Subject Description Form

Subject Code	AAE4302
Subject Title	Aircraft Electronics
Credit Value	3
Level	4
Pre-requisite/ Co-requisite/ Exclusion	**Pre-requisite:** EE2902S Fundamentals of Electrical and Electronic Engineering
Objectives	To provide students with essential knowledge of aircraft electronics.
Intended Learning Outcomes	Upon completion of the subject, students will be able to: a. Possess essential knowledge and skills in the area of aircraft electronics; and b. Apply their knowledge, skills and hand-on experience to maintain and perform diagnosis on existing aircraft electronics systems; and c. Extend their knowledge to analyze and develop new modules and components in aircraft electronics for desired needs.
Subject Synopsis/ Indicative Syllabus	**Essential Electronics Devices -** Switches; Transistors; Amplifiers; Logic gates; Interfacing of microprocessors; Power sources and supplies, Voltage regulation and distributions; Digital electronics and data bus; troubleshooting techniques & basic instrumentations. **Radio Electronics -** Practical approach to transmission lines and characteristic impedance; VSWR; basic concept of antennae and their installation; calibration techniques of modulation depth; measurement techniques of aeronautical transceivers. **Display Technologies -** Raster scanning principle; CRT; LCD and their relationship to onboard instrumentations. **Electromagnetic Compatibility -** Introduction to EMI and EMC and their related standards. Case studies on various **Sensors** used onboard
Teaching/Learning Methodology	1. The teaching and learning methods include lectures/tutorial sessions, homework assignments, test, case study report and examination. 2. The continuous assessment and examination are aimed at providing students with integrated knowledge required for aircraft electronics. 3. Technical/practical examples and problems are raised and discussed in class/tutorial sessions.

<table>
<tr><td>Assessment Methods in Alignment with Intended Learning Outcomes</td><td colspan="4"><table>
<tr><td rowspan="2">Specific assessment methods/tasks</td><td rowspan="2">% weighting</td><td colspan="3">Intended subject learning outcomes to be assessed</td></tr>
<tr><td>a</td><td>b</td><td>c</td></tr>
<tr><td>1. Assignments</td><td>20 %</td><td>✓</td><td>✓</td><td></td></tr>
<tr><td>2. Test</td><td>20 %</td><td>✓</td><td>✓</td><td></td></tr>
<tr><td>3. Case study</td><td>20 %</td><td>✓</td><td>✓</td><td>✓</td></tr>
<tr><td>4. Examination</td><td>40 %</td><td>✓</td><td>✓</td><td>✓</td></tr>
<tr><td>Total</td><td>100 %</td><td colspan="3"></td></tr>
</table>
Explanation of the appropriateness of the assessment methods in assessing the intended learning outcomes:
Overall Assessment:
0.4 × End of Subject Examination + 0.6 × Continuous Assessment
The continuous assessment consists of three components: homework assignments, test, and case study. They are aimed at evaluating the progress of students study, assisting them in self-monitoring of fulfilling the respective subject learning outcomes, and enhancing the integration of the knowledge learnt.
The examination is used to assess the knowledge acquired by the students for understanding and analyzing the problems critically and independently; as well as to determine the degree of achieving the subject learning outcomes.</td></tr>
<tr><td>Student Study Effort Expected</td><td colspan="4"><table>
<tr><td>Class contact:</td><td></td></tr>
<tr><td>▪ Lecture</td><td>26 Hrs.</td></tr>
<tr><td>▪ Tutorial</td><td>13 Hrs.</td></tr>
<tr><td>Other student study effort:</td><td></td></tr>
<tr><td>▪ Self-Study</td><td>22 Hrs.</td></tr>
<tr><td>▪ Case Study</td><td>44 Hrs.</td></tr>
<tr><td>Total student study effort</td><td>105 Hrs.</td></tr>
</table></td></tr>
<tr><td>Reading List and References</td><td colspan="4">1. Thomas K. Eismin, Aircraft electricity and electronics, McGraw-Hill Education, 2014.
2. Tooley M, and Wyatt, Aircraft Electrical and Electronic Systems: Principles, Maintenance and Operation, Elsevier Ltd, 2009.
3. Jon B. Hagen, Radio-frequency electronics: circuits and applications, Cambridge University Press, 2009.
4. Dale Stacey, Aeronautical radio communication systems and networks, J.</td></tr>
</table>

	Wiley, 2008. 5. Collinson R.P.G., Introduction to Avionics Systems, Third Edition, Springer, Feb 2011.

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