

COURSE APPROVAL/CHANGE DOCUMENT

(See back of form for instructions)

1. ADDITION ___ REVISION ___ TERMINATION ___

2. IF REVISION: denote changes (i.e. Title only; Title, CIP and Description; etc.):

3. COURSE NUMBER ___ - ___

4. COURSE TITLE _____ -

5. IF REVISION: Previous Course No. _____ Previous Title _____

6. FOR ADDITIONS AND REVISIONS -
FIRST TERM/YEAR TO BE OFFERED:

Fall ___ Spring ___ Summer ___ Term _____

7. FOR TERMINATIONS ONLY -
LAST TERM/YEAR TO BE OFFERED:

Fall ___ Spring ___ Summer ___ Term _____

8. COLLEGE:

9. DEPARTMENT NAME:

10. CIP CODE (Classification of Instructional Program / US Bureau of Labor Statistics): _____

11. FIXED CREDIT HOURS: YES ___ NO ___

___ Total Credit Hours

___ Lec Contact Hours

___ Lab Contact Hours

___ Other Contact Hours

12. VARIABLE CREDIT HOURS: YES ___ NO ___

___ Min Total Credit Hours ___ Max Total Credit Hours

___ Min Lec Contact Hours ___ Max Lec Contact Hours

___ Min Lab Contact Hours ___ Max Lab Contact Hours

___ Min Other Contact Hours ___ Max Other Contact Hours

13. CAN THIS COURSE BE TAKEN FOR ADDITIONAL CREDIT: YES ___ NO ___ If YES, total number of times course can be taken _____

14. MAXIMUM ENROLLMENT ALLOWED FOR COURSE: _____ Justification of maximum enrollment:

15. CLASS SCHEDULE TYPE/ FACULTY WORKLOAD: Choose appropriate schedule type:

Faculty Workload: _____

Class schedule type justification:

16. COURSE LEVEL:

17. GRADE TYPE:

18. DEVELOPMENTAL COURSE: YES ___ NO ___

19. CROSS-LISTED COURSE:

YES ___ WITH _____ NO ___

20. SPECIAL COURSE FEE? (Must be Board approved)

YES ___ Amount \$ _____ NO ___

21. Required faculty qualifications to teach this course:

22. GENERAL EDUCATION COURSE: YES _____ NO _____

If yes, please select one general education category:

If yes, please select up to three general education learning goals that reflect the priorities for student learning in the course. Please rank these in priority order, i.e. 1,2,3 by inserting the numbers/rankings into the boxes:

- ____ General Education Learning Goal 1: Ethical Reasoning
- ____ General Education Learning Goal 2: Global Learning
- ____ General Education Learning Goal 3: Information Literacy
- ____ General Education Learning Goal 4: Written Communication
- ____ General Education Learning Goal 5: Oral Communication
- ____ General Education Learning Goal 6: Critical Thinking
- ____ General Education Learning Goal 7: Quantitative Literacy

If the proposed new or revised course is a General Education course, please provide a short rationale why this course should be considered as a general education course.

Attach the following:

- a) Class syllabus using the syllabus template.
- b) Memo from Library Dean assessing available and needed library resources and services.
- c) If applicable, memos from Department Chair(s) in affected department(s) stating support or that issues/conflicts are resolved.

COURSE APPROVAL SIGNATURES

Department Chairperson

Dean of Kent Library

College Council

Brad Deken Digitally signed by Brad Deken
Date: 2020.03.27 15:13:17
-0500

Educator Preparation Committee

General Education Council

Graduate Council

To obtain the next signature, save the pdf to your desktop and then email the form as an attachment to the next individual for signing. When submitting the form, the **email must come from your Southeast email account.**

Registrar's Office Use Only

SCACRSE _____ Degree Audit _____ Bulletin _____ Degree Map _____ SHATATR _____

Instructions for Completing Course Approval/Change Document

1. Is the course an Addition, Revision or Termination?
2. If Revision: Please list changes being made to course such as title change; or title, CIP, and description change, etc.
3. Course Number: Two letters (choose discipline from drop down menu) and three numbers (i.e., EN 140). For course additions, ask for a list of available course numbers from the Registrar's Office.
4. Course Title: Full title of course.
5. If Revision: Indicate previous course number and/or title if change has been made. A new course number must be used if the revised course is not equivalent to the previous course offered.
6. For Additions and Revisions-First Semester/Year To Be Offered: Indicate first semester/year course is to be offered or when changes to the revised course will be put into place.
7. For Terminations Only-Last Semester/Year To Be Offered: Indicate last semester/year course is to be offered. For course terminations skip questions 10-22.
8. College Name: Choose the College Name from drop down menu. UI/IU courses belong to the Provost.
9. Department Name: Choose the Department Name from drop down menu. UI/IU courses belong to the Provost.
10. CIP Code: Enter six digit code number. Contact Institutional Research for information.
11. Fixed Credit Hours: Enter the total credit hours student will earn for course. Lecture, Lab, and/or Other Contact Hours should be completed as appropriate. Lecture contact hours should equal the student credit hours earned for the lecture component of the class. Lab contact hours will in most cases be entered as a 2 to 1 ratio (2 contact hours equals 1 student credit hour) for the lab component of the class. Other Contact hours will be entered for field experience courses, internships, practicums, etc.
12. Variable Credit Hours: If course is variable credit hour, indicate total minimum hours and total maximum hours for which credit can be received. Indicate minimum and maximum lecture, lab, and/or other contact hours as appropriate. See 10 for more detailed instructions.
13. Can This Course be Taken for Additional Credit: Indicate if students will be allowed to enroll in this course more than once for additional credit. NOTE: If the course allows for multiple repeats, it is outside the normal repeat procedure. If a student making a grade of 'D' or 'F' wants to repeat the course for a better grade, special handling is required.
14. Maximum enrollment allowed for course: Indicate the total number of students allowed to enroll in this course and the justification for that maximum.
15. Class Schedule Type/Faculty Workload: See Class Schedule Types sheet on Document Share for appropriate type of course and faculty workload.
16. Course Level: Choose appropriate course level from drop down menu. 500 level courses are mixed undergraduate/graduate.
17. Grade Type: Indicate if course is standard grade (A, B, C, etc.) or Credit/No Credit
18. Developmental Course: Indicate if course is to be offered for degree credit or developmental credit.
19. Cross-listed Course: List course that is cross-listed across disciplines (e.g., PY120/CF120)
20. Special Course Fee: Indicate course fee amount as approved by Board of Regents
21. Required faculty qualifications: What are the degrees, areas of specialty, and/or other characteristics of a faculty member that would qualify them to teach this course.
22. General Education Course: Choose NO, or the category in which the course falls and the general learning goals.

AV 395- Aircraft Performance

Class Syllabus

- (1) Course Number: AV395
- (2) Course Title: Aircraft Performance
- (3) Catalog Description: Covers solid body dynamics, aerodynamics, and performance characteristics of aircraft during takeoffs, landings, cruises, climbs, and descents.
- (4) Prerequisites: AV390 Aircraft Design
- (5) Co-requisites: n/a
- (6) Credit Hours: 3
- (7) Semester: Fall 2021
- (8) Class Meeting Time(s), location and format: MWF 8:8:50 AM in PB201, face-to-face
- (9) Instructor: John Q. Pilot
- (10) Instructor Contact Information: jqpilot@semo.edu
- (11) Concerns: Questions, comments or request regarding this course should be taken to the instructor. Unanswered questions or unresolved issues about this class can be directed to Brad Deken.
- (12) Course Learning Outcomes:
 - 1. Students will be able to understand basic air data measurements, such, as static and total temperatures, pressures, various airspeeds (IAS, CAS, EAS, TAS, Mach), air density, etc.
 - 2. Students will be able to calculate large transport-category aircraft performances based on subsonic and supersonic aerodynamics.
 - 3. Students will be able to understand performance at climbs, cruises, takeoffs, and landings.
- (13) Course-specific Required Materials:

Swatton, P. J. (2008). Aircraft Performance: Theory and Practice for Pilots, 2nd Edition, John Wiley & Sons Ltd., Chichester, UK.
- (14) Course Content:

Grading is based on individual/group research projects, intermediate exams and the final comprehensive exam.

Assessment:

Exam 1	20.00%	120 points
Exam 2	20.00%	120 points
Final Exam	30.00%	180 points
Individual Project 1	10.00%	60 points
Individual Project 2	10.00%	60 points
<u>Individual Project 3</u>	<u>10.00%</u>	<u>60 points</u>
TOTAL	100.00%	600 points

Schedule:

<u>Week</u>	<u>Topic</u>
1	Introduction to Aerodynamic Theory
2	Level Flight, Take-off and Climb Aerodynamics
3	Cruise Control
4	Descent Aerodynamics
5	Exam 1 and Performance Planning
6	Aerodrome Geometry
7	Runways and Aerodynamic Variables
8	Speeds
9	Exam 2 and Class B Take-off and Climbs
10	Class B En-route and Landing
11	Class A Take-offs and Calculations
12	Class A Take-off Climbs and En-Route
13	Class A Landings and Conclusions
14	Project Work
15	Project Presentations
16	Final Exam

(15) Grading Scale and Policies:

Grading Scale:

- A= 90-100%
- B= 80-89%
- C=70-79%
- D=60-69%
- F=59% or below

(16) Final Exam Schedule: Monday, December 13, 2021 at 8:00 AM in PB201.

(17) Optional Additional Course Information:

Aircraft Performance provides an up-to-date and expanded course of aircraft performance for aspiring professional pilots, students of aviation, aeronautical, and aerospace sciences, and aeronautical and aerospace engineers. The course will cover the solid body dynamic laws and the aerodynamic principles of aircraft performance. Appropriate working equations will be derived and calculations of important and critical aircraft performance characteristics, such as, takeoff and landing, cruise, climb, descent, and turning performance demonstrated. FAR/CS 25 Airplane weight and balance (W&B) computations will be addresses and is a topic of the first individual project, FAR/CS 25 airplane airspeeds will be defined to include all control and performance airspeeds as required by regulations and FAR 25 airplane certifications. Calculations of takeoff and landing performance of FAR 25 certified transport-category airplanes will be explained and practiced. Climb, Cruise and descent performance of FAR 25 (EASA CS 25) airplanes will be also discussed in detail.

- Attendance & Student Behavior: Class attendance for all classroom and flight lab courses is expected.

- Any airport activities such as a flight lesson or cross-country flight scheduled by the student are not valid reasons for missing class or exams or arriving late for class.
- Students enrolled in FAA Part 141 Commercial Pilot ground school must make up all absences, excused or not, via a one-on-one ground session with a Certified Flight Instructor (CFI). This will be at the student's expense, and it must be completed before the exam. [Note: this is an FAA requirement]

Course Goals:

- To introduce and explain system of units. Both SI (International system of units) and the old obsolete English/American Engineering system of units are described.
- To understand the effect of the earth atmosphere on the aircraft performance. International Standard Atmosphere (ISA) will be introduced, explained and used for calculations.
- To understand basic air data measurements, such as, static and total temperatures, pressures, various airspeeds (IAS, CAS, EAS, TAS, Mach), air density, etc.
- To understand the basic subsonic and supersonic aerodynamics required for the calculation of large transport-category aircraft performance. The basic propulsion systems and its use to calculate the performance of modern high-altitude flying large transport-category aircraft will be introduced.
- To understand the basic concepts of stability and control and its effect on aircraft performance. Dynamic equations of aircraft stability in all six degrees of freedom will be discussed and the special and important cases of stability reviewed.
- To understand the Aircraft (Airplane) Takeoff and Landing performances. This is especially crucial for the multi-engine large transport-category aircraft. Students will be able to judge various effects of symmetric and asymmetric thrust, drag, performance speeds, techniques, contaminated runways, braking effects, pilot technique, etc.
- To understand climbing performances and different climb schedules to minimize operating expenses and increase safety. Descent performances and the discussion of power-and thrust-curves will be discussed.
- To understand various cruise techniques and calculate important cruise parameters. Range and endurance performances as well as minimum fuel consumption and optimum altitudes will be discussed. The maneuvering (turning) performance in various planes of rotation will be discussed and its effect to performance reduction and safety speeds.
- To understand and practice various performance calculations under varying atmospheric and other conditions of transport category airplanes. Describe various charts and measure, gross and net performance.
- To use all the above information and understand its impact on safe flight operations and in particular to recognize and make sound judgment and decisions regarding the flight conditions and hazards.

(18) **Academic Honesty** – Southeast Missouri State University expects all students, faculty and staff to operate in an honest and ethical manner. Academic dishonesty is a very serious offense because it undermines the value of your education and the education of others. Students who engage in academic dishonesty face significant penalties. Forms of academic dishonesty include, but are not limited to, plagiarism, cheating, contract cheating, misrepresentation, and other actions you take. Some of these are defined below:

- Plagiarism means passing off someone else's work as your own, whether it is intentional or unintentional.

- Cheating includes copying from another person or source of information to meet the requirements of a task.
- Contract cheating is paying someone else or a company to do your work.
- Misrepresentation means you are posing as someone else or someone else is posing as you to complete a task.
- Collusion means working with one or more people to cheat. If you help someone cheat or plagiarize you will face the same penalties.

For more information, visit the Responsible Redhawks Code of Conduct <http://www.semo.edu/responsible/redhawks/code-of-conduct.html> or the Faculty Handbook Section (D) on Academic Honesty <http://www.semo.edu/facultysenate/handbook/5d.html>

- (19) **Accessibility** – Southeast Missouri State University and Disability Services are committed to making every reasonable educational accommodation for students who identify as people with disabilities. Many services and accommodations which aid a student’s educational experience are available for students with various disabilities. Students are responsible for contacting Disability Services to register and access accommodations. Accommodations are implemented on a case by case basis. For more information, visit <http://www.semo.edu/ds/> or contact Disability Services at 573-651-5927.
- (20) **Civility** – Your university experience is purposely designed to introduce you to new ideas, help you think effectively, develop good communication skills, evaluate information successfully, distinguish among values and make sound judgements. Doing this well requires respectful and courteous discussion among and between students and the instructor. Together, we must create a space where we acknowledge and respect others have different experiences, perspectives and points of view. Disagreements are likely. Mutual respect for one another and a willingness to listen are important. Remember, you are responsible for your behavior and actions. There is a no tolerance policy on bullying or harassment of any kind. Additional information on student conduct may be found at: <http://www.semo.edu/pdf/stuconduct-code-conduct.pdf?ver=1.0> and http://www.semo.edu/pdf/Conduct_Faculty_Resource_Guide.pdf
- (21) **Mandatory Reporting** – I will keep information you share with me confidential to the best of my ability, but as a professor I am legally required to share information about sexual misconduct and crimes I learn about to make our campus and community safe for everyone.
- (22) **Student Success** – This course uses SupportNET, Southeast’s student success network, to improve communication between students, faculty and staff on campus. You’ll get emails through SupportNET with information about resources or concerns. Please read these emails—they are sent to help you succeed! You can access SupportNET through your portal, Moodle or directly at supportnet.semo.edu to see any academic alerts, ask for help and to access resources to support your success at Southeast.

*Definition of ‘blended’ to be added.