Subject Description Form

<table>
<tr><td>Subject Code</td><td>ME585</td></tr>
<tr><td>Subject Title</td><td>Human Factors in Aircraft Maintenance</td></tr>
<tr><td>Credit Value</td><td>3</td></tr>
<tr><td>Level</td><td>5</td></tr>
<tr><td>Pre-requisite/
Co-requisite/
Exclusion</td><td>Nil</td></tr>
<tr><td>Objectives</td><td>To provide practical Human Factors guidance — based on international recommended practices — to aircraft maintenance engineers and to introduce the non-specialist to Human Factor issues in aircraft maintenance and inspection.</td></tr>
<tr><td>Intended Learning Outcomes</td><td>Upon completion of the subject, students will be able to:
a. have a better understanding of contemporary aircraft maintenance and inspection problems;
b. categorize human errors in the maintenance environment;
c. realize the need of good communication, teamwork, and facilities in aircraft maintenance; and
d. be aware of maintenance error prevention strategies.</td></tr>
<tr><td>Subject Synopsis/
Indicative Syllabus</td><td>Contemporary Maintenance Problems: Design defects and technical failures. Aircraft maintenance and inspection errors and violations.
Human Factor Models: Basic concept of human factors. Shell model. Reason model. Dirty Dozen.
Human Error in Aircraft Maintenance and Inspection: Leading maintenance re-occurrence discrepancies. Main categories of maintenance error. Organizational perspective examples of maintenance error.
HF Issues Affecting Aircraft Maintenance: Information exchange and communication. Training of aircraft maintenance engineers. Impact of teamwork, facilities and work environment.
Error Prevention Strategies: Organization of maintenance data. Error reduction capture and tolerance. Application of Maintenance Error Decision Aid.</td></tr>
<tr><td>Teaching/Learning Methodology</td><td>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 essential knowledge required for human factor analysis of aviation occurrences.
3. Technical/practical examples and problems are raised and discussed in class/tutorial sessions.
<table>
<tr><td rowspan="2">Teaching/Learning Methodology</td><td colspan="4">Intended subject learning outcomes</td></tr>
<tr><td>a</td><td>b</td><td>c</td><td>d</td></tr>
<tr><td>1. Lecture</td><td>√</td><td>√</td><td>√</td><td>√</td></tr>
<tr><td>2. Tutorial</td><td>√</td><td>√</td><td>√</td><td>√</td></tr>
<tr><td>3. Homework assignment</td><td>√</td><td>√</td><td>√</td><td>√</td></tr>
<tr><td>4. Case study report and presentation</td><td>√</td><td>√</td><td>√</td><td>√</td></tr>
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Assessment Methods in Alignment with Intended Learning Outcomes

Specific assessment methods/tasks	% weighting	Intended subject learning outcomes to be assessed			
		a	b	c	d
1. Homework assignment	20%	√	√	√	√
2. Test	20%	√	√	√	√
3. Case study report and presentation	20%	√	√	√	√
4. Examination	40%	√	√	√	√
Total	100%				

Explanation of the appropriateness of the assessment methods in assessing the intended learning outcomes:

Overall Assessment:

$0.40 \times$ End of Subject Examination + $0.60 \times$ Continuous Assessment

The continuous assessment consists of three components: homework assignments, test, and case study report & presentation. 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.

Student Study Effort Expected

Class contact:	
▪ Lecture	24 Hrs.
▪ Tutorial/Case study/Laboratory	15 Hrs.
Other student study effort:	
▪ Self Study	45 Hrs.
▪ Case study report preparation and presentation	21 Hrs.
Total student study effort	105 Hrs.

Reading List and References

1. ICAO. Human Factors Digest No.12. Human Factors in Aircraft Maintenance and Inspection. ICAO. Montreal:Canada, latest edition.
2. Hollnagel, E. Human Reliability Analysis-Context & Control. San Diego. CA:Academic Press, latest edition.
3. Reason, J. & Hobbs, A. Managing Maintenance Error: A Practical Guide. London, UK:Ashgate Publishing, latest edition.