elective. The remaining 4 credit hours depend upon whether or not the student is pursuing the thesis option. If a

student chooses the non-thesis option, the student must choose one additional two (2) credit hour elective and will be required to take a two (2) credit hour capstone course. If a student chooses the thesis option, the student must fulfill the remaining four (4) credit hour requirement via Thesis I. If an additional (2) credit hours of Thesis I is necessary, programmatic adjustment will be made with electives. Hours required beyond Thesis I are accomplished in Thesis II if necessary.

The culminating experience for non-thesis students is the Aeronautics Capstone course. The course consists of a scholarly paper or project that integrates knowledge attained through course work and research experience. Students may accomplish such things as original empirical research, case studies, reports or research results, theoretical or applied designs of logistical systems; may include improvements on existing systems, or the completion of a project from an identified client. The student will be engaged in workplace or internship applications of the capstone or empirical analysis of an aviation management and logistics system.

The following course work is unique to this MS because they are newly developed courses specifically addressing the requirements of the industry and they don't exist in other MS degrees in the State. 1) **Logistical Strategies in Aviation Management**: Students will learn the business of aviation logistics and its role in the global supply chain by examining different product sectors using air freight both domestically and internationally; **2) Aviation Economics and Fiscal Management**: This course uses examples from key industries making up the aviation sector and examines profit strategies employed by cargo-carrying airlines, all-cargo carriers, airports, ground transport providers, and others to highlight their role in and impact on the business of air freight; **3) Modeling and Forecasting for Aviation Logistics Planning:** A presentation of topics and techniques necessary to understand and develop an aviation logistics model for producing an accurate and effective forecast for demand of aviation services. **4) Weather for Aviation Logistics Planning:** Few things are more disruptive to an aviation organization than weather events. This course teaches students weather concepts and how to use weather products for developing strategies for aviation operations management. The course focuses on various phenomena and the effect on airport, airline, and small aircraft feeder operations. The students will gain an understanding of the development of hazardous weather, predictive products available and how to use them to predict impact on aviation operations. An understanding of regulations and aircraft weather operations plus regional weather phenomena are discussed; **6) Air Cargo Security:** The course examines the Post 9-11 legislation with respect to air cargo security and the unique challenges facing the industry today. An eye toward managing those challenges to allow future growth is explored; **7) Seminar: Emerging Issues in Aviation Logistics:** This course takes a look at issues domestically and internationally that can impact aviation operations. The course is flexible to adjust to current economic, regulatory, political, geographical and human-centric challenges to the movement of people and goods. Developing strategies to deal with an ever-changing logistical environment is the focus. **8) Legal and Regulatory Issues for Air Cargo Management:** This course provides students with an in-depth exploration of the regulatory bodies and the protocols and procedures that govern the air cargo industry; **9) Aviation Safety Management Systems:** Students take an in-depth study of the concepts and principals of aviation safety management (SMS) and SMS systems. Safety policy, risk management, assurance and safety promotion are the key focus areas. Additionally, analysis of the design, implementation, and management of an SMS system as related to aviation operations in various aviation sectors is discussed; **10) Airline Transportation Operations:** In this course the focus is the managerial aspects of airline transportation. The framework of airline operations both micro and macro levels are taught. Public Policy, Regulation, Operations, Structure and Economics are all included; **11) Aviation Contract Management**: During this course the student gains practical experience in the negotiating, letting, and management of vendor and labor contracts in the aviation sector.

The degree has a component of general inquiry applicable to knowing any system and it includes both TECH (technology) and MIS (management information systems) courses. Additionally there is a component of inquiry specific to the Aviation Management and Logistics occupation; AERN courses.

Course work in general inquiry; 1) Quantitative Methods; 2) Six-Sigma; 3) Research Methods in Technology; 4) Analytics for Decision Making (MIS); 5) Operations, Service, and Supply Chain Management (MIS); 6) Global Technology Strategy (MIS)

Course work specific to the discipline; 1) Modeling and Forecasting for Aviation Logistics Planning; 3) Individual Investigation or Internship in Aeronautics; 4) Logistical Strategies in Aviation Management; 5) Aviation Economics and Fiscal Management; 6) Aviation Industry Contract Management; 7) Legal and Ethical Issues for Aviation Logistics Management.

With the listed course work the student will gain a broad-based experience on analyzing and constructing logistics systems, analyzing risk, analyzing decision making, practicing ethics within the legal requirements of logistics in aviation, dealing with current and emerging issues, and the Individual Investigation allows for a focused study of a particular problem or systems incorporating all of the above skill set.

All courses will be delivered online. After conversations with the College of Business, and in consideration of the existing and successful online MBA program, all new courses developed for the proposed masters will similarly be held to two credit hours delivered over an 8-week timeframe. The exception would be the 9-hours of TECH courses which are traditional semester courses. It is estimated that the degree will be slightly accelerated and be able to be completed in 3 semesters for most students.

Standard Kent State Graduate Admissions will apply with respect to 3.0 GPA for Unconditional Admission. After discussions with Graduate Studies and observing national trends to not require the GRE, this degree will not require it. Applicants will be weighted on undergraduate GPA, work experience, goal statement, and letters of recommendation. There will be a minimum English proficiency score for International Students of 6.0 on IELTS or 525 on TOEFFL or equivalent. Due to the 33-credit hour total for this degree and the requirement of 30 unique graduate hours for combined programs, this degree is not well suited to a combined format.

The Admissions Committee will consist of elected Aeronautics faculty with Graduate Faculty status and the Graduate Coordinator.

Programmatic layout is shown in Table 1. An asterisk denotes new courses.

MS in Aviation Management and Logistics Course Requirements
Technology Core (9): All courses required

Course Number	Course Name	Credit Hours
TECH 60001	Quantitative Methods in Technology	(3)
TECH 60003	Six-Sigma: Tools and Applications for Technology	(3)
TECH 60078	Research Methods in Technology	(3)
Aeronautics Core (10): All courses required		
AERN 65100*	Logistical Strategies in Aviation Management	(2)
AERN 65200*	Aviation Economics and Fiscal Management	(2)
AERN 65230*	Modeling and Forecasting for Aviation Logistics Planning	(2)
AERN 65150*	Legal and Regulatory Issues for Air Cargo Management	(2)
AERN 65091*	Seminar: Emerging Issues in Aviation Logistics	(2)
Business Core (6): All courses required		
MIS 64005	Analytics for Decision Making	(2)
MIS 64041	Operations, Service and Supply Chain Management	(2)
MIS 64042	Global Technology Strategy	(2)
Thesis Option (8):		
AERN 65199*	Aeronautics Thesis I	(6)
Approved Program Electives	Students without any previous aviation weather experience are required to take AERN 65400 Weather for Aviation Logistics Planning as one of their electives	(2)
Non-Thesis Option (8):		
AERN 65499	Capstone in Aeronautics	(2)
Approved Program Electives	Students without any previous aviation weather experience are required to take AERN 65400 Weather for Aviation Logistics Planning as one of their electives	(6)

The following is a list of approved program electives:

MS in Aviation Management and Logistics Approved Program Electives		
AERN 65300*	Air Cargo Security	(2)
AERN 65400*	Weather for Aviation Logistics Planning	(2)
AERN 65092	Aeronautics Practicum or Internship	(1 – 6)
AERN 65240	Aviation Safety Management Systems	(2)
AERN 65300	Airline Transportation Operations	(2)
AERN 65499	Capstone in Aeronautics (repeatable for a maximum of 6 credit hours)	(2)
AERN 65200*	Aviation Industry Contract Management	(2)
Students may one select only one of the following as an elective.		
MKTG 65051	Marketing Management	(2)
MIS 64158	Leadership and Managerial Assessment	(2)
MIS 64271	Human Resource Management	(2)

Online Instruction:

Upon acceptance to the MS in Aviation Management and Logistics program, the Graduate Coordinator will assign the student an Advisor who will serve as a mentor to the student throughout their program of study.

The College of Aeronautics and Engineering has faculty and resources already in place to conduct web delivered course work. To bolster our capabilities the CAE has hired an Instructional Designer in-house. This person will aid faculty members with conversion to web delivery of current courses and general development for web delivery of new courses.

The dedicated in-house Instructional Designer reports to Dr. Ben Hollis, Director of Instructional Design. Through this arrangement, the CAE will be able to take direct advantage of services and support offered through the Office of Continuing and Distance Education. The CAE will be given access to Digital Strategy and Marketing, Technology Designers, Outreach Program Management, Educational Technology Designers, and On-line Learning Coordinators. In total 31 persons work in Continuing and Distance Education. An example of the online teaching support can be found here.

To facilitate consistency in course development and delivery, all new courses will use the Quality Matters (QM) rubric as well as the Kent State Online Template as a guide. Peer reviewers from the Office of Continuing and Distance Education will be invited to informally assess the new courses. Existing courses are currently offered in online formats and will maintain their current development and assessment practices.

In the web delivered format if a student chooses the thesis option their faculty advisor will oversee and direct any research performed by students in the program. The Graduate Coordinator in conjunction with the advisor will form a thesis committee per the CAE Handbook. In combination the coordinator and the advisor will guide the student through the processes for a Thesis per the CAE handbook. Given that this degree is 100% online the advisement will be via the Blackboard Collaborate function which is similar to a Skype. Skype and other communications platforms can also be used. The Thesis defense is preferred in person. Programmatic exceptions can be made for the use of communications platforms in cases where traveling to Kent State is impractical or prohibitive.

Students will have access to faculty and resources via the university learning system through the vendor Blackboard. Learning modules, multi-media presentations, assignment submission and testing are all accomplished via the learning system and site for each course. Separate vendors specific to academic testing will be used to proctor exams.

Undergraduate students will be well trained on the use of Blackboard through their undergraduate studies. Students new to Kent State or learning systems will find Blackboard intuitive to use and easy to navigate. Individual course instructors will provide the necessary guidance and there are tutorials available online through the university at the Blackboard administration site.

Academic progress is monitored via completed assignments, completed testing, interactive instruction, journals, discussion boards, wikis, blogs, and external content e.g. Cengage Learning MindLinks, McGraw-Hill Higher Education and many more tools available similar to any modern learning management system. Plagiarism tools available to the instructor through Blackboard is SafeAssign. Progress marks are instantly available to the student upon instructor grading.

Program Quality:

The program is distinctly different, both conceptually and qualitatively. While the concentrations of flight, aeronautical studies, air traffic control and aviation management will serve as feeder programs into this degree, the focus on executive management and air cargo delivery is distinct and not included in undergraduate programs. The combination of course work as well as the incorporation of either a capstone or thesis is designed for the student to gain sufficient expertise to act as a Logistics Manager in an Aviation organization. The program emphasizes the theoretical basis of the discipline via the inclusion of the Quantitative Methods and Research Methods courses. The program places emphasis on professional decision making and teaches the use of critical analysis in problem solving via Analytics for Decision Making, Six-Sigma, Aviation Economics and Fiscal Management, Operations, Service and Supply Chain Management, Modeling and Forecasting for Aviation Logistics Planning, and Logistical Strategies in Aviation Management courses.

The program is designed to educate students broadly so that they have an understanding of the major issues and concerns in the discipline or professional area via the Emerging Issues in Aviation Logistics, Elective. Specialized education relative to weather and challenges with logistical planning for aviation operations due to weather events is included. This training is unique to this master's degree and requires significant understanding of the system as a whole and how to make decisions to mitigate the effect of weather on operations.

There is support and advisory input from leading industry experts such as United Parcel Service. The Industrial Advisory Board (Appendix A) for the College of Aeronautics is in support as well. The program curriculum has been designed to offer what students need to know for competence at the expected level of professional expertise. And to be able to apply their knowledge directly to their field.

Accreditation:

This program will seek accreditation from the Aviation Accreditation Board International (AABI) and has been designed to meet AABI requirements for master's degrees programs. Timeline for accreditation begins the semester prior to the first graduating class with submission of a letter of intent. The site visit from AABI will be conducted in the fall after the first graduating class and will be retroactive to that graduating class if received.

Nationally there are only two other institutions with AABI accredited MS programs. Embry-Riddle Aeronautical University has an M.S. in Aeronautics and another in Safety Science while Middle Tennessee State has an M.S. in Aeronautical Science with Management concentration. Neither of these address the level of Management or Logistical functions of airlines and/or air cargo organizations in this proposal. AABI accreditation of our proposed M.S. in Aviation Management and Logistics will be a high quality mark and the only such program nationally accredited.

The CAE is one of only two Ohio institutions with undergraduate AABI accreditation. With five such accredited programs, the CAE is the largest and longest standing (with respect to accreditation) aeronautics program in the state. Undergraduate programs have been through initial and two reaffirmation cycles; each cycle equals 5 years. As such, there are personnel within the CAE who have the experience to ensure this proposal meets AABI standards and to see the process thorough to accreditation.

With respect to accreditation of master's degree programs, AABI has twelve (12) specific criterion, each with anywhere from four (4) to twelve (12) subordinate requirements. These requirements are almost a direct match of those at the undergraduate level, for which the CAE has already demonstrated considerable success. A complete listing of those criterion can be found here: AABI Graduate Program Accreditation

Programmatic Need and Student Demand: Factual References from: Aviation Logistics, Michael Sales, Kogan Page, UK. ISBN 978 0 7494 7270 2

The International Air Transportation Association (IATA) forecasts a doubling of the number of airline passengers by 2030. Air cargo should reach 150 million tons per year. The advent of new generation wide-body aircraft allows a significant amount of cargo to be loaded on every flight; even with full passenger loads. These increases will support 80 million jobs world-wide. (para-phrased and quoted)

Approximately 35 percent of the world's total cargo traffic is classified as air cargo. A major portion of air freighted goods travel in the cargo holds of large aircraft such as the Boeing 777 and Airbus 340 each with 25 tons of capacity. Medium sized aircraft e.g. 737's and similar and large aircraft Boeing 747-400 and 800's carry every kind of product from flowers, to medicine, cell phones and live animals. And at the extreme end of the scale is the Antonov with 150 metric tonne capability. (para-phrased and quoted)

Internet shopping has revolutionized and placed high demands on product delivery. Aviation faces the

challenges of completion from other modes of transportation of goods, war-torn areas, dynamic weather situations, and environmental issues. The industry will have a growing need for employees that can manage the wide-ranging and globally-sized logistics of moving people and goods via air transport.

Enrollment in the MS degree will come from several sources. A sample survey of currently enrolled students taking classes in the CAE was conducted. Students from all of the undergraduate disciplines were told about the proposed MS in Aviation Management and Logistics. The result was 45 out of 104 students who replied (43%) indicated they are interested in pursuing the degree. With over 425 currently enrolled undergraduate students, in the affected disciplines, the pool of prospective aeronautics students is quite large.

Another source of potential students comes from the larger aeronautics alumni base. Because the program is to be delivered wholly online, this population may find it most convenient to pursue a master's degree while working in their field. A recent survey of aeronautics alumni found 73.6% of respondents either interested or strongly interested g in pursing the proposed degree. See Appendix C for more detail.

Internally the CAE, under its new structure, will have an Assistant Dean of External Affairs. One of the duties will be to connect the college with organizations both regionally and nationally. Connecting with diverse and traditionally underrepresented groups in those organizations will be part of those duties. Finally, given that the proposed degree is unique among Ohio aviation bachelor's degree granting institutions, of which there are five (including Kent State), aviation and aeronautics students at those institutions may find this degree attractive.

Beyond traditional students, an O*Net Search indicates there are no less than 24 aerospace/aviation companies in Northeast Ohio brining in 3.2 billion annually to the region. The online delivery format will easily allow persons working in those industries an opportunity to earn a MS degree.

In addition to domestic students the global expansion of air travel and air cargo has created an international student base of traditional students and working professionals seeking to advance in their organizations.

The aggregate potential student cohort being current students, students from other aviation programs, domestic working professionals and international traditional and working professionals, will provide sufficient student enrollment to maintain the program.

National Need: In 2014 Airlines for America (A4A) reported that the United States attributed more than $1.5 trillion to commercial-aviation goods and services. [i] Furthermore, U.S. airlines in particular transported over 50 tons of cargo per day. Globally, the tonnage of world airfreight carried has only increased since the 1950s.[ii] The Boeing Company predicts that air cargo traffic will more than double over the next 20 years, fueled by an annual increase of 4.2% growth per year [iv]. Globalization and demand for transporting people and things has in turn created tremendous growth in air transportation. As such, companies must manage the logistics of equipment, parts, and people while updating processes and diversifying services to effectively meet the needs of aviation logistics. The domestic and international need for graduates with these skill sets is a demand that needs to be met. The degree in Aviation Management and Logistics degree will fill this requirement.

International Need: The International Air Transport Association (IATA) released its latest industry statistics indicating a 7% increase in 2016 vs. 2015 or roughly an additional 242 million air trips. The leading market was again Asia-Pacific with 35% which is an 11.3% increase. They are followed closely by Europe at 26% market share up 6.1%. North America is 3rd followed by Latin America, the Middle East and Africa all posting significant Increases. The top five city pairs were Hong Kong – Taipei; Jakarta – Singapore; Bangkok – Hong Kong; Kuala Lumpur – Singapore; and Hong Kong – Seoul.[2] The IATA also released a 2036 forecast estimating a near doubling of world are traffic to 7.8 billion trips by 2036. Asia-Pacific will be a driving force behind this growth but other international regions will as well. By 2036 China will have 921 million additional passengers; U.S. 401 million; India 337 million; Indonesia 235 million; and Turkey 119 million new passengers. The compound growth rate in many of these markets is reaching 7.2% per year. [3]

Local Need: There is tremendous job placement opportunity for graduates, as well as a significant source of potential students. The Dayton Business Journal has reported Ohio to be the largest original equipment manufacturer supplier in the United States for both Airbus and Boeing [iii]. Cleveland Plus reports that over 500 Ohio firms directly support or contribute to the aerospace and aviation industry.

[i] http://airlines.org/dataset/a4a-presentation-industry-review-and-outlook/
[ii] https://people.hofstra.edu/geotrans/eng/ch3en/conc3en/evolairtransport.html
[iii] https://www.bizjournals.com/dayton/news/2017/08/22/as-profits-soar-industrywide-ohio-is-a-top-state.html
[iv] http://www.boeing.com/commercial/market/cargo-forecast/
[2] International Need
[3] International Need (2)

Access and Retention of Underrepresented Groups:

The CAE is committed, through the positions of the Graduate Coordinator, Marketing Director, and Assistant Dean for External Affairs, to have a robust recruitment and retention effort of traditionally underrepresented student populations. Additionally, the CAE will rely upon affiliations existing with current undergraduate student groups such as Women in Aviation International (WAI); the Organization of Black Aerospace Professionals (OPAB), and the National Gay Pilots Association (NGPA). The CAE has demonstrated success with recruiting and retaining underrepresented groups at the undergraduate level as exampled by the fact that the Aeronautics program is responsible for 43.6% of all aeronautics students in Ohio whom are classified as underrepresented. All information in the tables below was provided by Mr. Wayne Schneider, Dir. Research Planning and Institutional Effectiveness.

The undergraduate URS representation for Aeronautics (AERN) in 2016 was 48 as compared to 110 aggregate for all of the AERN programs in Ohio (see tables below). Fully 55.8% of all URS aviation students in Ohio were enrolled at Kent State University in 2016. In 2017 URS enrollment in AERN at Kent State climbed to 63. This comprised 57.2% of the total URS aviation enrollment in Ohio.

Kent State College of Aeronautics and Engineering – Undergraduate Underrepresented Students						
URS	**Ethnicity**	**2013F**	**2014F**	**2015F**	**2016F**	**2017F**
URS	African American	26	30	27	21	29
	Hispanic	6	11	10	13	19
	Two or More	9	8	13	13	14
	American Indian or Alaska Native				1	1
URS Total		**41**	**49**	**50**	**48**	**63**
Non-URS Total		**624**	**649**	**579**	**508**	**465**
Grand Total		**665**	**698**	**629**	**556**	**528**

Note: In 2016 and 2017 over half of all students considered part of the underrepresented population in Ohio aviation programs, were enrolled at Kent State University College of Aeronautics and Engineering (CAE).

State of Ohio Aviation Programs – Underrepresented Students - Undergraduate						
URS	**Race Ethnicity**	**2012**	**2013**	**2014**	**2015**	**2016**
URS	AI (American Indian or Alaska)				1	1
	BL (Black or African American)	31	30	34	34	44
	HS (Hispanics of any race)	20	14	24	26	35
	MR (Two or more races)	11	14	14	26	31
URS Total		62	58	72	86	110
Non-URS Total		710	744	809	885	872
Grand Total	**Grand Total**	**772**	**802**	**881**	**971**	**982**

Non-URS Total		**1,445**	**1,474**	**1,663**	**2,023**	**1,470**
Grand Total		**1,555**	**1,613**	**1,792**	**2,165**	**1,611**

Statewide Alternatives to this MS:

The proposed Masters in Aviation Management and Logistics will be unique to Ohio. Neither Bowling Green University nor Ohio University have aviation or aeronautics master's degrees. And although the University of Cincinnati has a master's level aerospace degree, it is engineering focused and not on management and logistics as per this proposal. This degree is not only subject matter and academically unique, it is conceptually unique in that it directly incorporates course work from the College of Business and its very successful Executive MBA program. The tri-fold Aeronautics, Business, and Technology exposure provides a very broad-based experience for the students; not available in other MS degrees.

Universities in Ohio with Master Degrees in Aeronautics		
Institution	**Degree**	**Differences**
Ohio State University	Aeronautical and Astronautical Engineering	Does not address Management, Logistics or Operations
University of Cincinnati	Aerospace and Mechanical Engineering	Does not address Management, Logistics or Operations
Case Western	Aerospace Engineering	Does not address Management, Logistics or Operations
Wright State University	Aerospace Systems Engineering	Does not address Management, Logistics or Operations
Ohio University	None	
Bowling Green	None	

The rich heritage of Aviation in Ohio and the plethora of aviation and aerospace companies in Northeast Ohio positions Kent State perfectly as the home of this MS. The Cleveland+Business Aviation and Aerospace report[1] shows 29 companies headquartered in the geographic region.
https://www.clevelandplus.com/business/key-industries/aerospace-and-aviation/

The Ohio State University, Ohio University, Bowling Green University, and the University of Cincinnati have aviation and/or aerospace programs that could provide opportunities for collaboration. While these universities do not all have graduate programs and the graduate programs that exist are aerospace and/or engineering, it is possible for the MS in Aviation Management and Logistics to support aspects of these and other areas of aviation.

The CAE and this proposed MS enjoy strong institutional support from central administration and resources to start and continue the degree. Please see the accompanying financial analysis, Appendix D.

In Summary the Master of Science in Aviation Management and Logistics is a unique addition to graduate education in Ohio and will serve current undergraduate students as well as alumni and other working professionals. The degree brings a mix of traditional inquiry necessary for graduate education and industry specific inquiry and knowledge relevant to management of logistics in modern aviation companies. It also addresses the significant projected increase in movement of people and goods via air transport through the next decade. The need is local, national and international. This will position Kent State as a global aviation education institution. And the university's emphasis on research will be supported as well. Mostly though, the students who attain the degree will be very well positioned to advance their careers and make a significant impact in this global discipline.

SUPPLEMENTAL INFORMATION TO ACCOMPANY FULL PROPOSAL

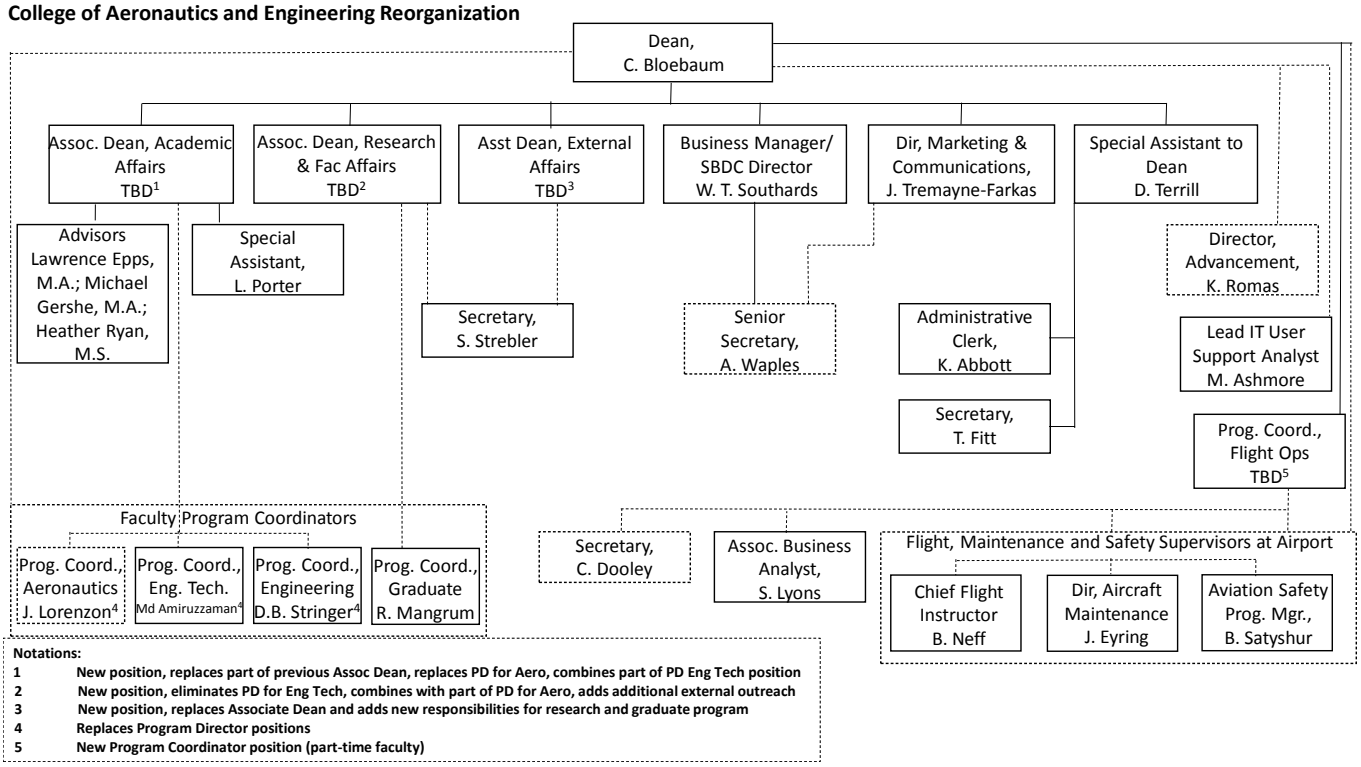
Appendix A

Activity	**Aeronautics Advisory Board**		
Type			
Category			
Banner ID	**Mailing Name**	TITLE	EMPLOYER
810713000	Mr. Robert Bianco	Senior Materials Scientist	Swagelok Company
800000970	Mr. Steven G. Bierfeldt	Air Traffic Controller	FAA
810592835	Mr. Donald J. Cassaniti	District Support Manager	FAA
810438778	Michael L. Heil, Ph.D.	Retired President	Ohio Aerospace
800360435	Ms. Linell A. Homentosky	Regional Aviation Lead	Michael Baker International
800271580	Colonel Daniel J. Sarachene	Captain	Delta Airlines
800361748	Ms. Irena Cherise Wentzel	First Officer	Delta Airlines
800008335	Mrs. Donata M. Ziedins	Captain	United Airlines
800282544	Mr. Mark D. Zuranski	Chief Pilot	Eaton Corporation
800954723	Mr. Arpit Malaviya	CEO	Prodigiq

***Board meets each Fall and Spring semester**

Appendix B

College of Aeronautics and Engineering Reorganization



Notations:

1 New position, replaces part of previous Assoc Dean, replaces PD for Aero, combines part of PD Eng Tech position
2 New position, eliminates PD for Eng Tech, combines with part of PD for Aero, adds additional external outreach
3 New position, replaces Associate Dean and adds new responsibilities for research and graduate program
4 Replaces Program Director positions
5 New Program Coordinator position (part-time faculty)

Appendix C

Aeronautics Alumni Survey

Survey Results for Select Questions [N=53]

Legend: 5 Strongly Agree; 4 Agree; 3 Neutral; Disagree; 1 Strongly Disagree

Question	5 %	4 %	3 %	2 %	1 %
1) *As an alumni working in the aviation industry I would be interested in this degree*	47.17	26.42	13.21	9.43	3.77
2) I feel that this degree is appropriate given the domestic and international need for moving people and goods with air transport.	52.83	28.30	15.09	1.89	1.89
3) I feel this degree will serve the aviation industry well and advance the discipline of aeronautics	58.49	26.42	9.43	3.77	1.89
4) Employers in Ohio and nationally will be interested in having employees accomplish this degree.	41.51	32.08	16.98	5.66	3.77
5) The College of Aeronautics and Engineering is an appropriate place for this degree to be administered.	88.68	3.77	7.55	0	0
6) The course work listed will prepare a student for work in aviation management and logistics	84.88	15.22	0	0	0

Appendix D
Fiscal Analysis

Kent State University

Fiscal Impact Statement

MS Aviation Management and Logistics

	Year 1	Year 2	Year 3	Year 4
I. Projected Enrollment				
Headcount full-time				
Headcount part-time	15	34	44	54
Full-time equivalent (FTE) enrollment	10	23	30	37
II. Projected Program Income				
Tuition (total for KSU)	$ 158,537	$ 375,416	$ 494,635	$ 618,158
Expected state subsidy (total for KSU)	$ 87,680	$ 204,708	$ 269,644	$ 336,922
Externally funded stipends, as applicable	$ -	$ -	$ -	$ -
Other Income	$ -	$ -	$ -	$ -
Total Projected Program Income	**$ 246,217**	**$ 580,124**	**$ 764,279**	**$ 955,080**
III. Program Expenses				
New personnel:				
- Instruction				
Full-time: Part of up to 4	$ -	$ 44,644	$ 49,729	$ 56,472
Part-time: 0				
-Non-instruction				
Full-time: 0				
Part-time: 0				
Current personnel:				
- Instruction				
Full-time: Part of up to 8	$ 47,748	$ 44,644	$ 49,729	$ 56,472
Part-time: 0	$ -	$ -	$ -	$ -
-Non-instruction				
Full-time: 0		$ -	$ -	$ -
Part-time: 0	$ -	$ -	$ -	$ -
Benefits for all personnel	$ 13,912	$ 26,015	$ 28,978	$ 32,907
New facilities/building/space renovation (describe in narrative below)	$ -	$ -	$ -	$ -
Scholarship/stipend support				
Additional library resources	$ 150	$ 300	$ 450	$ 600
Additonal technology or equipment needs	$ 500	$ 1,000	$ 1,500	$ 2,000
Other expenses (see below)	$ 133,466	$ 304,782	$ 401,668	$ 282,270
Total Projected Program Expenses	**$ 195,776**	**$ 421,384**	**$ 532,053**	**$ 430,722**
Projected Program Net	**$ 50,440**	**$ 158,740**	**$ 232,226**	**$ 524,358**
Other Expenses				
Allocation of expenses covered by general fee	$ -	$ -	$ -	$ -
RCM overhead - estimated at 20% for CAE Tuition and Non-Resident Fees and 49.4	$ 61,286	$ 139,770	$ 184,022	$ -
RCM tuition+SSI allocation to other colleges (pays expenses of other colleges)	$ 50,080	$ 132,811	$ 175,346	$ 229,870
Professional development	$ 2,000	$ 2,000	$ 2,000	$ 2,000
Supplies (office, computer software, duplication, printing)	$ 100	$ 200	$ 300	$ 400
Telephone, network, and lines	$ -	$ -	$ -	$ -
Other info and communication pool	$ 20,000	$ 30,000	$ 40,000	$ 50,000
Total Other Expenses	**$ 133,466**	**$ 304,782**	**$ 401,668**	**$ 282,270**

BUDGET NARRATIVE:

[This section is for describing facilities, scholarship/stipend support, library resources, additional technology, etc., if applicable.]

This program will be 100% online, so it will use very limited facilities, may require some library resources, and require no new equipment and technology.

Marketing and promotion will be more than for typical programs.

This is a nascent program, so it will not have a substantial impact on the University's net income. However, if the 20% RCM overhead rate for 100% online programs is used, it will have a significant impact on the College's net income, and it will make significant contributions to the RCM overhead and funds flowing to other Colleges, which will also contribute to the RCM overhead.

1. **Clarification and revisions** based upon the reviews of the program development plan (PDP).
2. Any **additional information** needed to address the review criteria for new programs.
3. **Appendice**s containing such items as faculty vitae, course descriptions, needs surveys and consultants' reports.
4. **Certification of Curriculum Proposal (CCP)** form (http://provostdata.kent.edu/roadmapweb/06/ccp-programs.doc)
5. **Internal memos concerning duplication, encroachment, impact, support** that affect department, college and regional campuses' resources (staffing, space, library, finances).
6. **External letters of support, survey results.**
7. **Catalog copy**, including admission requirements, job opportunities and course requirements (see another graduate program in www.kent.edu/catalog for an example).

[i] http://airlines.org/dataset/a4a-presentation-industry-review-and-outlook/
[ii] https://people.hofstra.edu/geotrans/eng/ch3en/conc3en/evolairtransport.html

26180 Curtiss Wright Parkway
Cleveland, OH 44143

FLEXJET

November 01, 2018

To Whom it May Concern,

With the rapid growth we've experienced here at Flexjet, we've worked very closely with Kent State University over the past few years. The caliber of student coming out of the College of Aeronautics and Engineering cannot be overstated. Every graduate we've hired have gone on to be exceptional employees within our organization.

I've reviewed Dr. Mangrum's outline for the Master of Science – Aviation Management and Logistics and strongly support the initiative. I'm excited to see how this program will better prepare the students for management level positions in the aviation industry.

Jason Christensen
SENIOR OCC MANAGER, SCHEDULED OPERATIONS
P 216.650.3493
JFChristensen@OneSky.com

Global Operations Center
825 Lotus Avenue
Louisville, KY 40213

March 14, 2018

Educational Policies Council
Dr. Todd A. Diacon, Co-Chair
Dr. Deborah C. Smith, Co-Chair
208 Schwartz Center, 800 E. Summit Street
Kent, Ohio 44242

Dear Drs. Diacon and Smith,

This letter is in support for the Master of Science in Aviation Management and Logistics degree program to be offered by Kent State University's College of Aeronautics and Engineering. UPS recognizes the value of industry partners in preparing students for careers in technical fields. At UPS, we believe in integrating industry partners with education, this concept can provide a unique perspective and benefit to students, faculty and industry participants alike.

UPS has offered to provide guest lecturers, curriculum advisors, industry mentors, and advisory board members. The benefit to us is to raise awareness of our company to these students, gain access to a pool of graduate students for recruitment. This program has the potential to truly transform the instructional practices and prepare a highly skilled workforce helping preserve the nation's competiveness and economic opportunity in response to rapid technological change and increasing global competition. The benefit for the students is to bridge the gap between curriculum and expectations of graduates when they work in the industry, get exposure of the industry and possibly secure employment after graduation.

The Master of Science in Aviation Management and Logistics degree is the ultimate response to an emergent career that Kent State has identified and has developed an up-to-date, relevant curriculum to best prepare students for careers in logistics. Kent State University has positioned its leadership for success in this master's program and UPS is eager to be a part of this exciting new program.

Sincerely,

Capt. Roger S. Quinn
Director of Training – UPS Airlines
(502) 359-8874
rquinn@ups.com

Powering Business Worldwide

Eaton
Flight Operations
26340 Curtiss Wright Parkway
Richmond Heights, OH 44143
Tel: 440-523-4805
Fax: 440-523-4875

November 20, 2018

Dr. Richard L. Mangrum, ATP
Professor Aeronautics
Graduate Coordinator CAE

Dr. Mangrum,
I wanted to take this opportunity to communicate my support for the Master of Science - Aviation Management and Logistics degree.

Starting my career as a pilot, I spent the majority of my professional career managing a cockpit and the technical controls that go along with that responsibility; however, with every level of advancement there became a greater focus on people, process management, and logistics. I feel this Master of Science degree would be a valuable asset to someone, like myself, who has seen the focus of their job change from hardware to liveware.

Respectfully yours,

Mark Zuranski
Chief Pilot
Eaton Corporation
216-401-9299
markdzuranski@eaton.com

Description of Program:
This degree will prepare graduates to perform at an advanced level in organizations that move people and/or goods via air transport. The general principles of management of these organization and specifically the management of logistics and systems of the companies doing this type of work are the main focus. The degree is applicable to the management of any logistics system but is aviation specific. Working professionals in any manner of aviation organization engaged in air transport are well suited for this degree program. Current students wanting to be better prepared to enter management level positions upon graduation are also well suited for this degree.

Fully Offered At:
Online

Accreditation:

Aviation Accreditation Board International – (will apply)

Admission Requirements:
- Official transcript(s)
- Bachelor's degree from an accredited (or international equivalent) college or university
- Minimum 3.000 undergraduate GPA (on a 4.000 point scale)
- Two letters of recommendation
- English language proficiency - all international students must provide proof of English language proficiency (unless they meet specific exceptions) by earning one of the following:
    - Minimum 525 TOEFL PBT score (paper-based version)
    - Minimum 71 TOEFL IBT score (Internet-based version)
    - Minimum 74 MELAB score
    - Minimum 6.0 IELTS score
    - Minimum 50 PTE score

For more information about graduate admissions, please visit the Graduate Studies website. For more information on international admission, visit the Office of Global Education website.

Program Learning Outcomes:
1. Forecast and Model organizational logistics and planning, including regulatory issues
2. Analyze and manage safety systems, human error and decision making
3. General management of Air Transportation systems

Graduates of this program will be able to:
1. Design, Build, Analyze and Manage logistical systems at aviation organizations engaged in the transport of people and goods via air transport
2. Perform management functions at an executive level overseeing the processes of an aviation organization
3. Model and Forecast logistical strategies for domestic and international aviation operations
4. Analyze and Manage safety systems, human error analysis, and decision making

Program Requirements:

Major Requirements		
Aeronautics Requirements (10 hours)		
Course	**Title**	**Credits**
AERN 65100	Logistical Strategies in Aviation Management **NEW**	2
AERN 65200	Aviation Economics and Fiscal Management **NEW**	2
AERN 65230	Modeling and Forecasting for Aviation Logistics Planning **NEW**	2
AERN 65150	Legal and Regulatory Issues for Air Cargo Management **NEW**	2
AERN 65091	Seminar: Emerging Issues in Aviation Logistics **NEW**	2
Business Requirements (6 hours)		
MIS 64005	Analytics for Decision Making	2
MIS 64041	Operations, Service and Supply Chain Management	2
MIS 64042	Global Technology Strategy	2
Technology Requirements (9 hours)		
TECH 60001	Quantitative Methods in Technology	3
TECH 60003	Six-Sigma: Tools and Applications for Technology	3
TECH 60078	Research Methods in Technology	3
Culminating Requirement (8 hours)		
Choose from the following:		8
Thesis Option AERN 65199 Thesis I **NEW**		6
Program Elective	Approved Program Elective	2

Non-Thesis Option (8 hours)

Choose from the Following:

AERN 65499	Capstone in Aeronautics [1]	**NEW**
AERN 65301	Air Cargo Security	**NEW**
AERN 65400	Weather for Aviation Logistics Planning [2]	**NEW**
AERN 65092	Practicum in Aeronautics [3]	**NEW**
AERN 65201	Aviation Industry Contract Management	**NEW**
AERN 65240	Aviation Safety Management Systems	
AERN 65300	Airline Transportation Operations	
AERN 65496	Individual Investigation in Aeronautics [3]	

Minimum Total Hours: 33

1. All Non-thesis students must complete AERN 65499 as one of their electives.
2. Students are required to complete AERN 65400 if they do not have any previous formal or on-the-job aviation weather experience.
3. Maximum 6 credit hours of AERN 65092 and AERN 65496, combined, may be applied to the degree.

Graduation Requirements:

Completion of either AERN 65499 or a Thesis

CHANGE REQUEST FORM
ONLINE OR BLENDED/HYBRID DELIVERY

This form must be used when a CCGS affiliated institution intends to deliver 50% or more of a previously approved degree program via electronic or other distance learning means.

CCGS institutions submitting requests for graduate programs should submit the request to Steve Nameth (snameth@highered.ohio.gov) and copy Matt Exline (mexline@highered.ohio.gov). Documents may be submitted as Microsoft Office documents (e.g., Word or Excel) or as PDF documents.

Institution offering the degree program: Kent State University

Degree designation (*e.g. M.S. in Biotechnology*) MS Aviation Management and Logistics

In order to make this request, please confirm that the program will satisfy the following criteria:

☒ Program will use Quality Matters or similar metric-driven online course design/assessment tools

☒ All instructors will be trained in offering online content and online assessments

☒ The offering university has an institutionally approved plan for securing authorizations to deliver distance learning content in other states (e.g., NC-SARA membership).

☒ The offering university has approved all online courses for this program as academically appropriate for graduate study

Is this degree program subject to approval/accreditation by a governing body beyond ODHE and HLC (e.g., CAEP, CCNE, ABET, AACSB)?

☒ No

☐ Yes (*If yes, please name the accrediting body here.)*

Does this degree program include the creation of original research or scholarship?

☐ No

☒ Yes (*If yes, please complete question 1 on the following Supplementary Information form.)*

Does this degree program include an experiential component (e.g., clinical or professional development experience)?

☐ No

☒ Yes (*If yes, please complete question 2 on the following Supplementary Information form.)*

Will the program be offered in partnership with a third-party commercial on-line service provider?

☒ No

☐ Yes (*If yes, please provide name of provider and their responsibilities [e.g., content creation, recruitment, admissions, advising])*

Approximately what percentage of program content will be completed on-line? 100%

Signature of the official (Graduate Dean or equivalent) below confirms that the information above is accurate.

_____*signature* _____*date*

_____*name and title*

SUPPLEMENTARY INFORMATION FORM

1.) ***A.*** On a separate page, describe how program faculty will oversee and direct original research performed by students in the program. At a minimum, address the following areas:

- how students will gain access to required facilities and resources
- how students will be trained in necessary procedures
- how students will present their progress
- how the progress and quality of student projects will be assessed

Include any additional information needed to provide assurance that the quality of the research performed will be equivalent to the face-to-face offering of this degree.

B. On a separate page, describe how program faculty will mentor students, and how students will participate in the socialization that is necessary for the effective scholarly exchange of ideas at the level appropriate for the degree sought. At a minimum, address the following areas:

- how students will select a primary mentor and members of any required oversight committee
- frequency of any mandatory interactions between program faculty and students
- opportunities that exist for students to develop and refine ideas through scholarly exchange with faculty and others in the field
- career development opportunities will be provided

Include any additional information needed to provide assurance that student mentoring will be effective and assure professional competence and exposure in the field.

2.) On a separate page, describe how professional or clinical experiences are implemented and assessed. At a minimum address the following areas:

- criteria for selecting the location(s) of such experiences
- qualifications of preceptors or faculty
- provide a list of competencies that will be evaluated
- assessment strategies used to evaluate student performance

Include any additional information needed to provide assurance that the quality of the experiential component will be equivalent to that of students who are overseen in local environments.

SUPPLEMENTARY INFORMATION FORM

1) Faculty oversight of original research
    a. Students will conduct research during at their workplace or internships and if necessary have access to labs in the College of Aeronautics and Engineering for those able/willing to travel. The IRB process will be used when appropriate for the data being gathered.
    b. Research Methods is a required core course in the curriculum. In addition, individual graduate advisors will guide students through the research process.
    c. The "Collaborate" function of Blackboard, or Skype and other social media formats will be used for communications. The student will have access to their professors, graduate advisor, and thesis committee members.
    d. Tests will be administered via a third-party proctoring vendor and assignments will be evaluated by the course professor and or thesis committee.

    How will program faculty mentor students?

    e. The student will be invited to be part of the process for selection of a graduate advisor and/or thesis committee. They will be guided by the graduate coordinator.
    f. Faculty will have electronic office hours and will also meet with students per appointment; electronically. In addition, students willing/able to travel to Kent State may meet with their committee members and/or graduate advisor.
    g. Students will have access to all program faculty via electronic means. In the main we anticipate this degree being taken by working professionals who will already have access to professionals in their field.
        i. Other students will be encouraged to engage in an internship as part of their studies – access to professionals in the field should occur through that process.
    h. The internship process plus solicitation of specified clients to host research and projects will produce connections that can be built upon for career development.
2) Professional or Clinical Experiences
    a. The Practicum in Aeronautics or the Capstone Course are both designed to allow a working professional to work with their professor to accomplish a project or design an project or assessment to be conducted at their workplace. Thus the selecting criteria would be worked out in the initial proposal to the professor for the project or assessment.
        i. Internships are also allowed as part of these courses and the College of Aeronautics and Engineering has a long list of industry contacts that can facilitate this type of engagement.
    b. Faculty must be academically qualified for graduate education and have relevant experience in the field being taught.
    c. A Practicum is a student experience that includes the practical application of skills learned during formal coursework in the program. It can also be a project wherein the student acts as a team member during field work at a company related to the discipline.
        i. A Capstone is a culminating scholarly and comprehensive work that integrates knowledge attained through coursework and research. The paper or project

demonstrates competence in an academic field or profession and makes a contribution within a well-defined theoretical, applied or creative domain. It may include original empirical research, case studies, reports or research results, theoretical or applied design projects, professional journals, theoretical essays or projects for identified clients.

d. Assessment will be a combination of traditional academic assessment by faculty and academic committees and working professionals in the field; or the project client. The type of assessment specifically will depend on the orientation of the Capstone or Practicum.

3) Master of Science Aviation Management and Logistics: This degree is a combination of Aviation, Business and Technology coursework with a Practicum in the curriculum and an Capstone as the culminating experience. This is for non-thesis students. There is a Thesis option that will have a much more traditional research component, however, conducted remotely.

In the main we expect this degree to be most attractive to working professionals who will have access to projects and design work that can be done in their workplace. Other students will have access to internships for the same purpose. Lastly, we have relationships with many external aviation organizations and will be able to have client specific projects and practicums for students to complete.

More traditional post-baccalaureate students will benefit from these same relationships. The very mobile nature of aviation professionals makes the online format most appropriate to deliver this degree. Assessments will be tailored to the type of culminating experience entailed in the Capstone and to some extent will be individualized to the particular work being done.