

EXTERNAL EXAMINER REPORT

**SCHOOL OF MECHANICAL ENGINEERING
UNIVERSITI TEKNOLOGI MALAYSIA
JOHOR BAHRU, JOHOR**

PART A: PARTICULARS OF EXTERNAL EXAMINER / ASSESSOR

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PART B: GENERAL INFORMATION ON THE PROGRAMME TO BE ASSESSED

1. Engineering Programme Assessed:
 - Bachelor of Engineering (Mechanical) – *Full time*
 - Bachelor of Engineering (Mechanical) – *Part time*
 - Bachelor of Engineering (Mechanical – Materials)
 - Bachelor of Engineering (Mechanical – Aeronautics)
 - Bachelor of Engineering (Mechanical – Automotive)
 - Bachelor of Engineering (Mechanical – Manufacturing)
 - Bachelor of Engineering (Mechanical – Industrial)
 - Bachelor of Engineering (Naval Architecture and Offshore Engineering)
2. Date of Assessment : 20th January 2021, 29th April 2021, and 19th May 2021.
3. Duration of Study of Degree Programme : 4 YEARS

Instruction for Part C until Part G:

Please tick (✓) in the scale given where 1 – poor, 2 – satisfactory, 3 – good. Give your comments in the last column or space given.

PART C: OVERALL ASSESSMENT ON THE PROGRAMME

No	Assessment	1	2	3	Comment (if any)
1	Programme Educational Objectives (PEO)		✓		The programme PEOs linked to the Mission and Vision of the IHL. <u>Suggestion for improvement:</u> i. IHL need to measure the attainment and analyse the performance of the PEO.
2	Programme Learning Outcome (PLO)		✓		The programme POs adopted the EAC Standard 2020 graduate attributes explicitly. PO1-PO4 address complex engineering problems and PO5 address complex engineering activities. The Knowledge Profile is linked and evident in the PO statements. <u>Suggestion for improvement:</u> i. The integrated design project must address the PO 6, 7 and 12 as required by EAC Standard 2020.
3	Programme Structure and Course Content		✓		Programme has the breadth and depth of an engineering education programme, adequate and relevant to the POs. The curriculum covers the Knowledge Profile, address complex problem solving (WP) and complex engineering activities (EA) as required by the EAC Standard 2020. <u>Suggestion for improvement:</u> i. IHL to consider introducing elective courses in the programme ii. IHL to consider providing appropriate certification relevant to the industry. iii. The references of all courses must be updated. iv. The CLO no. 3 for the SEMT4253 Aircraft instrumentation & Avionics need to be revised. v. IHL need to check the practical hours allocated for SEMT4223 Flight Dynamics & Control.

4	Outcome Based Education Implementation		√		<p>Programme's curriculum has fully embraced and adopted the OBE approach.</p> <p>Suggestion for improvement:</p> <p>i. IHL need to compile and provide evidences of implementation on WP and EA.</p> <p>ii. The understanding of OBE and CQI of the academic staff can further be improved through periodic awareness programme and training.</p>
5	Achievement of PLO by the Students			√	The PLO attainment for the students were measured and analysed for CQI.
6	Industry participation in the programme		√		<p>IHL has organised several industrial talk relevant to the programme.</p> <p>Suggestion for improvement:</p> <p>i. IHL should involve students from year 1 & year 2 in the industrial talk.</p>
7	Effectiveness of IR4.0 in the curriculum		√		<p>The implementation is satisfactory.</p> <p>Suggestion for improvement:</p> <p>i. IHL can enhance the implementation of IR4.0 in the delivery of courses and compile evidences.</p>

PART D: OVERALL ASSESSMENT ON STAFF QUALIFICATION AND INDUSTRIAL EXPOSURE

No	Assessment	1	2	3	Comment (if any)
1	Staff Qualification			√	<p>All staff has PhD qualifications. Currently, there are 4 P.Eng. However, 2 staffs with P.Eng will retire in 2022. Hence, there is an urgency to have proper planning to increase the number of P.Eng.</p> <p>Suggestion for improvement:</p> <p>i. IHL to provide planning and encourage staff and to obtain P.Eng.</p> <p>ii. IHL to ensure all staff to register with BEM.</p>
2	Staff Industrial Exposure		√		<p>The staff industrial exposure are satisfactory.</p> <p>Suggestion for improvement:</p> <p>i. IHL to encourage academic staff to actively participate and join the professional society locally or</p>

					internationally such as AIAA, ASME, IET, MySET and IEM.
3	Staff Teaching Workload			√	Academic staffs are normally allocated teaching loads of not more than 12 hours of the 40 weekly hours.
4	Staff Involvement in Research			√	Academic staffs are actively involved in research activities.
5	Staff Involvement in Industrial Consultancy			√	Academic staffs are actively involved in industrial consultancy.
6	Staff Supervision of students' projects			√	There are equal distribution of student's project supervision.

PART E: OVERALL ASSESSMENT ON STUDENT WORKLOAD

No	Assessment	1	2	3	Comment (if any)
1	Staff-student ratio			√	The average staff-student ratio is 1:8.
2	Student workload			√	Students with good academic standing (KB) are allowed to take 12-18 credit hours per semester. Approval from the Dean is required when student intend to take more than 18 credits per semesters. Students with provisional status (KS) are limited to 13 credits.
3	Coursework			√	Within the stipulated SLT.
4	Laboratory work			√	There are 3 laboratory activities; Laboratory I, II and III. The lab I is guided, lab II is semi-guided and lab III is open-ended.
5	Assignments			√	Aligned and suitable with the CLO.
6	Design projects		√		Suggestion for improvement: i. The assessments of IDP must include the elements of Societal, Health & Safety;

					environmental & sustainability; and Management & Financial aspects.
7	Final Year Project			√	The project titles and scope are suitable and relevant to the programme.
8	Student involvement in extracurricular activities		√		Suggestion for improvement: i. Industrial training placement need to be conducted at relevant industry.

PART F: ASSESSMENT ON THE EXAMINATION MATTER

No	Assessment	1	2	3	Comment (if any)
1	Procedures for setting and vetting			√	Procedures for setting and vetting are well established.
2	Quality Assurance			√	There exist internal quality assurance procedures.
3	Confidentiality and Security			√	Confidentiality and Security are in place.
4	Standard of questions			√	Appropriate for Bachelor level.
5	Coverage of syllabus			√	Yes.
6	Adequate balance between theory and application			√	There are adequate balance between theory and application.
7	Equal level for each question			√	Yes.
8	Adequate choice of questions			√	Adequate.
9	Appropriateness of marking scheme			√	Appropriate.
10	Examination Procedures			√	There exist a clear procedure for examination conduct.

11	Examinations Regulations			√	There exist clear regulations on examinations.
12	Fairness/disparity of marking			√	Yes.
13	Follow-through method marking			√	Yes.
14	Response of students to the questions			√	Appropriate.
15	Distribution of marks			√	Adequate.

PART G: ASSESSMENT ON MANAGEMENT COMMITMENT TOWARDS THE PROGRAMME:-

No	Assessment	1	2	3	Comment (if any)
1	Staff planning for higher qualification			√	There is a clear planning for staff to obtain higher qualification.
2	Staff professional training policy			√	There is a clear policy in place for staff professional training.
3	Provide conducive environment for student/staff			√	There exist conducive environment for student and staff.
4	Effort for overall improvement			√	IHL shows clear effort for overall improvement.

PART H: ASSESSMENT OF ASSESSMENT MODERATION PROCESS:-

No	Assessment	1	2	3	Comment (if any)
1	Examination question preparation			√	The preparation for examination questions are adequate.
2	Examination answer scripts			√	Adequate.

3	Design Projects		√	Suggestion for improvement: i. Appropriate rubrics need to be used for the assessments of Societal, Health & Safety; environmental & sustainability; and Management & Financial aspects.
4	Final Year Project Titles		√	Appropriate.
5	Final Year Project Thesis		√	Appropriate.

PART I: RECOMMENDATIONS AND OVERALL COMMENTS

1. Recommendations/Corrective action :

There are in total 17 suggestions for improvements as stated in the appropriate section above.

2. Overall and other comments on the Quality and Output of the Bachelor Degree Programme being assessed:

In summary, the Bachelor of Engineering (Mechanical-Aeronautics) programme is of quality equivalent to other similar programme offered by renowned universities.



Signature :  : 31 May 2021

Name : PROFESSOR Ir. Ts. Dr. ABD. RAHIM ABU TALIB