



## COURSE OUTLINE: ASR128 - GENERAL REPAIRS II

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<b>Course Code: Title</b>	ASR128: GENERAL REPAIRS II
<b>Program Number: Name</b>	4067: AIRCRAFT STRUCT TECH
<b>Department:</b>	AIRCRAFT STRUCTURAL REPAIR
<b>Semesters/Terms:</b>	19W
<b>Course Description:</b>	This course is an advanced version of ASR104 (General Repairs I). The students will research and perform repairs on the following aircraft structural parts: stringers, formers, bulkheads, spars, outer skin covering, control surfaces, tubular structures, wooden structures and fabric coverings. The curriculum topics and lab projects associated with corrosion assessment-removal and protection, jigs, forming tools, static balancing of control surfaces, turn lock fasteners, window removal and installation, plexiglass repairs and sealing procedures must be completed. Most repairs involve forming aluminium alloy from flat stock. Evaluation consists of theory testing (40%) and practical project completions (60%).
<b>Total Credits:</b>	12
<b>Hours/Week:</b>	12
<b>Total Hours:</b>	192
<b>Prerequisites:</b>	ASR124
<b>Corequisites:</b>	There are no co-requisites for this course.
<b>Vocational Learning Outcomes (VLO's) addressed in this course:</b>	<b>4067 - AIRCRAFT STRUCT TECH</b>
<b>Please refer to program web page for a complete listing of program outcomes where applicable.</b>	VLO 1 Safely use the tools, equipment and identify materials needed to carry out various sheet metal repairs.
	VLO 2 Demonstrate a working knowledge of the principles of aircraft design by applying theory and shop practice.
	VLO 3 Identify and order airframe parts with the use of Maintenance and Parts Manuals to complete necessary repairs.
	VLO 4 Read and follow blueprint, shop drawings and manufacturer's manuals necessary in all manufacturing and overhaul facilities.
	VLO 5 Organize work safely, economically and efficiently.
	VLO 6 Carry out any repair according to specifications, stated job procedures and the requirements of the Department of Transport Regulations.
	VLO 7 Refer to specific aircraft manuals such as Aircraft Pocket Manual and Hardware Manual to determine safe and acceptable procedures and parts.
	VLO 8 Demonstrate a sense of responsibility and appreciation of the high cost of the equipment and materials used to train the practical portion of this program.
	VLO 10 Recognize basic hand tools and demonstrate their use for specific maintenance on floats, fuselage structures and control systems.
	VLO 11 With the use of manuals quickly locate and pinpoint station locations on fuselage construction and wing structures.
	VLO 12 Use specialized equipment such as reamers, taps and dies to complete a detailed



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repair as per manufacturer's specifications.

- VLO 13 Fabricate sheet metal parts with the use of shop equipment and manuals.
- VLO 15 Fabricate float and hull repairs using specialized equipment for float repairs.
- VLO 16 Demonstrate honesty and integrity to match the requirements of the aircraft industry.

**Essential Employability Skills (EES) addressed in this course:**

- EES 1 Communicate clearly, concisely and correctly in the written, spoken, and visual form that fulfills the purpose and meets the needs of the audience.
- EES 2 Respond to written, spoken, or visual messages in a manner that ensures effective communication.
- EES 3 Execute mathematical operations accurately.
- EES 4 Apply a systematic approach to solve problems.
- EES 5 Use a variety of thinking skills to anticipate and solve problems.
- EES 6 Locate, select, organize, and document information using appropriate technology and information systems.
- EES 7 Analyze, evaluate, and apply relevant information from a variety of sources.
- EES 8 Show respect for the diverse opinions, values, belief systems, and contributions of others.
- EES 9 Interact with others in groups or teams that contribute to effective working relationships and the achievement of goals.
- EES 10 Manage the use of time and other resources to complete projects.
- EES 11 Take responsibility for ones own actions, decisions, and consequences.

**Course Evaluation:**

Passing Grade: 70%, B

**Other Course Evaluation & Assessment Requirements:**

- Rewrite exams may be granted by the course instructor at the end of the semester. The rewrite exam may be a theory exam if the student fails only that portion of the course or a practical project if the student fails that portion of the course.  
-If the student fails both portions of the course he will have to rewrite a theory exam to cover the theory portion of the course and complete a practical project to complete the practical portion of the course.  
-The final theory exam is evaluated separately from the practical project. Each portion of the evaluation must attain a passing mark of 70%. The final grade will equate to a B grade.

**Books and Required Resources:**

AVIATION MAINTENANCE TECHNICIAN by FEDERAL AVIATION  
ISBN: 9781560279501

AVIATION MAINTENANCE TECHNICIAN by FEDERAL AVIATION  
ISBN: 9781560279525

AVIATION MAINTENANCE TECHNICIAN by FEDERAL AVIATION  
ISBN: 9781619540255

STANDARD AVIATION MAINTENANCE by JEPESSEN  
ISBN: 9780884873242

**Course Outcomes and Learning Objectives:**

Course Outcome 1	Learning Objectives for Course Outcome 1
(1.) Describe and demonstrate using the S.R.M. , how to complete	1.1 Perform various panel repairs and discuss the procedures you should follow to complete this repair.



major structural repairs. Other topics such as inspection panel fasteners, safe tying techniques, hull and float repairs and jigs will also be discussed.

- 1.2 Repair aircraft stringers, as per S.R.M. reference.
- 1.3 Complete, using S.R.M., a leading edge and trailing edge repair on a wing or control surface
- 1.4 Determine the number of parts required to complete a repair by reading blueprints or aircraft structural repair manuals
- 1.5 Identify using repair schematics, the procedures used to repair various float damage
- 1.6 Identify the various items used in the construction of a float
- 1.7 Install various turn lock fasteners and identify the various parts of turn lock fasteners installations.
- 1.8 Identify the coding system used to identify fastener diameter and length on Cam Lok and Dzeus fasteners.
- 1.9 Identify various fasteners found on aircraft inspection panels
- 1.10 Install and remove various fasteners found on aircraft inspection panels
- 1.11 Identify and complete tubular structural repairs as per AC 43-13-1A
- 1.12 Complete damage assessment and damage assessment reports
- 1.13 Identify the classes of repairs for hull and float aircraft

**Course Outcome 2**

**Learning Objectives for Course Outcome 2**

(2.) Identify basic fabric types, repair procedures and safety requirements associated with fabric covered aircraft fuselages at control surfaces.

- 2.1 Identify the types of fabrics used to repair aircraft fabric covered structures
- 2.2 Discuss various terms used throughout the repair process
- 2.3 State the purpose and procedures for various repairs
- 2.4 Describe various wing fabric repairs
- 2.5 List the causes of fabric deterioration
- 2.6 Identify areas where fabric damage will most likely occur
- 2.7 Discuss dope application and problems associated with this method of repair
- 2.8 Discuss various stitching involved with fabric repairs
- 2.9 Identify the various safety equipment associated with these repairs

**Course Outcome 3**

**Learning Objectives for Course Outcome 3**

(3.) Identify aircraft corrosion types, corrosion formation and removal procedures.

- 3.1 Identify various types of corrosion which damages aircraft structures
- 3.2 Remove and treat corrosion in aircraft structures as per assignments
- 3.3 Describe how to use equipment and chemicals associated with removing and treating corrosion
- 3.4 State the causes of corrosion
- 3.5 Identify areas prone for corrosion start up

**Course Outcome 4**

**Learning Objectives for Course Outcome 4**

(4.) Describe various cable types, their construction, methods of swaging fittings

- 4.1 Identify most common types of cables used for aircraft systems
- 4.2 Swage terminal ends onto cable using correct swaging dies



	and nico-press operations	and hand tools. 4.3 Nico-press aircraft cable, using thimble and copper sleeve, and hand tools 4.4 Identify the various equipment used to fabricate aircraft cable 4.5 Test cable after installation of terminal ends. Inspect for broken strands and slippage
	<b>Course Outcome 5</b>	<b>Learning Objectives for Course Outcome 5</b>
	(5.) Basic wooden aircraft repairs and processes will be discussed.	5.1 Identify the aircraft woods required for structural and component repairs 5.2 Discuss terminology associated with wood 5.3 Describe the requirements for selecting aircraft wood for the purpose of repairs 5.4 Discuss the advantages of using plywood Vs solid wood in aircraft repairs 5.5 Identify types of glues used for repairs and discuss gluing methods 5.6 Discuss moisture content in aircraft woods 5.7 Describe the surface conditions of gluing wooden structures and the importance of strong gluing joints 5.8 Identify gluing pressures required during wooden structure repairs and the importance of using caul blocks and jigs 5.9 Discuss laminated wood construction and methods of bending wood in jigs 5.10 Describe basic spar splices, scarf joint repairs, and L/E and T/E repairs 5.11 Identify jig manufacturing of rib jigs 5.12 Discuss plywood repairs, including surface patches and splayed patch 5.13 Identify the acceptable methods of finishing repaired wood surfaces
	<b>Course Outcome 6</b>	<b>Learning Objectives for Course Outcome 6</b>
	(6.) Shot Peening techniques and processes will be studied and discussed	6.1 Purpose of shot peening 6.2 Parts that are shot peened 6.3 Shot peening techniques 6.4 Shot peening equipment 6.5 Advantages and disadvantages of shot peening aircraft parts

**Evaluation Process and Grading System:**

Evaluation Type	Evaluation Weight	Course Outcome Assessed
PRACTICAL PROJECTS	60%	1,2,3,4,5
Test 18	10%	3,6
Test 19	10%	1
Test 20	5%	1
Test 23	5%	5
Test 26	5%	2
Test 27	5%	1

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**Date:**

August 28, 2018

Please refer to the course outline addendum on the Learning Management System for further information.

