Course Syllabus - Propellers

Course Number: AVT2129  Section: N01  Term: 17SP

Credits: 4.000

<table>
<thead>
<tr>
<th>Room</th>
<th>Meeting Days</th>
<th>Meeting Time</th>
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<tbody>
<tr>
<td>13 107</td>
<td>MT</td>
<td>05:30 PM - 09:20 PM</td>
</tr>
</tbody>
</table>

**Faculty Information:**

| Instructor(s): | Mr. Sean Bohn (first half of semester) and Dr. Robert Ohrenberg (second half of semester) |
| Department:    | Aviation Technology |
| Division:      | Science, Mathematics and Engineering |
| Phone Number:  | Office - 937-512-4400 |
| Alternate Number: | See "Additional Information" in syllabus |
| Use Course Mail: | Yes |
| Alternate Email: | Mr. Bohn - SeanBohn@gmail.com / Dr. Ohrenberg - Robert.Ohrenberg@sinclair.edu |
| Office Location: | Sinclair College 13-223 |
| Office Hours: | 30 minutes before and after each class; other times by arrangement. |

Prerequisites: NONE

Other Prerequisite(s): NONE

**Textbook(s):**

- **GOGGLES AUTO SEEPROS.**
  - Edition: Used
  - Copyright: New
  - ISBN: Req
  - Price: $3.49

- **SINCLAIR COLLEGE A&P CUSTOM eCARD, ACTECH BOOKS**
  - Edition: Used
  - Copyright: New
  - ISBN: Req
  - Price: $100.00 - $133.33

**Course Description:**

Removal, inspection, repair, dressing and installation of propellers. Propeller pitch, angle of attack and forces. Metal, wood and composite propellers. Variable pitch propellers including constant speed, reversing, feathering and ground adjustable propellers. Propeller systems including governors, ice control and auxiliary systems. Propeller storage and return to service. Propeller certificate data. Two classroom, six lab hours per week.

**Course Objectives/Competencies:**

**General Education Outcomes:**

- Written Communication Competency
- Critical Thinking/Problem Solving Competency
- Values/Citizenship/Community Competency
- Computer Literacy Competency
- Information Literacy Competency
- Oral Communication Competency

**Course Outcomes:**

**Variable pitch propellers**

Demonstrate knowledge of variable pitch propellers including constant speed, reversing and feathering propellers. Demonstrate inspection and repair techniques of variable pitch propellers.

**Operational checks**

Demonstrate the ability to statically and dynamically balance a propeller and perform operational checks. Analyze an out-of-balance condition to determine the procedures to correct the condition; understand the results of operating in an out-of-balance condition.

**Removal and installation**

Demonstrate the knowledge to remove, inspect, repair as necessary, and install a propeller using Federal Aviation Administration regulations and manufacturer-approved procedures.
Service, inspection, and repair
Demonstrate the ability to inspect, service, and repair minor dents and abrasions on propeller blades. Evaluate the damage to determine if it is beyond repair limits or will require repair station authority. Demonstrate the ability to return the propeller blade to serviceable condition.

Course Outline:
- Propeller removal and installation
- Propeller service, inspection, and repair
- Propeller operational checks
- Propeller certificate data
- Propeller control systems
- Propeller synchronizing, feathering, and constant-speed systems
- Propeller ice control systems

Course Requirements:
Students are expected to participate in all scheduled course activities, complete assigned readings prior to scheduled course activities, and complete and submit all assigned work by the deadline. For in-person sections, attendance is expected at each class meeting.

- Participate in scheduled course activities
- Complete assigned reading prior to each class
- Submit all assigned work on time

FAA Attendance Requirement
§ 147.31 (c) “A school may not graduate a student unless he has completed all of the appropriate curriculum requirements.”

Lecture and Lab Time Requirements:
45 Lecture Hours
+ 63 Lab Hours
108 Total Class Hours

Textbook(s) & Labsheet(s):
- Chapter 7 Propellers

- Airframe & Powerplant Mechanics Powerplant Workbook
- Chapter 7 Propellers, Sections A & B, Pages 57-62

- Powerplant “K” Propeller Labsheets
- Download the updated copy from the class eLearn site

Class Policies:
 Policies for this specific course are listed below. Please see the section on Sinclair Policies for additional information on institution-wide policies. Students are expected to participate in all scheduled course activities. For in-person sections, attendance will be taken at the beginning of each class period. It is the responsibility of students who come in late to notify the instructor of their attendance for that class period. Please notify the course instructor in advance by phone or Angel email if you will not be in class.

Academic Dishonesty
- Sinclair Community College (SCC) academic integrity policy can be found in the Student Code of Conduct Handbook (listed below).
- Any student found to have violated this policy will be subject to the academic misconduct procedures set forth by SCC.
- Any student found to have violated this policy will be giving an automatic zero for their assignment and/or an automatic F for the course, based on the severity of the infraction.

Attendance
- If you know you are going to miss a class, please let us know in advance by email or text message.
- Excessive absences and tardies will affect your ability to be successful in the class.
- If a student misses more than 10% of the required FAA time the student’s final grade will be reduced by one letter grade. If a student misses 20% of the required FAA time then the student will fail the class and must repeat the class. FAA time from the 1st class will not be allowed to be used for the completion of the second class. Exceptions will be made for military duty or if a student or a student’s immediate family member is seriously ill or hospitalized. Military orders or a doctor’s note may be required as proof. The instructor must be immediately notified by the student, preferably before the class starts.
- Class attendance is mandatory. Roll will be taken at least two times a class meeting: once at the beginning of the class, and before the end of the class meeting.
• Students who arrive late or leave early from class, whether at the beginning or after breaks, will be marked absent for the time missed.
• Instructors will keep track of each student’s time during the class period and will record the time on the attendance time sheet.
• ALL time and work missed must be made up for a student to receive any AMTS credit for a class or section. The make-up attendance time sheet will be used to account for made up time.

Conduct and Safety

To safeguard the safety of all students and to advocate a proper learning environment, the school has defined what it considers as acceptable and unacceptable behavior:

• SCC requires that its students respect and abide by all municipal, state, and federal laws while on campus.
• The Student Government Association governs all disciplinary matters at SCC. Please see the current copy of the student handbook.
• Students must wear appropriate clothing at all times.
• No sandals or bare feet will be allowed in the lab. Steel toed foot wear is encouraged.
• HORSEPLAY WILL NOT BE TOLERATED.

Lab/Assignment Completion

This course is intended to give you there theoretical and practical knowledge needed to pass the FAA oral, written, and practical exams to become a certificated mechanic and enter the job market with entry level skills. Based on that:

• You may collaborate* when working on lab and homework assignments, but you are expected to complete the assignments yourself, not have someone else complete them for you. (* Collaborate does not mean merely getting the answers from someone else.)
• You may not collaborate with classmates during quizzes or exams. That is considered cheating and will result in automatic failure.

Student Behavior Guidelines

Treat your classes as you would a desirable job. The instructor is a team leader and your fellow students are coworkers. Everyone must work together to complete learning objectives. These behaviors are expected of you:

• Attend all classes on time.
• Respect the rights of others to contribute by listening attentively. Show consideration for students, instructors and other college employees.
• Participate appropriately and actively on topics presented in class.
• Complete your assignments on time.
• Ask for feedback from your instructors and peers to insure progress toward learning objectives.
• Resolve problems by immediately discussing issues with your instructors and/or peers.

Student Code of Conduct

• Student rights and responsibilities are detailed in the Sinclair Community College Student Judicial Affairs Handbook available in Student Leadership Development/Student Judicial Affairs, Room 8025 or online at:

Grade Policies:

A student’s grade will depend only on individual performance, not on the performance of others in the class. Grades for completed work at SCC AMTS are numeric (on a 100-point scale). The minimum level of acceptable performance for tests or lab work is seventy percent (70%) or a grade of C. No grade below 70% will be accepted for AMTS credit.

The final grade for the AMTS will be determined as follows (NO EXCEPTIONS):

• Midterm and Final tests: 40% of final grade.
• Lab grade (All lab sheets/lab project, workbook scores): 50% of final grade. (Minimum score: (70%)
• Class Attendance; Participation; Attitude; Clean up: 10% of final grade.

How absences affect your grade:

• If you miss more than 10% of required class time, your final grade will be lowered by 1 letter grade.
• If you miss 20% or more of required class time, you will receive a failing grade for this course.
• Missed time may be able to be made up, but must be coordinated with the instructor for scheduling times, and there are no guarantees of available time outside normal class periods.
• If made up time can bring your overall time to less than 20% missed, you will receive your final grade minus one (1) letter grade.

Evaluation/Grades:

<table>
<thead>
<tr>
<th>Exams and Assignments</th>
<th>Points/Percentage</th>
<th>Grading Scale</th>
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</thead>
<tbody>
<tr>
<td>Coursework</td>
<td>50%</td>
<td>100 to 90 = A</td>
</tr>
<tr>
<td>- Lab Sheets, Quizzes, Workbook Assignments</td>
<td></td>
<td>89.9 to 80 = B</td>
</tr>
<tr>
<td>Exams - Midterm &amp; Final</td>
<td>40%</td>
<td>79.9 to 70 = C</td>
</tr>
</tbody>
</table>
- From Lab Assignments, Lectures, Textbooks & Attendance, Attitude, Cleanup, and Participation

<table>
<thead>
<tr>
<th>Class Participation</th>
<th>Must have C or better to continue</th>
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<tbody>
<tr>
<td>- 69.9 to 60 = D</td>
<td></td>
</tr>
<tr>
<td>- 59.9 to 0 = F</td>
<td></td>
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</tbody>
</table>

**Course Schedule:**

<table>
<thead>
<tr>
<th>Class Session</th>
<th>Material to be covered</th>
<th>Labsheet/Workbook Assignments</th>
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| First Half of Semester | Instructor: Mr. Sean Bohn                                                             | READ - Powerplant Handbook Chapter 7 Propellers  
- The lectures and lab activities will build upon the information found in the powerplant handbook.  
- Lab Sheets are due the week after they are assigned. |
| Session 1 Mon, 9 Jan 17 | Introduction, Class Overview, Propeller Overview And History                        | K3B Labsheet Package  
- Powerplant Workbook Chapter 7 Propellers, Sections A & B (due prior to finals night) |
| Session 2 Tue, 10 Jan 17 | Forces Acting on a Propeller                                                        | K5A Labsheet Package  
- K3B Labsheet Package  
- Powerplant Workbook Chapter 7 Propellers, Sections A & B (due prior to finals night) |
| Session 3 Tue, 17 Jan 17 | Propeller Blade Pitch Angle                                                          | K6A Labsheet Package  
- Powerplant Workbook Chapter 7 Propellers, Sections A & B (due prior to finals night) |
| Session 4 Mon, 23 Jan 17 | Engine-Propeller "Critical Range" Information                                         | K6A Labsheet Package  
- Powerplant Workbook Chapter 7 Propellers, Sections A & B (due prior to finals night) |
| Session 5 Tue, 24 Jan 17 | Fixed Pitch Propeller Static Limits                                                  | K7A Labsheet Package  
- Powerplant Workbook Chapter 7 Propellers, Sections A & B (due prior to finals night) |
| Session 6 Mon, 30 Jan 17 | Fixed Pitch Metal And Wooden Propellers                                              | K8A Labsheet Package  
- Powerplant Workbook Chapter 7 Propellers, Sections A & B (due prior to finals night) |
| Session 7 Tue, 31 Jan 17 | Counterweight Propellers                                                             | K9A Labsheet Package  
- Powerplant Workbook Chapter 7 Propellers, Sections A & B (due prior to finals night) |
| Session 8 Mon, 6 Feb 17 | Hydromatic Propellers                                                               | K10B Labsheet Package  
- Powerplant Workbook Chapter 7 Propellers, Sections A & B (due prior to finals night) |
| Session 9 Tue, 7 Feb 17 | Non-Counterweight, Variable Pitch Feathering Propeller                               | K12B Labsheet Package  
- Powerplant Workbook Chapter 7 Propellers, Sections A & B (due prior to finals night) |
| Session 10 Mon, 13 Feb 17 | Turbine Engine Propeller System                                                      | K14A Labsheet Package  
- Powerplant Workbook Chapter 7 Propellers, Sections A & B (due prior to finals night) |
| Session 11 Tue, 14 Feb 17 | Propellers Metal Tipping Defects                                                     | K15A Labsheet Package  
- Powerplant Workbook Chapter 7 Propellers, Sections A & B (due prior to finals night) |
| Session 12 Mon, 20 Feb 17 | Metal Propeller Blade Leading And Trailng Edges Repairs                              | K16B Labsheet Package  
- Powerplant Workbook Chapter 7 Propellers, Sections A & B (due prior to finals night) |
| Session 13 Tue, 21 Feb 17 | Tentative - Hartzell Tour                                                            |                                               |
| Session 14 Mon, 27 Feb 17 | Mid Term Exam Review                                                                | Have you turned in all the labsheet packages that are due?  
- STUDY - STUDY - STUDY |
| Session 15 Tue, 28 Feb 17 | Mid Term Exam                                                                       | Good Luck ! ! ! |
| NO CLASS Mon, 6 Mar 17 | Spring Break                                                                        |                                               |
| NO CLASS Tue, 7 Mar 17 | Spring Break                                                                        |                                               |
| Second Half of Semester | Instructor: Dr. Robert Ohrenberg                                                   | REVIEW - Powerplant Handbook Chapter 7 Propellers  
- The lectures and lab activities will still build upon the information found in the powerplant handbook.  
- Lab Sheets are still due the week after they are assigned.  
- How are you doing on the Powerplant Workbook Chapter 7 Propellers, Sections A & B? |
| Session 16 | Mon, 13 Mar 17 | Touring the Hartzell Propeller manufacturing facility at: Hartzell, Propeller, 1 Propeller Pl, Piqua, OH 45356 |
| Session 17 | Tue, 14 Mar 17 | Mid Term Exam Review and Feedback |
| Session 18 | Mon, 20 Mar 17 | Propeller Governing Systems | K17A Labsheet Package |
| Session 19 | Tue, 21 Mar 17 | Propeller Governor External Adjustments | K18A Labsheet Package |
| Session 20 | Mon, 27 Mar 17 | Full Feathering Propeller Operation | K20A Labsheet Package |
| Session 21 | Tue, 28 Mar 17 | Propeller Track | K23A Labsheet Package |
| Session 22 | Mon, 3 Apr 17 | Propeller Anti-Icing Systems | K26A Labsheet Package |
| Session 23 | Tue, 4 Apr 17 | Propeller Synchronizing Systems | K27A Labsheet Package |
| Session 24 | Mon, 10 Apr 17 | Propeller Servicing | K29A Labsheet Package |
| Session 25 | Tue, 11 Apr 17 | Fixed And Variable Pitch Propeller Balancing | K31A Labsheet Package |
| Session 26 | Mon, 17 Apr 17 | Propeller Governors | K33A Labsheet Package |
| Session 27 | Tue, 18 Apr 17 | Governor / Engine Drive Rotation | K34A Labsheet Package |
| Session 28 | Mon, 24 Apr 17 | Aluminum Alloy Propeller Blades | K36A Labsheet Package |
| Session 29 | Tue, 25 Apr 17 | Composite Propeller Blades | K37A Labsheet Package |
| Session 30 | Mon, 1 May 17 | Final Exam Review | Have you turned in all the labsheet packages that are due? |
| | | | Have you turned in Powerplant Workbook Chapter 7 Propellers, Sections A & B |
| | | | STUDY - STUDY - STUDY |
| Session 31 | Tue, 2 May 17 | Final Exam | Good Luck !!! |

**Make-up Work:**

If you know you will be absent during an exam or when assigned work is to be turned in, contact the course instructor as soon as possible so that other arrangements can be made to ensure your educational goals are not adversely impacted. Make-up for any missed exams and assignments must be arranged with the course instructor.

**Make-Up**

- All missed time and/or work in a subject must be made-up in order for the student to receive AMTS credit for the subject. An AMTS grade of F will be recorded until all time and projects are made up. All missed time must be made up before a certificate of completion will be issued.
- All make-up time and/or tutoring must be approved by the A & P Coordinator.
- All lecture and lab missed shall be made-up in the same subject area in which the time was missed. The time must also relate to the lecture or lab hours missed for each section.
- A student can make up time for both Classroom/Theory and Lab/Shop projects (see below.)

**Procedure for Making up Time (Classroom/Theory):**

- The instructor will assign the student work that covers the material missed in class. This work will be used to make up the lost time. For every 30-minutes of time missed, or any portion thereof, the student can hand write a 250-word essay. The instructor will log and sign-off the subject assigned and completed. This must be turned into the A & P coordinator to be put in the student’s record along with the make-up attendance sheet. A maximum of 4 hours of make-up time for classes over 40 hours in length can be made up this way. For classes 40 hours or under in length, only 2 hour can be made up this way. Any missed time above 4 hours must be made up in make-up times at school. This procedure applies ONLY to classroom/theory. NO written for Lab/Shop.
- The student will work on the assignment on his own time, or make up time, not during normal class time.
- All work will be required to meet the instructor’s/A & P Coordinator’s approval before it will be accepted.
- Upon the instructor’s/A & P Coordinator’s approval, the make-up time sheet will be signed by the instructor/A & P Coordinator and kept in the student’s file and the make-up file.
Procedure for Making up Time (Lab/Shop Projects):

- Make-up of Lab/Shop projects will be accomplished after normal class hours or during the designated make-up time under instructor supervision.
- The A & P Coordinator will coordinate make up times.
- The students will complete the project that is missed.

Additional Information:

Disclaimer:
These notes are not all-inclusive and are subject to change.

Instructor Alternate Phone Numbers

- Mr. Bohn - 937-313-4972 (Cell)
- Dr. Ohrenberg - 937-207-0211 (Cell)

Reference Materials/Bibliography:

Textbook & Workbook Sections:

- Airframe & Powerplant Mechanics Powerplant Workbook: Chapter 7 Propellers, Sections A & B, Pages 57-62

Additional Resources [Optional]

- AC43.13 - 1B/2B – Chapter 8 - Engines, Fuel, Exhaust, and Propellers
  - Section 4. Repair of Metal Propellers
  - Section 5. Inspection of Propellers
  - Section 6. Propeller Tracking and Vibration

- AC 20-37E - Aircraft Propeller Maintenance

Career Communities

Sinclair students are encouraged to participate in Career Communities. By participating in the Career Community events, you will have opportunities to

- explore and connect with their career and academic goals
- meet students with similar interests by participating in career community events and activities
- engage with faculty members and employers in their career area
- consult with an advisor who specializes in the programs in a particular career community
- understand the resources at Sinclair

Watch for announcements of events. The Career Communities are:

- Business & IT
- Liberal Arts & Social Sciences
- Creative Arts
- Public Safety & Justice
- Health Sciences
- Science, Technology, Engineering & Math (STEM)

Please join our Facebook group (Sinclair College Career Communities) or follow us on Twitter (@sinclairconnect) to stay up-to-date on the latest news and events for the career community!

Sinclair Policies

Sinclair Academic Policies

Visit the links below to view Sinclair policies regarding adding or dropping a course, withdrawing from college, late registrations, change of schedule, administrative withdrawal, student behavior guidelines, safety and security, and other academic policies. Understanding these policies is the responsibility of every student.

- Add/Drop a Course [Link]: http://www.sinclair.edu/services/basics/registration-and-student-records/registration/how-to-register-drop-or-add-sections/
- Honor Code and Plagiarism Policies [Link]: http://www.sinclair.edu/about/learning/gened/hc/
- Policies, Procedures and Services [Link]: https://catalog.sinclair.edu/
- Academic Integrity Policy [Link]: http://www.sinclair.edu/services/conduct-safety/student-judicial-affairs/academic-integrity-policy/

Attendance

Students are expected to be present at all class sessions. It is the students' responsibility to read and understand the class attendance policy or the SinclairOnline course participation policy that will be defined in the syllabus for each course. It is the faculty member's responsibility to define attendance or participation requirements and to monitor and record the students' fulfillment of these requirements. It is a program's prerogative to have specific policies across multiple sections due to the unique requirements of that program. Attendance for traditional classes or participation for SinclairOnline classes may affect final grades, financial aid eligibility, and V.A. benefits.
Educational Support Services
You may be eligible for free educational assistance if you are enrolled for credit. Contact Tutorial Services in the Library (lower level Building 7) or call 937-512-2792. Tutoring information also is available at http://www.sinclair.edu/services/academic/tutorial-services/. Tutoring is usually not provided for 200 level courses that have a prerequisite or for Developmental Language Arts and Developmental Math courses in which there are tutors. Tutoring and supplemental instruction are also available through the Tutoring and Learning Center in the Library adjacent to Tutorial Services. Additional information may be obtained by calling 937-512-4506 or by accessing their website at www.tlc.sinclair.edu. English as a second language (ESL) course information is available in Room 10-231 (or call 937-512-3099). This is in addition to a variety of provided services, including admissions, registration and financial aid assistance for all Sinclair students who have English as a second language.

Administrative Withdrawal
You may be administratively withdrawn from a class by your instructor for nonattendance. He or she must advise you in writing at the first class meeting what attendance record would constitute cause for administrative withdrawal. If you do not attend the first class, it is your responsibility to obtain a copy of all materials distributed at the first class meeting. You may also be administratively withdrawn from classes as a result of a student judicial affairs hearing with the Manager, Student Judicial Affairs or the Student Judicial Affairs Hearing Panel. Administrative withdrawals may be made when it has been determined that your presence on campus is potentially detrimental to the college, faculty, staff, students or yourself.

Safety and Security
You may access the Sinclair Police website at http://www.sinclair.edu/services/conduct-safety/public-safety/ for information on safety, crime reports/statistics, the department’s annual report, and other services. For more information, contact the Sinclair Police Department in Building 7, Room 7112 or call 937-512 2534.

Sinclair strives to maintain open channels for students to file concerns. Students may register complaints at http://www.sinclair.edu/complaint. You will be contacted within two business days.

Academic Advising Center
You are encouraged to meet with an academic advisor early in your studies at Sinclair. Academic advisors are available to assist you in understanding your degree requirements and academic policies, selecting courses, and transferring to other institutions. In addition, prior to taking any action that will impact your schedule, (e.g., dropping or adding a course) it is strongly recommended that you see your academic advisor. All advisors are located in the Academic Advising Center, Room 11-346. The Advising Center phone number is 937-512-3700.

Other Counseling
Counseling Services Room 10424 937-512-3032 Student Support Services Room 11342 937-512-3550

Testing Center
Exams are administered on a walk-in basis only at the Testing Center. Due to construction, the testing center has moved to building 4*342, Counseling Services has moved to 4*331, and student support services has moved to 4*520. You must present a Tartan ID Card, driver’s license or state issued photo ID at the time of testing. You may have to wait during peak periods (lunchtime, after 4 p.m., midterms, and finals). You may call the Testing Center at 937-512-3076 to verify that your exam is on file and ready to be administered. Children are not permitted in the Center and may not be left unattended in the lobby. Please visit the website at http://www.sinclair.edu/stservices/enrl/testing/index.cfm for additional information.

Sinclair Semester Dates
Click the link below to view important semester dates such as registration deadlines, payment deadlines, start and end dates for the semester as well as the last day to withdraw with a refund and the last day that withdrawal is allowed. To learn more, follow this Link:
http://www.sinclair.edu/stservices/rsr/dates/index.cfm