AVT 302 – HELICOPTER GENERAL MAINTENANCE LABORATORY
SYLLABUS – FALL 2015
Prerequisite: Completion of all A&P Courses
Requisite: Concurrent Enrollment in AVT 301

Instructor: Karen Johnson
Lab Location: Helicopter Lab Facility Hangar
Lab Hours: Mon., Wed., and Fri. 0900 – 1150
Office: TEC 226G Office phone: (618) 453-9210
Email: ksulliva@siu.edu
Office hours: T&R 11-2

Required: Fundamentals of Helicopter Maintenance, by Joseph Schafer, Jeppesen ($26.95 and up)
Personal notebook & pen or pencil (#2 pencil for tests and quizzes)
Current SIU email address and Internet access
Tools: Each person must have personal safety glasses and tools available for each lab.

Objective: In AVT 302 the student will perform general maintenance on rotary wing main rotor systems, tail rotor systems, flight and powerplant control systems to include malfunction analysis, tracking, static and dynamic balancing, rigging, and repair.

AVT 302 is the lab component of the helicopter maintenance course, whereas AVT 301 is the lecture component of the helicopter maintenance course. They must be taken concurrently. The lecture will be three hours a week, and lab will be nine hours a week. However, due to the proximity of time and space of the lecture and lab, we will at times exercise our freedom to move between lecture and lab, at the discretion of the instructor, to enhance the learning, but the total number of hours of each will be maintained.

Grading: AVT 302 (Lab): The lab grade will be determined by the instructor’s evaluation of the student’s performance in the hangar. There will also be verbal and practical check-outs with every effort to be objective and consistent in evaluation. Evaluation of the student will be based upon: 1) technical competence; 2) conscientious work performance; 3) the ability to select and use the proper tool and/or authorized references and data for a given task; 4) verbal checkouts; and 5) student’s critical-thinking ability. This portion of the lab grade is also affected (50%) by subjective evaluation regarding the student’s attitude, cooperation, professionalism, ability to work with others, attendance and punctuality; all those things that are important in the work place. Verbal checkouts will be graded on the student’s ability to answer questions, degree of preparation as evidenced in these responses, and the student’s attitude. We view your work here as this being your first job and that you are an entry level A&P mechanic. The goal is to perform assigned tasks to airworthy standards with minimal supervision. You will be expected to work and act professionally as mechanics. The second 50% of the grade will be decided by a lab final exam. The larger portion of the final exam will cover the work done on lab projects; the other portion will be an individual check-out on performing a daily inspection on the Bell or AgustaBell 206 Jet Ranger, noting discrepancies that would make the aircraft unairworthy. All lab projects and the associated paper work must be completed and handed in by the due date in order to get full credit. All assignments, whether for lab or lecture, must be legible and on time or the result will be a reduction in grade for that assignment.
Grade Scale:  
100 – 90 = A  
89 – 80 = B  
79 – 70 = C  
69 – 60 = D  
59 and below is a failure.

Attendance and Tardiness Policy: Attendance is mandatory. Roll will be taken at the beginning of each class period. It is the student’s responsibility to contact the instructor in advance of absences whenever possible or immediately thereafter to arrange make-up time where appropriate and to obtain hand-outs or other material from classes missed.

Students are expected to be in class and lab on time. If the student arrives after attendance is taken, but not more than ten minutes after the beginning of the class period, the student will be considered tardy. Three (3) late arrivals will be counted against the student as one unexcused absence. If the student misses more than the first ten minutes of the class the student will be considered absent for the entire hour. Unexcused absences or habitual tardiness will result in a cumulative reduction of the student's final grade point average:

- First unexcused absence results in a one-point reduction of the final grade (0-100 scale).
- Second unexcused absence results in a two-point reduction.
- Third unexcused absence results in a four-point reduction.
- Fourth unexcused absence results in an eight-point reduction.
- Fifth unexcused absence results in a sixteen-point reduction.

After the fifth unexcused absence the cumulative grade reduction would be 31 points, making it impossible to receive a passing grade for the course.

Makeup time may be granted only for excused absences and must be made up within two weeks after the absence barring extenuating circumstances. No more than three (3) hours of excused absences may be made up, unless unavoidable circumstances exist, for which evidence must be provided. No makeup time will be allowed during the last two weeks of the semester. Final determination as to whether or not an absence is "excused" rests with the instructor. Performance of make-up time does not reinstate points lost due to unexcused absences. Excused absences or tardiness require written evidence of extreme circumstances affecting that person’s ability to attend class. Illness will require supporting documentation from the SIUC Student Health Service or a private physician indicating date and time of appointment. Unless the instructor is approached by the student after the first class attended following an absence or late arrival, the absence will stand as unexcused. Each person is expected to be in class/lab for the entire scheduled period. Anyone leaving after the beginning of a class, without making prior arrangements with the instructor, will receive an unexcused absence for the amount of time allotted for that class, excused absences excepted.

Rules: No food or drink in lab, with some exceptions to be discussed. No open-toe shoes are allowed in the lab. Absolutely no horseplay is allowed in the lab. You are required to wear eye protection in the labs when performing tasks that risk eye injury and have the necessary personal tools required for the lab. Use your own tools. If you, or someone close to you, is doing any drilling, grinding, pounding, or anything else that could be a hazard to your face, put on full face protection. Allow five to ten minutes before the end of each lab period for cleaning up your personal lab space. Cell phones and similar devices are to be turned off or set to vibrate during class. If you do have an emergency, go to an area where you will not distract others. Let your instructor know in advance if you have a “situation” where you need to be available by phone. Plan ahead. Cell phones, or other personal electronic communication devices, will not be tolerated as simply a convenience or personal pleasure.
Tools: Being a professional mechanic includes possessing your own tools. A basic set of mechanic hand-tools will include a variety of sizes of flat-tip and Phillips screwdrivers, combination wrenches up to one inch nut-size, 1/4 inch drive socket and ratchet set up to 9/16 inch nut-size, 3/8 inch drive socket and ratchet set up to 3/4 inch nut-size, a variety of pliers, 3x magnifying glass, bright flashlight, and inspection mirror, safety glasses, hearing protection, and lockable storage box. If you do not bring a tool box with the appropriate tools to class, one point will be deducted for that day from the lab subjective grade. If you work as a mechanic and need your tools someplace else such as Air Institute, or wherever, talk to your instructor and arrangements can be made. Students must wear closed toe shoes in the facility at all times. Hearing protection and eye protection will be worn in the lab when circumstances dictate. It is your responsibility to be sure your tools are secure. They will be locked in the utility room when you are not present. Recommended tools may include hand-tools such as off-set wrenches up to one inch nut-size, 1/2 inch drive socket and ratchet set up to 1 1/8 inch nut-size, 10x magnifying glass, and multimeter.

Course Outline and Lab Requirements: The order of presentation or content may be subject to change. Unless directed otherwise by the instructor, these projects are the minimum to be completed. Other practical projects will be introduced as time allows. The schedule below serves only as an example for the first three (3) weeks. Groups will rotate between helicopters every three to four weeks, approximately 30 lab-hours. These are all hands-on projects for the development of thinking and physical dexterity skills. This makes for a busy schedule that allows for no wasting of time, so be here and stay on task.

AVT 302 Helicopter Lab Projects Calendar – Changes may be made as necessary at the discretion of the instructor. The following table shows an example of the lab schedule for each group for the first three weeks:

<table>
<thead>
<tr>
<th>Project</th>
<th>Bell 47G/Agusta Bell Group</th>
<th>Bell 206B Group</th>
<th>Bell 205 Group</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Daily/100 hour Inspection</td>
<td>Daily/100 Hour Inspection</td>
<td>Daily/100 Hour Inspection</td>
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<tr>
<td></td>
<td>47G and Agusta Bell</td>
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<tr>
<td>2</td>
<td>47G Mast Alignment</td>
<td>Main Rotor Ass’y. Removal</td>
<td>Lubricate IAW Chapt. 12</td>
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<td></td>
<td>47G Check timing M/R Dampers</td>
<td>Main Rotor Blades Alignment</td>
<td>Inspect M/R Dampers</td>
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<td></td>
<td>Marvel Balance M/R Ass’y.</td>
<td></td>
<td>Stabilizer Bar</td>
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<tr>
<td></td>
<td>Main Rotor Ass’y. Installation</td>
<td></td>
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<tr>
<td>3</td>
<td>AB 206 run up</td>
<td>Tail Rotor Removal</td>
<td>Rig Collective Flight Controls</td>
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<td></td>
<td>AB 206 M/R Track and Balance</td>
<td>T/R Static Balance</td>
<td>Rig Cyclic Flight Controls</td>
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<tr>
<td></td>
<td>AB 206 T/R Dynamic Balance</td>
<td>T/R Install &amp; Rig</td>
<td>Rig Elevator Flight Controls</td>
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<td></td>
<td></td>
<td>T/R D/S Thomas Coupling</td>
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<td>4</td>
<td>AB 206 T/R Trunnion Centering</td>
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<td>206/205 Hydraulic Systems</td>
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<td></td>
<td>AB 206 Friction Checks</td>
<td>RR 250-C20 Oil Flow Ck.</td>
<td>206/205 Transmissions</td>
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<tr>
<td></td>
<td>AB 206 24 Month Bolt Inspections</td>
<td>Engine Control Rigging</td>
<td>Remove Engine Oil Filter</td>
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AVT 302 Written Final Exam Date: TBA

AVT 302 Practical Final Exam Date: TB