Subject Description Form

Subject Code	AAE2102/IC2133
Subject Title	Aircraft Manufacturing and Maintenance Fundamentals
Credit Value	4 Training Credits
Level	2
Pre-requisite/ Co-requisite/ Exclusion	Nil
Objectives	The subject provides opportunity for students to gain practical and hands-on training experiences in the following fundamental aircraft engineering and maintenance procedures and practices: • Safety Precautions, • Use of hand tools and bench fitting, • Engineering Drawing, • Electronic Safety Test and Practice This subject also equips students with basic workshop skills necessary for handling manufacturing project subjects..
Intended Learning Outcomes	Upon completion of the subject, students will be able to: a) Demonstrate a practical understanding on the working principle, capability and operation of major aircraft manufacturing processes; b) Select and use appropriate materials and manufacturing processes for specific parts requirements; c) Explain the importance of quality, timeliness, regulation conformance, and continuous improvement to aviation engineering.
Subject Synopsis/ Indicative Syllabus	**1. Workshop Safety** Use of fire extinguishers; Use of respirators; Use of fall protection and fall arrest equipment. **2. Use of Hand Tools** Use of Hand Tools in Bench Fitting; Use of Marking out Tool; Use of Measuring Instruments; Use of Hand Tools in Aircraft Maintenance; Torque loading technique; Bench Fitting; Fabrication of a Part. **3. Engineering Drawing** Read and draw orthographic sketches; Read and draw isometric sketches; Read and draw layers, block, attributes; Read and draw sectional view; Read and specify dimensional tolerances; Read and

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<tr><td></td><td>draw treads and fasteners; Draw 3D solid components; Read and draw assemblies; Read and draw electrcial circuits and components.

4. Electronic Safety Test and Practice

Avionics General Test Equipment; Soldering.</td></tr>
<tr><td>Learning Methodology</td><td>Workshop-based hands-on activities will be used for students to appreciate the principles and operations of common aircraft manufacturing technologies, and to acquire essential practical skills for them to carry out project tasks.

On-demand demonstrations and tutorials will be provided to support students having difficulties in their hands-on activities.

Technical handouts will be available on-line for students to familiarise with the technical contents.</td></tr>
<tr><td>Assessment Methods in Alignment with Intended Learning Outcomes</td><td>
<table>
<tr><th rowspan="2">Specific Assessment Methods/Tasks</th><th rowspan="2">Weighting (%)</th><th colspan="3">Intended Subject Learning Outcomes to be Assessed</th></tr>
<tr><th>a</th><th>b</th><th>c</th></tr>
<tr><td>Workshop assignments</td><td>40</td><td>X</td><td>X</td><td>X</td></tr>
<tr><td>Quizzes</td><td>20</td><td>X</td><td>X</td><td></td></tr>
<tr><td>Training report</td><td>40</td><td>X</td><td>X</td><td>X</td></tr>
<tr><td>Total</td><td>100</td><td colspan="3"></td></tr>
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Workshop assignments in the form of small manufacturing tasks will be used to assess how well students understand the working principle, capabilities, and operation of the manufacturing processes. Students' skill-level will be evaluated by the artifacts they produced, while their practical knowledge and work attitude be evaluated by individual oral presentation.

Multiple-choice quizzes will be used to assess broadly the students' understanding of declarative knowledge covered by the subject, as well as their material and process selection judgement.

Individual training report will be used to assess holistically how well the students consolidate technical contents, reflect on their engineering decisions, and critically review their learning experience. The students also elaborate on their professional attitude and commitment in their writing.</td></tr>
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Student Study Effort Expected	**Class Contact**	
	▪ Hands-on practices	120 Hrs.
	Other Study Effort	0 Hrs.
	Total Study Effort	**120 Hrs.**
Reading List and References	1. Forenz, T. (2018). Aviation Maintenance Technician Certification Series: Materials and hardware. Module 06. US, Aircraft Technical Book Company. 2. Fietz, K. (2019). Aviation Maintenance Technician Certification Series: Maintenance practices. Module 07A. US, Aircraft Technical Book Company.	