



มาตรฐานอาชีพและคุณวุฒิวิชาชีพ
Occupational Standard and Professional Qualifications

Of Aircraft Mechanics

จัดทำโดย Thailand Professional Qualification Institute (Public
Organization)

1. ชื่อมาตรฐานอาชีพ

Of Aircraft Mechanics

2. ประวัติการปรับปรุงมาตรฐาน

1/2021

3. ทะเบียนอ้างอิง (Imprint)

N/A

4. ข้อมูลเบื้องต้น

Basics need for establishing a professional qualification standard for an occupation of an aircraft mechanics arises from the highly demands and supplies of social, industrial economic, and personal needs.

5. ประวัติการปรับปรุงมาตรฐานในแต่ละครั้ง

1/2021

6. ครั้งที่

- Review of qualifications according to the 8-level professional qualifications framework.
- Review of qualification pathway.

7. คุณวุฒิวิชาชีพที่ครอบคลุม (Professional Qualifications included)

สาขาวิชาชีพการบิน

สาขางานเทคนิคและฝึกอบรม

Aircraft Mechanics : Avionics ช่างอากาศยาน (เอวีโอนิกส์) ระดับ 5

8. คุณวุฒิวิชาชีพที่เกี่ยวข้อง (Related Professional Qualifications)

N/A

9. หน่วยสมรรถนะทั้งหมดในมาตรฐานอาชีพ (List of All Units of Competence within this Occupational Standards)

รหัสหน่วยสมรรถนะ	เนื้อหา
101501	Plan and organize aviation maintenance work activities.
101502	Plan and implement civil aircraft maintenance activities.
101503	Supervise civil aircraft maintenance activities and manage human resources in the workplace.
101504	Apply work health and safety procedures at supervisor level in aviation.
101505	Manage deployed/detached aviation maintenance activities.
101506	Write aviation technical publications.
101507	Manage self in the aviation maintenance environment.
101508	Prepare and manage aviation maintenance organization budgets and financial.
101511	Apply systems engineering procedures to airworthiness engineering design.
103501	Perform administrative processes to prepare for certification of civil aircraft.
103502	Perform advanced troubleshooting in aircraft avionic maintenance.
103503	Perform aircraft weight and balance calculations as a result of modifications.

10. ระดับคุณวุฒิ

10.1 สาขาวิชาช่างการบิน สาขางานเทคนิคและฝึกอบรม Aircraft Mechanics : Avionics ช่างอากาศยาน (เอวีโอนิกส์) ระดับ 5

คุณลักษณะของผลการเรียนรู้ (Characteristics of Outcomes)

A person with specialize skill and technique who is capable working on any complicated tasks. The one could also participate in planning and organizing his/her organization as well as creating innovation. The one could communicate fluently in foreign language and able to guide and train his/her co-workers.

Characteristics of Outcomes

Capable of planning, organizing, and managing all tasks. Also become the team leaders for his/her co-workers.

การเลื่อนระดับคุณวุฒิวิชาชีพ (Qualification Pathways)

1. The minimum age for person who wants to qualify this level is 18 years old.
2. Legitimizes one of the following:
 - 2.1 Holds a minimum Vocational Certificate or equivalence, and at least eight years working experiences in aircraft maintenance with an official verification letter.
 - 2.2 Holds a High Vocational Certificate, completed in aircraft maintenance course and at least four years working experiences in aircraft maintenance with an official verification letter.
 - 2.3 Holds a High Vocational Certificate or equivalence, and at least six years working experiences in aircraft maintenance with an official verification letter.
 - 2.4 Holds a Bachelor's Degree, completed in aircraft maintenance course or equivalence and at least four years working experiences in aircraft maintenance with an official verification letter.
 - 2.5 Holds a Bachelor's Degree or equivalence, and at least five years working experiences in aircraft maintenance with an official verification letter.
 - 2.6 Holds a Professional Qualification Certificate level 4, and at least four years experiences in aircraft maintenance with an official verification letter.
 - 2.7 Hold Aircraft Maintenance License from The Civil Aviation Authority of Thailand (CAAT) with type rating and have authorized to sign airworthiness release aircraft to service.

หลักเกณฑ์การต่ออายุหนังสือรับรองมาตรฐานอาชีพ

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กลุ่มบุคคลในอาชีพ (Target Group)

Aircraft Mechanics: Avionics

หน่วยสมรรถนะ (หน่วยสมรรถนะทั้งหมดของคุณวุฒิวิชาชีพนี้)

- 101501 Plan and organize aviation maintenance work activities.
- 101502 Plan and implement civil aircraft maintenance activities.
- 101503 Supervise civil aircraft maintenance activities and manage human resources in the workplace.
- 101504 Apply work health and safety procedures at supervisor level in aviation.
- 101505 Manage deployed/detached aviation maintenance activities.
- 101506 Write aviation technical publications.
- 101507 Manage self in the aviation maintenance environment.
- 101508 Prepare and manage aviation maintenance organization budgets and financial.

101511 Apply systems engineering procedures to airworthiness engineering design.

103501 Perform administrative processes to prepare for certification of civil aircraft.

103502 Perform advanced troubleshooting in aircraft avionic maintenance.

103503 Perform aircraft weight and balance calculations as a result of modifications.

ตารางแผนผังแสดงหน้าที่

1. ตารางแสดงหน้าที่ 1

ประกาศใช้ ณ 13/08/2564

ตาราง 1 : FUNCTIONAL MAP แสดง KEY PURPOSE , KEY ROLES , KEY FUNCTION

ความมุ่งหมายหลัก Key Purpose	บทบาทหลัก Key Roles		หน้าที่หลัก Key Function	
	รหัส	คำอธิบาย	รหัส	คำอธิบาย
To promote and support aircraft maintenance of a aircraft mechanics group	10	Aircraft Mechanics	101	Aircraft Mechanics: Airplane
			103	Aircraft Mechanics Avionics

คำอธิบาย ตารางแผนผังแสดงหน้าที่เป็นแผนผังที่ใช้วิเคราะห์หน้าที่งานเพื่อให้ได้หน้าที่หลัก (Key Function)

2. ตารางแสดงหน้าที่ 1 (ต่อ)

ประกาศใช้ ณ 13/08/2564

ตาราง 2 : FUNCTIONAL MAP แสดง KEY FUNCTION , UNIT OF COMPETENCE , ELEMENT OF COMPETENCE

หน้าที่หลัก Key Function		หน่วยสมรรถนะ Unit of Competence		หน่วยสมรรถนะย่อย Element of Competence	
รหัส	คำอธิบาย	รหัส	คำอธิบาย	รหัส	คำอธิบาย
101	Aircraft Mechanics: Airplane	101501	Plan and organize aviation maintenance work activities.	101501.01	Identify task requirements and steps plan to complete task.
				101501.02	Organize work.
		101502	Plan and implement civil aircraft maintenance activities.	101502.01	Plan and implement aircraft maintenance activities.
				101502.02	Evaluate and report maintenance outcomes.
		101503	Supervise civil aircraft maintenance activities and manage human resources in the workplace.	101503.01	Plan, implement maintenance for teams and provide guidance, Monitor maintenance quality.
				101503.02	Perform human resource management activities and workplace training tasks at the supervisor level.
		101504	Apply work health and safety procedures at supervisor level in aviation.	101504.01	Implement and monitor participative arrangements for the management of WHS.
				101504.02	Implement and monitor the organization's procedures for identifying hazards and assessing risks.
				101504.03	Implement and monitor the organization's procedures for providing WHS training.
		101505	Manage deployed/detached aviation maintenance activities.	101505.01	Detachment of the maintenance activities of aircraft plan.
				101505.02	Prepare a maintenance plan.
				101505.03	Detach aircraft and provide technical airworthiness/engineering advice.
		101506	Write aviation technical publications.	101506.01	Research data, draft publication or publication amendment.
				101506.02	Process draft publication or amendment.
		101507	Manage self in the aviation maintenance environment.	101507.01	Manage self and work effectively with others.
				101507.02	Comply with requirements, Manage work priorities and resources.
				101507.03	Contribute to development of own skills and professional capability.
		101508	Prepare and manage aviation maintenance organization budgets and financial.	101508.01	Analyse strategic opportunities ,intended maintenance activities, develop revenue, expenditure and capital investment proposals.

หน้าที่หลัก Key Function		หน่วยสมรรถนะ Unit of Competence		หน่วยสมรรถนะย่อย Element of Competence	
รหัส	คำอธิบาย	รหัส	คำอธิบาย	รหัส	คำอธิบาย
101	Aircraft Mechanics: Airplane	101508	Prepare and manage aviation maintenance organization budgets and financial.	101508.02	Build agreement for budgets and financial plans.
				101508.03	Maintain and store backup copies of data, monitor and control activities against plans.
		101511	Apply systems engineering procedures to airworthiness engineering design.	101511.01	Document system requirements and perform functional analysis.
				101511.02	Manage preliminary and detail design activities.
				101511.03	Provide oversight of production and delivery for life-cycle management of the system, components and software.
103	Aircraft Mechanics Avionics	103501	Perform administrative processes to prepare for certification of civil aircraft.	103501.01	Determine the registration status, eligibility to certify the completion of aircraft maintenance activities.
				103501.02	Prepare for return of aircraft to service, Compile and process maintenance documentation and reports.
		103502	Perform advanced troubleshooting in aircraft avionic maintenance.	103502.01	Verify /Isolate the defect.
				103502.02	Determine/Verify defect rectification.
		103503	Perform aircraft weight and balance calculations as a result of modifications.	103503.01	Determine the empty weight of the aircraft.
103503.02	Calculate the weight and balance impact of a modification.				

คำอธิบาย

ตารางแผนผังแสดงหน้าที่ (ต่อ) เป็นแผนผังที่ใช้วิเคราะห์หน้าที่งานหลังจากได้หน้าที่หลัก (Key Function) เพื่อให้ได้ หน่วยสมรรถนะ (Unit of Competence) และหน่วยสมรรถนะย่อย (Element of Competence)

1. รหัสหน่วยสมรรถนะ 101501
2. ชื่อหน่วยสมรรถนะ Plan and organize aviation maintenance work activities.
3. ทบทวนครั้งที่ N/A
4. สร้างใหม่ ปรับปรุง

5. สำหรับชื่ออาชีพและรหัสอาชีพ (Occupational Classification)

7232 Aircraft engine mechanics and fitters

6. คำอธิบายหน่วยสมรรถนะ (Description of Unit of Competency)

This skill unit requires the application of work planning and organization of the principles applied in the context of maintenance tasks of single or multiple aviation defined that involve one or more individuals. Tasks can be performed during scheduled maintenance or unscheduled done on the flight line / tarmac, in hangars and component workshops.

7. สำหรับระดับคุณวุฒิ

1	2	3	4	5	6	7	8
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8. กลุ่มอาชีพ (Sector)

7232 Aircraft Mechanics

9. ชื่ออาชีพและรหัสอาชีพอื่นที่หน่วยสมรรถนะนี้สามารถใช้ได้ (ถ้ามี)

N/A

10. ข้อกำหนดหรือกฎระเบียบที่เกี่ยวข้อง (Licensing or Regulation Related) (ถ้ามี)

N/A

11. สมรรถนะย่อยและเกณฑ์การปฏิบัติงาน (Elements and Performance Criteria)

สมรรถนะย่อย (Element)	เกณฑ์ในการปฏิบัติงาน (Performance Criteria)	วิธีการประเมิน (Assessment)
101501.01 Identify task requirements and steps plan to complete task.	101501.01.01 Able to determine or confirm, and clarify task requirements to ensure correct interpretation of specifications or requirements. 101501.01.02 Steps are planned in conjunction with the work of other personnel to allow achievement of practical outcomes in accordance with relevant aircraft publications/maintenance regulations/orders and standards and practices.	ข้อสอบข้อเขียน การสัมภาษณ์ การสาธิตการปฏิบัติงาน
101501.02 Organize work.	101501.02.01 Able to organize work activity with other involved personnel, allowing for relevant human factors and using relevant communication processes to ensure safe and appropriate sequencing of tasks, including observance of all relevant work health and safety (WHS) requirements and the use of material safety data sheets (MSDS). 101501.02.02 Able to complete and record all necessary documentation related to job planning and progress in accordance with relevant aircraft publications/ maintenance regulations/orders and standards and practices.	ข้อสอบข้อเขียน การสัมภาษณ์ การสาธิตการปฏิบัติงาน

12. ความรู้และทักษะก่อนหน้าที่จำเป็น (Pre-requisite Skill & Knowledge)

- 101301 Interpret work health and safety practices in aviation maintenance
- 101302 Apply quality standards applicable to aviation maintenance practices
- 101303 Interpret and use aviation maintenance industry manuals and specifications
- 101304 Complete aviation maintenance industry documentation

13. ทักษะและความรู้ที่ต้องการ (Required Skills and Knowledge)

(ก) ความต้องการด้านทักษะ

N/A

(ข) ความต้องการด้านความรู้

N/A

14. หลักฐานที่ต้องการ (Evidence Guide)

(a) Performance Evidence

Evidence required to demonstrate competency in this unit must be relevant to and meet all the requirements of the elements and performance criteria under the specified conditions of assessment, and must include:

- The interpretation of information relating to the work activity from a range of industry manuals, industry and enterprise regulations and industry documentation.
- Consideration of WHS regulations/precautions specific to the work activity and others working in the vicinity of the planned work activity, particularly with regard to electricity, gases (especially oxygen), oils and chemicals.
- The use of MSDS.
- The application of human factors in planning maintenance activities.

The relationship between broader planning and organizing requirements and service specific procedures must be clearly linked.

(b) Knowledge Evidence

The evidence required to demonstrate competency in this unit must be relevant and meet all the requirements of the elements and performance criteria and include basic knowledge of:

- The impact of human factors on the safe and effective performance of maintenance on aircraft and aircraft components.
- MSDS.
- The types of servicings performed on aircraft, i.e. planned and unplanned maintenance activities, and their impact on planning aviation work activity.
- Aircraft reference numbering systems as an aid to organizing effective work activity in terms of related tasks and inspection/servicing zones.

15. ขอบเขต (Range Statement)

This part allows different environments and working conditions that can affect the performance. Essential operating conditions that may be present (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) are included.

16. หน่วยสมรรถนะร่วม (ถ้ามี)

N/A

17. อุตสาหกรรมร่วม/กลุ่มอาชีพร่วม (ถ้ามี)

N/A

18. รายละเอียดกระบวนการและวิธีการประเมิน (Assessment Description and Procedure)

- The assessment are based on combination of paper exams, interviewing, and practical demonstrations depending on the assessors' judgement.
- Competency should be assessed in the workplace or through the use of simulated activities, covering planning and organizing situations applicable in the aircraft maintenance environment.
- This unit must be linked in its assessment and application to all other units, particularly those that apply to the actual maintenance of aircraft.
- Evidence of underlying knowledge and skills associated with the general application of planning and organizing while allowing for relevant human factors and WHS requirements is required to supplement evidence of ability to integrate these processes in conjunction with other personnel in the workplace.
- An individual cannot be evaluated as competent until it can be demonstrated to the satisfaction of the workplace assessor that the relevant elements and performance criteria of the unit of competency are being achieved under routine supervision on single and multiple tasks involving more than one person. This shall be established through the records in the Log of Industrial Experience and Achievement or, where appropriate, an equivalent Industry Evidence Guide.

1. รหัสหน่วยสมรรถนะ 101502
2. ชื่อหน่วยสมรรถนะ Plan and implement civil aircraft maintenance activities.
3. ทบทวนครั้งที่ N/A
4. สร้างใหม่ ปรับปรุง

5. สำหรับชื่ออาชีพและรหัสอาชีพ (Occupational Classification)

7232 Aircraft engine mechanics and fitters

6. คำอธิบายหน่วยสมรรถนะ (Description of Unit of Competency)

This skill unit covers all aviation maintenance activities. It requires application of maintenance planning and management skills to plan, implement, evaluate and report on aviation maintenance activities during planned or unplanned maintenance while complying with all legislative and regulatory requirements. The work may be done individually or as part of a team.

7. สำหรับระดับคุณวุฒิ

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8. กลุ่มอาชีพ (Sector)

7232 Aircraft Mechanics

9. ชื่ออาชีพและรหัสอาชีพอื่นที่หน่วยสมรรถนะนี้สามารถใช้ได้ (ถ้ามี)

N/A

10. ข้อกำหนดหรือกฎระเบียบที่เกี่ยวข้อง (Licensing or Regulation Related) (ถ้ามี)

N/A

11. สมรรถนะย่อยและเกณฑ์การปฏิบัติงาน (Elements and Performance Criteria)

สมรรถนะย่อย (Element)	เกณฑ์ในการปฏิบัติงาน (Performance Criteria)	วิธีการประเมิน (Assessment)
101502.01 Plan and implement aircraft maintenance activities.	101502.01.01 Able to determine, identify and allocate Maintenance requirements from applicable sources, and to record maintenance tasks to be performed in a maintenance schedule in accordance with enterprise policies and procedures. 101502.01.02 Able to maintain and manage regular liaison with maintenance personnel to ensure scheduled/unscheduled tasks are being completed with regular updates on maintenance progress in the form of both written and verbal reports, including notes, worksheets, status reports, briefs and individual directives, as required.	ข้อสอบข้อเขียน การสัมภาษณ์ การสังเกตการปฏิบัติงาน
101502.02 Evaluate and report maintenance outcomes.	101502.02.01 Able to evaluate final maintenance outcomes against the schedule in accordance with enterprise policies and procedures. 101502.02.02 Able to collate, evaluate and forward maintenance reports to appropriate management personnel in accordance with enterprise policies and procedures.	ข้อสอบข้อเขียน การสัมภาษณ์ การสังเกตการปฏิบัติงาน

12. ความรู้และทักษะก่อนหน้าที่จำเป็น (Pre-requisite Skill & Knowledge)

N/A

13. ทักษะและความรู้ที่ต้องการ (Required Skills and Knowledge)

(ก) ความต้องการด้านทักษะ

N/A

(ข) ความต้องการด้านความรู้

N/A

14. หลักฐานที่ต้องการ (Evidence Guide)

(a) Performance Evidence

Evidence required to demonstrate competency in this unit must be relevant to and meet all of the requirements of the elements and performance criteria under the specified conditions of assessment, and include:

- Application of the procedures for the identification of specific maintenance requirements through the review of:
- Maintenance releases.
- Manufacturers' maintenance manuals and servicing schedules.
- Computer maintenance data systems.
- Service bulletins.
- Modification incorporation instructions.
- Repair instructions.
- Feedback from maintenance personnel and aircrew via Technical Logs or approved maintenance documentation.
- AMO internal work instructions or directives.
- Ads.
- Basic project planning techniques, including planning chart development, timing, prioritizing, resourcing, monitoring, performance measurement and evaluation of maintenance tasks.
- Financial and inventory management as an element of task planning.
- The basic function, components, operation and interrelationship of all aircraft systems for the initial rating sought.
- Problem solving techniques and troubleshooting procedures.
- damage assessment philosophies and procedures, particularly with regard to corrosion damage.
- Cost control during maintenance, including cost effectiveness considerations for different repair types.
- Philosophies and considerations in repair versus replacement options.
- The application of quality management systems in aircraft maintenance.
- Enterprise and regulatory requirements for undertaking, recording and reporting maintenance activities, including relevant WHS requirements and the use of PPE.

It is essential that maintenance requirements are fully identified and that all applicable aspects of planning and implementation are identified and applied to meet organizational priorities and minimize workplace disruptions.

(b) Knowledge Evidence

Evidence required to demonstrate competency in this unit must be relevant to and satisfy all of the requirements of the elements and performance criteria and include basic knowledge of:

- Methods of determining and specifying maintenance requirements (Maintenance Review Board (MRB), Maintenance Standards Group (MSG), Extended Range Twin Engine Operations (EROPS), RVSM, Maintenance Programs, Minimum Equipment List (MEL), reliability, Air Transport Association (ATA) codes).
- The procedures for the identification of specific maintenance requirements through the review of:
- Maintenance releases.
- Manufacturers' maintenance manuals and servicing schedules.
- Computer maintenance data systems.
- Service bulletins.
- Modification incorporation instructions.
- Repair instructions.
- Feedback from maintenance personnel and aircrew via Technical Logs or approved maintenance documentation.
- AMO internal work instructions or directives.
- Ads.
- The regulations governing aircraft maintenance coordination.
- Basic project planning techniques, including planning chart development, timing, prioritizing, resourcing, monitoring, performance measurement and evaluation of maintenance tasks.
- Financial and inventory management as an element of task planning.
- The basic function, components, operation and interrelationship of all aircraft systems for the initial rating sought.
- Problem solving techniques and troubleshooting procedures.
- Damage assessment philosophies and procedures, particularly with regard to corrosion damage.
- Cost control during maintenance, including cost effectiveness considerations for different repair types.
- Philosophies and considerations in repair versus replacement options
- The application of quality management systems in aircraft maintenance
- Enterprise and regulatory requirements for undertaking, recording and reporting maintenance activities, including relevant WHS requirements and the use of PPE.

15. ขอบเขต (Range Statement)

This part allows for different work environments and conditions that may affect performance. Essential operating conditions that may be present (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) are included.

Maintenance requirements are determined from any or all of:

- Maintenance releases.
- Manufacturers' maintenance manuals and servicing schedules.
- Computer maintenance data systems.
- Service bulletins.
- Modification incorporation instructions.
- Repair instructions.
- Feedback from maintenance personnel and aircrew via Technical Logs or approved maintenance documentation.
- Aircraft Maintenance Organization (AMO) internal work instructions or directives.
- Airworthiness Directives (ADs)Resource requirements include:
- Required numbers of personnel and their availability.
- Personnel qualifications, experience and authorizationsResources and equipment required to perform maintenance tasks include:
- Personnel.
- Spares.
- Lubricants.
- Consumables.
- Tools.
- Special equipment.
- Personal protective equipment (PPE).
- Associated equipment including various items of ground support equipment.

Prescribed instructions, policies, procedures and/or regulatory requirements include:

- Manufacturers' operating and maintenance manuals.
- Approved Enterprise operation manuals.
- Quality procedures and work instructions.
- Work health and safety (WHS) policies and instructions, including material safety data sheets (MSDS).
- Management directivesAdvice and assistance in maintenance activities include:
- Fault diagnosis procedures.
- Troubleshooting.
- Damage assessment.
- Assessment of repair cost effectiveness.
- Assessment of replacement options.
- Technical services advice or directivesMaintenance problems include:
- Lack of resources.
- Unanticipated breakdowns or faults.
- Changes in prioritiesMaintenance activities include:
- Scheduled maintenance.
- Unscheduled maintenance.
- Configuration changes.
- Modification incorporation.
- Repair.

16. หน่วยสมรรถนะรวม (ถ้ามี)

N/A

17. อุตสาหกรรมร่วม/กลุ่มอาชีพร่วม (ถ้ามี)

N/A

18. รายละเอียดกระบวนการและวิธีการประเมิน (Assessment Description and Procedure)

- The assessment are based on combination of paper exams, interviewing, and practical demonstrations depending on the assessors' judgement.
- Competency should be assessed under supervision without intervention in the work environment, and/or by use of simulated activities, covering the full range of maintenance planning and implementation. This unit must be linked in its assessment and application to those that apply to the exercise of Aircraft Maintenance Engineer Licence or Aircraft Maintenance Specialist Certificate privileges in the actual maintenance of aircraft.
- Evidence is required of underlying knowledge and skills in the planning and implementation of maintenance activities, and in the associated compliance with airworthiness regulatory requirements.
- An individual cannot be evaluated as competent until it can be demonstrated to the satisfaction of the workplace assessor that the relevant elements and performance criteria of the unit of competency are being achieved on a task representing each of:
 - Determining maintenance requirements.
 - Identifying personnel resource requirements.
 - Identifying resources and equipment required to perform maintenance tasks.
 - Providing regular updates on progress of tasks.
 - Identifying and applying prescribed instructions, policy, procedures and/or regulatory requirements.
 - Providing advice and assistance in maintenance activities.
 - Resolving maintenance problems.

1. รหัสหน่วยสมรรถนะ 101503
2. ชื่อหน่วยสมรรถนะ Supervise civil aircraft maintenance activities and manage human resources in the workplace.
3. ทบทวนครั้งที่ N/A
4. สร้างใหม่ ปรับปรุง
5. สำหรับชื่ออาชีพและรหัสอาชีพ (Occupational Classification)
7232 Aircraft engine mechanics and fitters

6. คำอธิบายหน่วยสมรรถนะ (Description of Unit of Competency)

This skill unit requires application of supervisory and personnel management skills in the performance of all aviation maintenance activities. It covers the competencies required to supervise maintenance activities, apply human resource management practices applicable at the supervisor level, and contribute to workplace training and competency assessment during planned or unplanned maintenance. Work may be done individually or as part of a team.

7. สำหรับระดับคุณวุฒิ

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8. กลุ่มอาชีพ (Sector)

7232 Aircraft Mechanics

9. ชื่ออาชีพและรหัสอาชีพอื่นที่หน่วยสมรรถนะนี้สามารถใช้ได้ (ถ้ามี)

N/A

10. ข้อกำหนดหรือกฎระเบียบที่เกี่ยวข้อง (Licensing or Regulation Related) (ถ้ามี)

N/A

11. สมรรถนะย่อยและเกณฑ์การปฏิบัติงาน (Elements and Performance Criteria)

สมรรถนะย่อย (Element)	เกณฑ์ในการปฏิบัติงาน (Performance Criteria)	วิธีการประเมิน (Assessment)
101503.01 Plan, implement maintenance for teams and provide guidance, Monitor maintenance quality.	101503.01.01 Able to identify, organize workload and interpret maintenance tasks from available maintenance data or schedules in accordance with enterprise procedures, able to allocate maintenance tasks to appropriate team members with consideration of individual's experience and qualifications. 101503.01.02 Able to provide guidance to staff, appropriate to the maintenance task and individual's experience, including the communication of relevant maintenance data and procedures, check activities and guide personnel to ensure that maintenance is performed in accordance with the applicable documentation.	ข้อสอบข้อเขียน การสัมภาษณ์ การสังเกตการปฏิบัติงาน

สมรรถนะย่อย (Element)	เกณฑ์ในการปฏิบัติงาน (Performance Criteria)	วิธีการประเมิน (Assessment)
101503.02 Perform human resource management activities and workplace training tasks at the supervisor level.	101503.02.01 Able to identify and respond to Human factors affecting job performance, to minimize the possibility of maintenance errors, to maintain sound teamwork through an awareness of contributing factors and to maintain sound employment relations. 101503.02.02 Able to deliver On-job training through the reinforcement of knowledge and skills gained in off-job training and guiding their application to specific on-job maintenance tasks, and to complete the Supervisor's Verification portion of the Workplace History Sheets of the Log of Industrial Experience and Achievement.	ข้อสอบข้อเขียน การสัมภาษณ์ การสาธิตการปฏิบัติงาน

12. ความรู้และทักษะก่อนหน้าที่จำเป็น (Pre-requisite Skill & Knowledge)

N/A

13. ทักษะและความรู้ที่ต้องการ (Required Skills and Knowledge)

(ก) ความต้องการด้านทักษะ

N/A

(ข) ความต้องการด้านความรู้

N/A

14. หลักฐานที่ต้องการ (Evidence Guide)

(a) Performance Evidence

Evidence required to demonstrate competency in this unit must be relevant to and meet all of the requirements of the elements and performance criteria under the specified conditions of assessment, and must include:

- Planning and implementing team maintenance activities.
 - Application of all relevant WHS procedures.
 - Observing human factors in team maintenance activities.
 - Providing guidance to team members.
 - Human resource management at team level.
 - Using and compiling the Log of Industrial Experience and Achievement, including an understanding of:
 - Purpose of the Log.
 - Its structure and content.
 - Responsibility for making entries therein.
 - Responsibility for the certification of entries.
 - Explaining the training and competency assessment process, and of the role of supervisors in assisting workplace competency assessors.
- It is essential that maintenance requirements are fully identified and that all applicable aspects of supervision, supervisor level human resource management and involvement in workplace training and competency assessment are identified and applied.

(b) Knowledge Evidence

Evidence required to demonstrate competency in this unit must be relevant to and satisfy all of the requirements of the elements and performance criteria and include basic knowledge of:

- Applicable Commonwealth, state and territory WHS regulations, and enterprise WHS instructions.
- The correct use of applicable items of PPE.
- The requirement for Confined Space Entry Permits and related training.
- Applicable MSDS.
- Air Transport Association (ATA) 113 Specification for Maintenance Human Factors Guidelines, and of the following human factor elements:
 - General factors, including:
 - Weaknesses in task design and support.
 - Motivation and attitudes, task demands and limitations in performance.
 - Cooperative work, communication and leadership.
 - Allocation of resources, workload, work conditions and double standards.
 - Aspects relating to the task, including:
 - Physical and mental work.
 - Features of the task which limit efficiency or safety performance, including constraints such as signing-off and shift changeover; time pressures, information sources, trouble shooting methods, tools and equipment.
 - Task performance levels: skill-based, rule-based and knowledge-based and the limitations encountered in each category.
- Complex and interrelated aircraft systems.
- Limitations of individual performance, including:
 - The sources and effects of fatigue, detection and countermeasures.
 - Vision and lighting.
 - Hearing and noise.
 - Memory - short and long term.
 - Claustrophobia and acrophobia.
 - The influence of external factors, including:
 - Maintainability of aircraft.
 - Guidance availability.
 - Social environment.
 - Physical environment, including the effects of extremes of heat and cold, and countermeasures (e.g.limited periods of exposure); noise and fumes; motion and vibration.
 - The causes of variability in human performance, including:
 - Effects of arousal.
 - Limitations of perception.
 - Limitations of memory, and management of these.
 - Limitations of decision-making.
 - Limitations of motor-functioning.
 - Information processing.
 - Factors that degrade performance, including:
 - Risk motivation.
 - Individual differences (e.g. depth of training and experience).
 - Health.
 - Alcohol and drugs.
 - Errors in maintenance tasks, including:
 - Omissions, incorrect installation and wrong parts.
 - Assumptions.
 - Error management by minimization, capture and tolerance.
 - Human factors within groups, including:
 - The distinction between groups and teams; coordination and synergy.
 - Types of groups: horizontal (same level of personnel) and vertical (different functions).
 - Group characteristics; reducing overall task time; coordination.
 - Team characteristics; performance exceeds sum of individual performances.
 - Factors which lead to effective working in groups and teams: interaction, participation, open communication, clear expectations, shared leadership and self-assessment.
 - Team building.
 - Communication: the process and feedback.
 - Organizational aspects, including:
 - Functions and dysfunctionality.
 - Double standards: professionalism, procedures and time pressure.
 - Organizational culture, professional culture and work-group culture; and peer pressure.
 - Violation of regulations, procedures and processes, including:
 - Organizational failure: latent failure, error-provoking conditions and unsafe acts.
 - Organizational learning.
 - Maintenance error management program.

15. ขอบเขต (Range Statement)

This part allows for different work environments and conditions that can affect performance. Essential operating conditions that may be present (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) are included.

Maintenance data or schedules include:

- Maintenance records.
- Manufacturers' maintenance manuals and servicing schedules.
- Computer maintenance data systems.
- Service bulletins.
- Airworthiness Directives (ADs).
- Modification incorporation instructions.
- Repair instructions.
- Observations and feedback from maintenance personnel and aircrew via Technical Log entries.
- Aircraft Maintenance Organization (AMO) internal work instructions or directives

Required resources include:

- Personnel.
- Spares.
- Lubricants.
- Consumables.
- Tools.
- Special equipment.
- Personal protective equipment (PPE).
- Associated equipment including various items of ground support equipment.
- Considerations regarding resources also include:
 - required numbers of personnel and their availability.
 - personnel qualifications, experience and authorizations.
 - availability of the listed resources.

Guidance in maintenance activities includes:

- Fault diagnosis procedures.
- Troubleshooting.
- Damage assessment.
- Assessment of repair cost effectiveness.
- Assessment of replacement options.

Human factors affecting job performance include:

- Individual health and disability.
- Social psychology.
- Time pressure and workload.
- The physical work environment.

The possibility of maintenance errors is minimized through:

- Varying the extent of supervision according to the nature of the task and work conditions.
- Allowance for qualification and experience levels within the team.
- Allowance for human error and "Murphy's Law" ('If something can go wrong, it will.')

Employment relations at supervisor level include:

- Resolution or referral to management of complaints and difficulties.
- Resolution of conflict within the team.
- Absence of team members from the job.
- Maintenance of discipline in the performance of maintenance tasks.

- Allowance for cultural diversity within the team.
- Knowledge of relevant sections of industrial awards, enterprise agreements, and conditions of employment and service that apply to the particular workplace.

Maintenance activities include:

- Planned maintenance.
- Unplanned maintenance.
- Configuration changes.
- Modification incorporation.
- Minor repairs.

Prescribed instructions, policy, procedures and/or regulatory requirements include:

- Manufacturers' operating and maintenance manuals.
- Quality procedures and work instructions.
- WHS policies and instructions, including material safety data sheets (MSDS).
- Management directives.

16. หน่วยสมรรถนะร่วม (ถ้ามี)

N/A

17. อุตสาหกรรมร่วม/กลุ่มอาชีพร่วม (ถ้ามี)

N/A

18. รายละเอียดกระบวนการและวิธีการประเมิน (Assessment Description and Procedure)

- The assessment are based on combination of paper exams, interviewing, and practical demonstrations depending on the assessors' judgement.
- Competency should be assessed under supervision, without intervention in the work environment, and/or by use of approved simulated activities, covering the full range of maintenance supervision, supervisor level human resource management and assistance with workplace training and competency assessment, as provided for in the Range of Conditions.
- Evidence is required of underlying knowledge and skills in the supervision of maintenance activities, and in the associated compliance with airworthiness regulatory requirements. The ability must be demonstrated to apply supervisor level human resource management processes during supervision activities, deliver workplace training, and to record experience and evidence for competency assessment associated with completion of the Log of Industrial Experience and Achievement.
- An individual cannot be evaluated as competent until it can be demonstrated to the satisfaction of the workplace assessor that the relevant elements and performance criteria of the unit of competency are being achieved under supervision, without intervention on a maintenance supervision task that includes application across the Range of Conditions of the following:
 - Using maintenance data or schedules
 - Identifying required resources
 - Providing guidance in maintenance activities
 - Allowing for human factors affecting job performance
 - Minimizing the possibility of maintenance errors
 - Applying employment relations at supervisor level
 - Delivering on-job training.

1. รหัสหน่วยสมรรถนะ 101504
2. ชื่อหน่วยสมรรถนะ Apply work health and safety procedures at supervisor level in aviation.
3. ทบทวนครั้งที่ N/A
4. สร้างใหม่ ปรับปรุง

5. สำหรับชื่ออาชีพและรหัสอาชีพ (Occupational Classification)

7232 Aircraft engine mechanics and fitters

6. คำอธิบายหน่วยสมรรถนะ (Description of Unit of Competency)

This skill unit requires application of work health and safety (WHS) Acts, regulations, codes of practice and enterprise WHS procedures during the supervision of all aviation maintenance activities performed on aircraft and in workshops.

7. สำหรับระดับคุณวุฒิ

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8. กลุ่มอาชีพ (Sector)

7232 Aircraft Mechanics

9. ชื่ออาชีพและรหัสอาชีพอื่นที่หน่วยสมรรถนะนี้สามารถใช้ได้ (ถ้ามี)

N/A

10. ข้อกำหนดหรือกฎระเบียบที่เกี่ยวข้อง (Licensing or Regulation Related) (ถ้ามี)

N/A

11. สมรรถนะย่อยและเกณฑ์การปฏิบัติงาน (Elements and Performance Criteria)

สมรรถนะย่อย (Element)	เกณฑ์ในการปฏิบัติงาน (Performance Criteria)	วิธีการประเมิน (Assessment)
101504.01 Implement and monitor participative arrangements for the management of WHS.	101504.01.01 Able to provide regularly and accurately and explain clearly relevant provisions of WHS legislation and codes of practice the work group, Information about identified hazards and the outcomes of risk assessment and risk control procedures to the work group. 101504.01.02 Able to are implement and monitor organizational procedures for consultation over WHS issues to ensure that all members of the work group have the opportunity to contribute and make known promptly the outcomes of consultation over WHS issues to the work group.	ข้อสอบข้อเขียน การสัมภาษณ์ การสังเกตการปฏิบัติงาน

สมรรถนะย่อย (Element)	เกณฑ์ในการปฏิบัติงาน (Performance Criteria)	วิธีการประเมิน (Assessment)
101504.02 Implement and monitor the organization's procedures for identifying hazards and assessing risks.	101504.02.01 Able to identify and report existing and potential hazards in the work areas so that risk assessment and risk control procedures can be applied, monitor and report results regularly existing risk control measures in accordance with workplace procedures. 101504.02.02 Able to implement control measures to prevent recurrence and minimize risks of hazardous events based on the hierarchy of control if within scope of responsibilities and competencies or alternatively referred to designated personnel for implementation.	ข้อสอบข้อเขียน การสัมภาษณ์ การสังเกตการปฏิบัติงาน
101504.03 Implement and monitor the organization's procedures for providing WHS training.	101504.03.01 Able to identify WHS training needs accurately, specifying gaps between WHS competencies required and those held by work group members and make arrangements for fulfilling identified WHS training needs in both on and off-the-job training programs in consultation with relevant parties. 101504.03.02 Able to complete arrangements for fulfilling identified WHS training needs in both on and off-the-job training programs in consultation with relevant parties.	ข้อสอบข้อเขียน การสัมภาษณ์ การสังเกตการปฏิบัติงาน

12. ความรู้และทักษะก่อนหน้าที่จำเป็น (Pre-requisite Skill & Knowledge)

N/A

13. ทักษะและความรู้ที่ต้องการ (Required Skills and Knowledge)

(ก) ความต้องการด้านทักษะ

N/A

(ข) ความต้องการด้านความรู้

N/A

14. หลักฐานที่ต้องการ (Evidence Guide)

(a) Performance Evidence

Evidence required to demonstrate competency in this unit must be relevant to and meet all of the requirements of the elements and performance criteria under the specified conditions of assessment on at least one occasion.

Evidence must be provided that the candidate can apply applicable WHS Acts, regulations and codes to:

- Analyse the entire work environment in the area of responsibility in order to identify hazards, assess risks and judge when intervention to control risks is necessary.
- Analyse relevant workplace data, such as incident or environmental monitoring data, to identify hazards, assess risks and evaluate the effectiveness of risk control measures.
- Assess the resources needed to apply different risk control measures and make recommendations to management on that basis.

The demonstrated ability to apply the elements and performance criteria of this unit of competency in conjunction with other units relating to the supervision of aviation maintenance activities is critical.

(b) Knowledge Evidence

Evidence required to demonstrate competency in this unit must be relevant to and satisfy all of the requirements of the elements and performance criteria and include basic knowledge of:

- The provisions of WHS Acts, regulations and codes of practice relevant to the workplace, including legal responsibilities of employers, employees and other parties with legal responsibilities.
- Principles and practices of effective WHS management.
- Hazard identification and control in the workplace.
- Organizational WHS management systems, policies and procedures that support organizational compliance with legal requirements.
- The impact on WHS management of workforce characteristics and composition.
- The relevance of WHS management to other organizational systems, policies and procedures.

15. ขอบเขต (Range Statement)

This part allows for different work environments and conditions that may affect performance. Essential operating conditions that may be present (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) are included.

WHS legislation and codes of practice include:

- WHS Acts, regulations and codes of practice, including general duty of care under WHS legislation and common law
- Relevant defense instructions.
- Aviation Safety Regulations.
- Requirements for the maintenance and confidentiality of records of occupational injury and disease.
- Provisions relating to health and safety representatives and/or WHS committees.
- Provisions relating to WHS issue resolutionThe organization’s WHS policies, procedures and programs are included in:
- Safety manuals.
- Maintenance organization manual.
- Standing instructions.
- Procedures manuals.
- Work instructionsInformation is provided:
- For the induction of new maintenance personnel.
- About the nature of work, tasks and procedures.
- To assist in work tasks.
- As part of providing direct supervision.
- To communicate organizational safety requirements and procedures.
- For consultation with health and safety representatives and WHS committees.

Consultation over WHS issues includes:

- Formal and informal meetings which include WHS.
- WHS committees.
- Other committees, such as consultative, planning and purchasing.

- Health and safety representatives.

Suggestions, requests, reports and concerns put forward by employees to management Assessment of existing and potential hazards and risk includes:

- Audits.
- Workplace inspections.
- Housekeeping.
- Checking work area and/or equipment before and during work.
- Job and work system assessment.
- Reviews of WHS records, including registers of hazardous substances, dangerous goods, and so on.
- Maintenance of plant and equipment.
- Provision of supplies and equipment, e.g. review of material safety data sheets (MSDS) and manufacturer/supplier information.
- Identifying employee concerns Risk control procedures include:
 - Measures to remove the cause of a risk at its source.
 - Application of the hierarchy of control:
 - Elimination of risk.
 - Engineering controls.
 - Administrative controls.
 - Personal protective equipment (PPE).
- Consultation with maintenance personnel and their representatives Procedures for dealing with hazardous events include:
 - Evacuation.
 - Chemical containment.
 - First aid.
 - Accident/incident reporting and investigation Hazardous events include:
 - Accidents.
 - Fires and explosions.
 - Emergencies, e.g. fuel or chemical spills.
 - Bomb scares.
 - Violent incidents WHS training includes:
 - Induction training.
 - Specific hazard training.
 - Specific task or equipment training.
 - Emergency and evacuation training.
 - Training as part of broader programs, such as equipment operation WHS records include:
 - WHS audit and inspection reports.
 - Health surveillance and workplace environmental monitoring reports.
 - Records of instruction and training.
 - Manufacturers and suppliers information, including MSDS and dangerous goods storage lists.
 - Hazardous substances registers.
 - Maintenance and testing reports.
 - Workers compensation and rehabilitation records.
 - First aid/medical post records.

16. หน่วยสมรรถนะร่วม (ถ้ามี)

N/A

17. utschakramram/khromashipram (ถ้ามี)

N/A

18. รายละเอียดกระบวนการและวิธีการประเมิน (Assessment Description and Procedure)

The assessment are based on combination of paper exams, interviewing, and practical demonstrations depending on the assessors' judgement. This unit may be assessed through a combination of workplace (or a realistic simulation) and off-the-job assessment. The context of assessment should ensure that evidence relating to the contingency management component of competency can be collected. Evidence must include observation in the workplace as well as off-the-job techniques, such as interviews and simulations. Conditions for simulations should accurately simulate the range of circumstances (especially with regard to a realistic range of emergencies and hazardous events) that the individual could be expected to deal with in the workplace and allow for discussion. The individual must be given access to:

- Relevant WHS Acts, regulations and codes of practice.
- Enterprise WHS policies and procedures.
- Personal protective equipment.
- Relevant work areas for identification of hazards and control measures.

1. รหัสหน่วยสมรรถนะ 101505
2. ชื่อหน่วยสมรรถนะ Manage deployed/detached aviation maintenance activities.
3. ทบทวนครั้งที่ N/A
4. สร้างใหม่ ปรับปรุง

5. สำหรับชื่ออาชีพและรหัสอาชีพ (Occupational Classification)

7232 Aircraft engine mechanics and fitters

6. คำอธิบายหน่วยสมรรถนะ (Description of Unit of Competency)

This unit of competency requires the application of skills and knowledge needed to plan maintenance of aircraft deployed to provide support and maintenance personnel deployed to monitor and evaluate their activities with competition airworthiness. Applications include the deployment and detachment off the base of the planes that will be supported by a maintenance team deployed for scheduled or unscheduled maintenance. The work can be done individually or as part of a team.

7. สำหรับระดับคุณวุฒิ

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8. กลุ่มอาชีพ (Sector)

10 Aircraft Mechanics

9. ชื่ออาชีพและรหัสอาชีพอื่นที่หน่วยสมรรถนะนี้สามารถใช้ได้ (ถ้ามี)

- 101 Aircraft Maintenance: Airplane
 102 Aircraft Maintenance: Helicopter
 103 Aircraft Maintenance: Avionic

10. ข้อกำหนดหรือกฎระเบียบที่เกี่ยวข้อง (Licensing or Regulation Related) (ถ้ามี)

ICAO Doc 7192 / EASA Part 66

11. สมรรถนะย่อยและเกณฑ์การปฏิบัติงาน (Elements and Performance Criteria)

สมรรถนะย่อย (Element)	เกณฑ์ในการปฏิบัติงาน (Performance Criteria)	วิธีการประเมิน (Assessment)
101505.01 Detachment of the maintenance activities of aircraft plan.	101505.01.01 Deployment/detachment objectives are ascertained and resource requirements are identified, obtained and allocated. 101505.01.02 Liaison with detachment locality authorities is established and detachment activities are scheduled.	ข้อสอบข้อเขียน การสัมภาษณ์ การสาธิตการปฏิบัติงาน
101505.02 Prepare a maintenance plan.	101505.02.01 Maintenance plan conforms to airworthiness regulations, ADF policies and procedures. 101505.02.02 Realistic and relevant work objectives are developed and the maintenance plan reflects the resources available.	ข้อสอบข้อเขียน การสัมภาษณ์ การสาธิตการปฏิบัติงาน

สมรรถนะย่อย (Element)	เกณฑ์ในการปฏิบัติงาน (Performance Criteria)	วิธีการประเมิน (Assessment)
101505.03 Detach aircraft and provide technical airworthiness/engineering advice.	101505.03.01 Pre-detachment inspections are performed and deficiencies are reported in accordance with ADF policy and procedures. 101505.03.02 Technical advice relating to maintenance and to design of modifications and minor repairs to aircraft structure/systems is provided to higher authorities.	ข้อสอบข้อเขียน การสัมภาษณ์ การสาธิตการปฏิบัติงาน

12. ความรู้และทักษะก่อนหน้าที่จำเป็น (Pre-requisite Skill & Knowledge)

N/A

13. ทักษะและความรู้ที่ต้องการ (Required Skills and Knowledge)

(ก) ความต้องการด้านทักษะ

N/A

(ข) ความต้องการด้านความรู้

N/A

14. หลักฐานที่ต้องการ (Evidence Guide)

(a) Performance Evidence

The evidence required to demonstrate competency in this unit must be relevant and meet all the requirements of the elements and performance criteria as specified evaluation on at least one occasion, and must include:

- Planning.
- Communication.
- Problem solving.
- Liaison.
- Management.

(b) Knowledge Evidence

Evidence required to demonstrate competency in this unit should be of interest and meet all requirements of the elements and performance criteria and include basic knowledge of:

- Airworthiness regulations.
- Relevant instructions.
- Aircraft maintenance documentation.
- Maintenance report compilation.
- Modifications and deviations.
- Defects and safety reports.
- Equity, fraud and ethics.

Assessment recommendation

N/A

Assessment methods

15. ขอบเขต (Range Statement)

This field allows different environments and working conditions that can affect the performance. Essential operating conditions that may be present (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) are included.

Deployment/detachment sites include:	- Civilian airfields. - Unprepared areas of operations within Thailand and overseas.
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<p>Resource requirements include:</p>	<ul style="list-style-type: none"> - Personnel. - Spare parts/fly-away kits. - Ground support equipment. - Facilities. - Vehicles.. - Finance
<p>Maintenance personnel qualifications and authorisations include:</p>	<ul style="list-style-type: none"> - Duty statements. - Job descriptions. - Maintenance personnel uthorization workbooks .
<p>Detachment locality authorities include:</p>	<ul style="list-style-type: none"> - Military command. - Location facilities personnel. - Civilian authorities. - Other detached units or organisations.
<p>Airworthiness regulations, ADF policies and procedures include:</p>	<ul style="list-style-type: none"> - Aircraft maintenance regulations. - Safety manuals. - Work health and safety (WHS) legislation. - Defence instructions.. - Standing instructions - Local instructions. - Specific aircraft/equipment maintenance manuals. - Servicing schedules .
<p>Pre-detachment inspections include:</p>	<ul style="list-style-type: none"> - Facilities/accommodation. - Fuel. - Technical facilities. - Site survey. - Spare parts. - Fire-fighting equipment . - Personal protective equipment (PPE) .

<p>Higher authorities include:</p> <p>Ethical behaviour includes:</p>	<ul style="list-style-type: none"> - Authorised maintenance organisations. - Authorised engineering organisations. - Director General Technical Airworthiness . • Trust.. • Integrity • privacy and confidentiality of the session. • following organizational policies. • knowing own limitations. • having a range of other intervention referrals ready when needed . • honesty. • fairness to others.
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(b) Description

N/A

16. หน่วยสมรรถนะร่วม (ถ้ามี)

N/A

17. อุตสาหกรรมร่วม/กลุ่มอาชีพร่วม (ถ้ามี)

N/A

18. รายละเอียดกระบวนการและวิธีการประเมิน (Assessment Description and Procedure)

- The assessment are based on combination of paper exams, interviewing, and practical demonstrations depending on the assessors' judgement.
- This unit may be assessed on the job, off the job or a combination of both on and off the job. When the assessment happens outside of work, that is, the candidate is not in productive work, an appropriate simulation should be used when the range of conditions reflecting realistic work situations encountered in managing deployed aircraft maintenance / detached in the regulatory environment ADF airworthiness.
- The applicant must have access to all tools, equipment, materials and other documentation and must be allowed to refer to all relevant procedures in the workplace, product specifications and manufacturing, codes, standards, manuals and reference materials. The assessment environment should not disadvantage the candidate.
- The assessors must be convinced that the candidate can competently and consistently perform all elements of the unit as specified by the criteria, including the necessary knowledge, and be able to apply the skills in situations and contexts new and different.
- The assessors must gather a range of evidence that is valid, sufficient, current and authentic. The preferred method is the records in the Skills Management Maintenance Log. When the person has no evidence of competence Log can be collected through a variety of ways, including direct observation, reports from the supervisor, the work project, samples and questioning. Questioning techniques should not require language skills, literacy and numeracy beyond those required in this competency unit.

The assessors must satisfy the requirements of the Professional Education and Training regulator.

1. รหัสหน่วยสมรรถนะ 101506
2. ชื่อหน่วยสมรรถนะ Write aviation technical publications.
3. ทบทวนครั้งที่ N/A
4. สร้างใหม่ ปรับปรุง

5. สำหรับชื่ออาชีพและรหัสอาชีพ (Occupational Classification)

7232 Aircraft engine mechanics and fitters

6. คำอธิบายหน่วยสมรรถนะ (Description of Unit of Competency)

This unit of competency requires the application of skills and related data research skills, writing and production of technical publications and modifications to the technical publications, including manuals, instructions, parts catalogs, manuals and procedures technical publications related to the regular support or no regular maintenance. The work can be done individually or as part of a team.

7. สำหรับระดับคุณวุฒิ

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8. กลุ่มอาชีพ (Sector)

10 Aircraft Mechanics

9. ชื่ออาชีพและรหัสอาชีพอื่นที่หน่วยสมรรถนะนี้สามารถใช้ได้ (ถ้ามี)

- 101 Aircraft Maintenance: Airplane
 102 Aircraft Maintenance: Helicopter
 103 Aircraft Maintenance: Avionic

10. ข้อกำหนดหรือกฎระเบียบที่เกี่ยวข้อง (Licensing or Regulation Related) (ถ้ามี)

ICAO Doc 7192 / EASA Part 66

11. สมรรถนะย่อยและเกณฑ์การปฏิบัติงาน (Elements and Performance Criteria)

สมรรถนะย่อย (Element)	เกณฑ์ในการปฏิบัติงาน (Performance Criteria)	วิธีการประเมิน (Assessment)
101506.01 Research data, draft publication or publication amendment.	101506.01.01 Potential problems are identified and relevant experts are identified and consulted and problem resolution strategies are determined. 101506.01.02 The publication or amendment is drafted using relevant guidelines and specified software package.	ข้อสอบข้อเขียน การสัมภาษณ์ การสาธิตการปฏิบัติงาน
101506.02 Process draft publication or amendment.	101506.02.01 Publication or amendment is published. 101506.02.02 The publication management database is updated and the completed publication is delivered or distributed.	ข้อสอบข้อเขียน การสัมภาษณ์ การสาธิตการปฏิบัติงาน

12. ความรู้และทักษะก่อนหน้าที่จำเป็น (Pre-requisite Skill & Knowledge)

101401

13. ทักษะและความรู้ที่ต้องการ (Required Skills and Knowledge)

(ก) ความต้องการด้านทักษะ

N/A

(ข) ความต้องการด้านความรู้

N/A

14. หลักฐานที่ต้องการ (Evidence Guide)

(a) Performance Evidence

Evidence required to demonstrate competency in this unit should be of interest and meet all requirements of the elements and performance criteria at least once in the specified evaluation conditions.

Evidence must be provided that the candidate can:

- Undertake research.
- Utilise applicable documentation standards and style manuals.
- Communicate orally.
- Produce written communications to the required level.
- Undertake problem solving.
- Use word processing software and graphics packages to produce draft technical publications.
- Produce written communications in English to the required level.

(b) Knowledge Evidence

Evidence required to demonstrate competency in this unit should be of interest and meet all requirements of the elements and performance criteria and include knowledge of:

- Word processing and graphics packages used for technical publication and publication amendment drafting.
- Publication writing conventions, standards and specifications.
- The use of style guides.
- Illustration techniques.
- Reading of engineering drawings, including:
 - Standard drawing sheets and drawing layouts.
 - Types of drawing.
 - Engineering standards and specifications.
 - Technical terms and abbreviations.
 - Sectioned views.
 - Dimensioning.
 - Tolerancing of dimensions.
 - types of fit.
 - Aircraft standard hardware.
 - Screw threads.
 - Threaded components and washers.
 - Locking devices.
 - Rivets.
 - Special structural fasteners.
 - Spur gears.
 - Welding symbols and geometry tolerancing.
 - Surface texture.
 - Material specifications and metal surface treatment.
- Reading of electrical and electronic circuits and wiring diagrams.
- Development of system schematics.
- Development of block diagrams.
- Sketching.
- Use and development of logic charts.
- Development of fault diagnosis guides.
- The preparation of illustrators' briefs.
- The preparation of indexes to publication contents.
- Problem solving methodology.
- Regulations relating to technical publications.
- Work health and safety (WHS) legislation.
- For print-based publications, procedures for processing drafts through desktop publishing to printing, binding and distribution.
- For electronic format publications, the principles for publication database systems and the development of input data.
- Requirements for, and methods of, maintaining publication records.

(c) Assessment recommendation

N/A

Assessment methods

15. ขอบเขต (Range Statement)

(a) Recommendation

This field allows different environments and working conditions that can affect the performance. the essential operating conditions that may be present (depending on the work situation, accessibility requirements, the candidate of the topic, and local industry and regional contexts) are included.

The required medium can be one or more of:	<ul style="list-style-type: none"> • Print-based • Electronic • Microfiche
Style and layout can be determined from one or more of:	<ul style="list-style-type: none"> • An applicable style guide • Contract requirements • Industry standards and specifications
Relevant data sources include:	<ul style="list-style-type: none"> • Design and production data and drawings • Parts and materials listings • Operating procedure documentation • Maintenance schedules • Modification instructions and service bulletins • Manufacturer’s and trade catalogues • Relevant legislation and regulations
Relevant experts include:	<ul style="list-style-type: none"> • The client • Design engineer and staff • Production staff • Component and material suppliers • Regulator representatives

(b) Description

N/A

16. หน่วยสมรรถนะร่วม (ถ้ามี)

N/A

17. อุตสาหกรรมร่วม/กลุ่มอาชีพร่วม (ถ้ามี)

N/A

18. รายละเอียดกระบวนการและวิธีการประเมิน (Assessment Description and Procedure)

- The assessment are based on combination of paper exams, interviewing, and practical demonstrations depending on the assessors' judgement.
- This unit may be assessed on the job, off the job or a combination of both inside and outside of work. Where assessment occurs outside of work, ie, the candidate is not in productive work, an appropriate simulation must be used where the elements and performance criteria are fully covered in the full range of conditions in the simulation scenarios.
- The candidate must have access to all the tools, equipment, materials and documentation required and must be permitted to refer to all relevant site procedures, product specifications and manufacturing, codes, standards, manuals and reference materials. The assessment environment should not harm the candidate.
- Assessors must be satisfied that the candidate can competently and consistently perform all elements of the unit as specified by the criteria, including the necessary knowledge, and be able to apply competition in new and different situations and contexts.
- The assessors must meet a series of tests that is valid, sufficient, current and authentic. Evidence can be obtained through a variety of ways, including direct observation, reports supervisor, project work, samples and interrogation. interrogation techniques should not require language, reading, writing and arithmetic in addition to those required in this competition unit.
- The assessors must meet a series of tests that is valid, sufficient, current and authentic. The preferred method is the records of Competition Registration Maintenance Management. Where the individual has no record of proficiency testing can be obtained through a variety of ways, including direct observation, reports supervisor, project work, samples and interrogation. interrogation techniques should not require language, reading, writing and arithmetic in addition to those required in this competition unit.
- The assessors must meet the requirements of the National Education and Vocational Regulator.

1. รหัสหน่วยสมรรถนะ 101507
2. ชื่อหน่วยสมรรถนะ Manage self in the aviation maintenance environment.
3. ทบทวนครั้งที่ N/A
4. สร้างใหม่ ปรับปรุง

5. สำหรับชื่ออาชีพและรหัสอาชีพ (Occupational Classification)

7232 Aircraft engine mechanics and fitters

6. คำอธิบายหน่วยสมรรถนะ (Description of Unit of Competency)

This unit of competency requires application of skills and basic knowledge relating to self-management and skills/professional development relating to aviation scheduled and unscheduled maintenance management, including all aspects of aircraft maintenance, aeronautical product maintenance and other related integrated logistic support (ILS) activities. Work may be completed individually or as part of a team.

7. สำหรับระดับคุณวุฒิ

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8. กลุ่มอาชีพ (Sector)

7232 Aircraft Mechanics

9. ชื่ออาชีพและรหัสอาชีพอื่นที่หน่วยสมรรถนะนี้สามารถใช้ได้ (ถ้ามี)

N/A

10. ข้อกำหนดหรือกฎระเบียบที่เกี่ยวข้อง (Licensing or Regulation Related) (ถ้ามี)

N/A

11. สมรรถนะย่อยและเกณฑ์การปฏิบัติงาน (Elements and Performance Criteria)

สมรรถนะย่อย (Element)	เกณฑ์ในการปฏิบัติงาน (Performance Criteria)	วิธีการประเมิน (Assessment)
101507.01 Manage self and work effectively with others.	101507.01.01 Able to assess, prioritize and accept responsibility for own workload, undertake work autonomously to complete tasks/roles in a timely manner and in accordance with organizational and/or legislative and regulatory standards, maintain Awareness of the effects of fatigue, drugs and alcohol on performance. 101507.01.02 Able to apply effective communication with others, deal with others ethically and principles of diversity applied, mentor others in specific areas of aviation maintenance and maintenance management and provide performance feedback , Identify and consider advantages, disadvantages and consequences of ideas.	ข้อสอบข้อเขียน การสัมภาษณ์ การสาธิตการปฏิบัติงาน

สมรรถนะย่อย (Element)	เกณฑ์ในการปฏิบัติงาน (Performance Criteria)	วิธีการประเมิน (Assessment)
101507.02 Comply with requirements, Manage work priorities and resources.	101507.02.01 Able to comply with applicable contractual, legislative, regulatory and organizational requirements, survey Work requirements and provide quotes and assess organization and customer needs. 101507.02.02 Able to prepare, monitor and review work plans, programs and budgets, plan resource use to achieve objectives and able to identify the nature, extent and impact of any issues or changes relating to work priorities and resource allocation.	ข้อสอบข้อเขียน การสัมภาษณ์ การสาธิตการปฏิบัติงาน
101507.03 Contribute to development of own skills and professional capability.	101507.03.01 Able to interpret and apply units of competency relevant to current employment and career path through managing own skills development, review problem solving skills for further development. 101507.03.02 Able to assess own personal knowledge and skills and learning opportunities are accessed, as required, to fill gaps and enhance skills and use performance feedback to identify and develop ways to improve competence.	ข้อสอบข้อเขียน การสัมภาษณ์ การสาธิตการปฏิบัติงาน

12. ความรู้และทักษะก่อนหน้าที่จำเป็น (Pre-requisite Skill & Knowledge)

N/A

13. ทักษะและความรู้ที่ต้องการ (Required Skills and Knowledge)

(ก) ความต้องการด้านทักษะ

N/A

(ข) ความต้องการด้านความรู้

N/A

14. หลักฐานที่ต้องการ (Evidence Guide)

(a) Performance Evidence

Evidence required to demonstrate competency in this unit must be relevant to and satisfy all of the requirements of the elements and performance criteria under the specified conditions of assessment on at least one occasion, and must include:

- Oral communication.
- Written communication.
- Applying principles of equity and diversity.
- Managing own work performance.
- Managing and interfacing with others.
- Applying legislation, regulations and organizational policies and procedures relevant to role and workplace.
- Managing own professional development.

(b) Knowledge Evidence

Evidence required to demonstrate competency in this unit must be relevant to and satisfy all of the requirements of the elements and performance criteria and include basic knowledge of:

- WHS legislation.
- Human factors.
- Privacy legislation.
- Freedom of information legislation.
- Equity guidelines.
- Diversity principles.
- Detection of fraud.
- Leadership principles.
- Management principles and techniques.
- Regulations, policies, instructions and guidelines relevant to the organization and role.
- Problem solving principles.
- Constant improvement principles and procedures.
- Change management.

15. ขอบเขต (Range Statement)

This part allows for different work environments and conditions that may affect performance. Essential operating conditions that may be present (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) are included.

Tasks/roles include:

- Self-directed application of knowledge and skills in performing tasks related to maintenance management and/or related ILS activities.

Organizational and/or legislative and regulatory standards include:

- Work health and safety (WHS) legislation.
- Civil Aviation Regulations and Advisory Circulars.
- Civil Aviation Safety Regulations , Manuals of Standards and associated Acceptable Means of Compliance and Guidance Material.
- Maintenance organization expositions.
- Continuing airworthiness management organization expositions.
- Procedures manuals.
- Position descriptions.
- Quality manuals.
- Safety manuals.
- Work instructions.
- Relevant overseas regulations, such as Federal Aviation Regulations or European Aviation Safety Agency Regulations.
- Technical Airworthiness Management Manual .
- Standing instructions.
- Maintenance management plans.

- Duty statements.

Quotations include any or all of:

- Man-hours.
- Time requirements.
- Spares, materials and consumables.
- Resources, such as facilities, support equipment and tooling.
- Price.

16. หน่วยสมรรถนะร่วม (ถ้ามี)

N/A

17. อุตสาหกรรมร่วม/กลุ่มอาชีพร่วม (ถ้ามี)

N/A

18. รายละเอียดกระบวนการและวิธีการประเมิน (Assessment Description and Procedure)

- The assessment are based on combination of paper exams, interviewing, and practical demonstrations depending on the assessors' judgement.
- This unit may be assessed on the job, off the job or a combination of both on and off the job. Where assessment occurs off the job, that is, the candidate is not in productive work, an appropriate simulation must be used where the range of conditions reflects realistic workplace situations.
- The candidate must have access to all tools, equipment, materials and documentation required and must be permitted to refer to any relevant workplace procedures, product and manufacturing specifications, codes, standards, manuals and reference materials. The assessment environment should not disadvantage the candidate.
- Assessors must be satisfied that the candidate can competently and consistently perform all elements of the unit as specified by the criteria, including required knowledge, and be capable of applying the competency in new and different situations and contexts.
- Assessors should gather a range of evidence that is valid, sufficient, current and authentic. The preferred method is the records in the Maintenance Management Competency Log. Where the individual does not have a Competency Log evidence can be gathered through a variety of ways, including direct observation, supervisor's reports, project work, samples and questioning. Questioning techniques should not require language, literacy and numeracy skills beyond those required in this unit of competency.

1. รหัสหน่วยสมรรถนะ 101508
2. ชื่อหน่วยสมรรถนะ Prepare and manage aviation maintenance organization budgets and financial.
3. ทบทวนครั้งที่ N/A
4. สร้างใหม่ ปรับปรุง

5. สำหรับชื่ออาชีพและรหัสอาชีพ (Occupational Classification)

7232 Aircraft engine mechanics and fitters

6. คำอธิบายหน่วยสมรรถนะ (Description of Unit of Competency)

This unit competition requires the application of procedures for the preparation and management of budgets and financial plans necessary to allow the effective functioning of an organization Aviation Maintenance (AMO) within the limits of their exposure and to interact effectively with advisers finance and professional accountants.

7. สำหรับระดับคุณวุฒิ

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8. กลุ่มอาชีพ (Sector)

10 Aircraft Mechanics

9. ชื่ออาชีพและรหัสอาชีพอื่นที่หน่วยสมรรถนะนี้สามารถใช้ได้ (ถ้ามี)

101 Aircraft Maintenance: Airplane

102 Aircraft Maintenance: Helicopter

103 Aircraft Maintenance: Avionic

10. ข้อกำหนดหรือกฎระเบียบที่เกี่ยวข้อง (Licensing or Regulation Related) (ถ้ามี)

None

11. สมรรถนะย่อยและเกณฑ์การปฏิบัติงาน (Elements and Performance Criteria)

สมรรถนะย่อย (Element)	เกณฑ์ในการปฏิบัติงาน (Performance Criteria)	วิธีการประเมิน (Assessment)
101508.01 Analyse strategic opportunities ,intended maintenance activities, develop revenue, expenditure and capital investment proposals.	101508.01.01 Strategic opportunities are expressed in terms of aircraft and aeronautical product maintenance activities and all intended maintenance activities are converted into special projects or work programs. 101508.01.02 Proposals are developed taking account of past experience, present trends and future expectations, and outcomes of proposals are clearly linked to organisational strategic objectives.	ข้อสอบข้อเขียน การสัมภาษณ์ การสาธิตการปฏิบัติงาน

สมรรถนะย่อย (Element)	เกณฑ์ในการปฏิบัติงาน (Performance Criteria)	วิธีการประเมิน (Assessment)
101508.02 Build agreement for budgets and financial plans.	101508.02.01 Outcomes are confirmed in terms of clear, concise objectives and timeframes. 101508.02.02 Budgets and plans incorporate the outcomes of negotiations and meet the Organisation’s approval processes, and final budget and plans are clearly documented and a communication plan developed. Budget/financial plan communication package is reviewed by finance specialists, and communication outcomes are tested to ensure clear understanding of objectives, processes and accountabilities.	ข้อสอบข้อเขียน การสัมภาษณ์ การสาธิตการปฏิบัติงาน
101508.03 Maintain and store backup copies of data, monitor and control activities against plans.	101508.03.01 Delegations and budget accountabilities are confirmed in writing prior to budget period. Budgets and plans are renegotiated/restructured, where necessary, to optimise organisational performance. 101508.03.02 Non-financial objectives are reported in the context of overall organisational performance, strategies and plans are reviewed and updated to optimise organisational performance.	ข้อสอบข้อเขียน การสัมภาษณ์ การสาธิตการปฏิบัติงาน

12. ความรู้และทักษะก่อนหน้าที่จำเป็น (Pre-requisite Skill & Knowledge)

101401

13. ทักษะและความรู้ที่ต้องการ (Required Skills and Knowledge)

(ก) ความต้องการด้านทักษะ

-

(ข) ความต้องการด้านความรู้

-

14. หลักฐานที่ต้องการ (Evidence Guide)

(a) Performance Evidence

Evidence required to demonstrate competency in this unit should be of interest and meet all requirements of the elements and performance criteria under the specified conditions assessment at least once, and must include:

- Analysis and interpretation of relevant financial information.
- Development of formal estimates of reviews, costs, cash flows and logistic requirements.
- Communication/consultation to ensure all relevant groups and individuals are advised of what is occurring and are provided with an opportunity for input.
- Cost and benefit analysis to produce balanced arguments to support financial proposals.
- Risk management to assess probability and consequences of any potential negative event.
- Investment analysis to evaluate capital expenditure proposals net present value (NPV), incentive rate of return (IROR), etc).
- Negotiating agreement on budgets and financial plans with the relevant managers.
- Relating to people from a range of social, cultural and ethnic backgrounds and physical and mental abilities.
- Arranging and delivering training to ensure team members and other managers understand the budget/financial planning objectives and processes.
- Analysing and interpreting positive and negative variances from budget/plan, determining the reasons therefore, and identifying potential actions to remediate the situation.
- Developing and implementing systems to ensure financial performance records are collected, maintained and properly reported.

(b) Knowledge Evidence

Evidence required to demonstrate competency in this unit should be of interest and meet all requirements of the elements and performance criteria and include basic knowledge of:

- Relevant legislation from all levels of government that affects business operation, especially in regard to WHS and environmental issues, equal employment opportunity (EEO), industrial relations and anti-discrimination.
- Requirements in Civil Aviation Safety Regulations and Technical Airworthiness Management Manual regarding financial status of maintenance organisations.
- Aircraft and aeronautical product maintenance and maintenance management/certification requirements.
- Financial planning within the organization.
- Budgeting.
- Organisation’s intended aircraft and aeronautical product maintenance activities
- Consultative methods and processes.
- Capital investment evaluation techniques.
- Performance measurement.
- Organisation roles in respect to financial delegations, accountabilities and responsibilities.
- Standards for organisational record keeping and audit requirements.

(c) Assessment recommendation

N/A

Assessment methods

15. ขอบเขต (Range Statement)

(a) Recommendation

This field allows different environments and working conditions that can affect the performance. the essential operating conditions that may be present (depending on the work situation, accessibility requirements, the candidate of the topic, and local industry and regional contexts) are included.

<p>Legislation, codes and national standards relevant to the workplace include:</p>	<ul style="list-style-type: none"> • Civil Aviation Safety Regulations and associated Manuals of Standards. • Technical Airworthiness Management Manual. • Award and enterprise agreements and relevant industrial instruments. • Relevant legislation from all levels of government that affects business operation, especially in regard to work health and safety (WHS), environmental and sustainability issues, equal employment opportunity (EEO) and anti-discrimination.
<p>Strategic opportunities include:</p>	<ul style="list-style-type: none"> • Aircraft operators and fleet operators seeking to outsource maintenance. • Aeronautical product_maintenance needs. • Changing_regulatory_requirements for maintenance. • New aircraft type. • Provision of logistic support services . • Opportunity to respond to requests for tender to provide aircraft and/or aeronautical product maintenance. • Opportunity to accept sub-contract maintenance tasks from other maintenance organisations .
<p>Budgets and plans include:</p>	<p>Aircraft maintenance budgets</p> <ul style="list-style-type: none"> • Aeronautical product maintenance budgets. • Financial budget. • Logistic services sales budgets. • Regulatory compliance budgets. • Capital expenditure budgets. • Cash flow plans .
<p>Relevant groups and individuals include:</p>	<p>All personnel within the organisation affected by the budgets and financial plans being developed .</p>
<p>Investment target rates include:</p>	<p>The minimum percentage rate of return required by the organisation for a capital investment project to proceed .</p>
<p>Capital expenditure includes:</p>	<p>Those components of the budget which, for internal policy reasons, are considered to provide benefits over more than one financial period and are to be evaluated as capital expenditure projects.</p>

Legal and ethical obligations include:	Compliance with all relevant statutes, regulations and audit requirements of the organisation, along with the organisation's policies, values and codes of conduct .
Supporting evidence includes:	<ul style="list-style-type: none"> • Cost-benefit analyses . • Risk management plans. • Market research results. • Tender details. • Net present value . • Interest rate of return. • Pay pack calculations .
Delegations	Delegations refer to the decision-making accountabilities relating to the person's position description and/or other written and verbal delegations .
Accountabilities and responsibilities include:	Clarification of who is to be accountable for a decision or action prior to its execution, and identification of groups, individuals and activities for which a person is responsible for managing
Training activities include:	Small group discussions Informal meetings Formal, structured competency-based training Television and video E-learning.
Delegations and budget accountabilities include:	<ul style="list-style-type: none"> • Monitoring expenditure. • Authorising expenditure within limits. • Reporting on variances to budget/plan. • Taking remedial action within budget authority .
Audit requirements include:	<ul style="list-style-type: none"> • The internal standards required in the management of budgets and financial plans, approved by external/internal auditors .
Risk management includes:	<ul style="list-style-type: none"> • The process of identification of potential negative events and the development of plans to mitigate or minimise the likelihood of the negative event occurring and/or the consequences in the event it does occur .

1. รหัสหน่วยสมรรถนะ 101511
2. ชื่อหน่วยสมรรถนะ Apply systems engineering procedures to airworthiness engineering design.
3. ทบทวนครั้งที่ N/A
4. สร้างใหม่ ปรับปรุง

5. สำหรับชื่ออาชีพและรหัสอาชีพ (Occupational Classification)

7232 Aircraft engine mechanics and fitters

6. คำอธิบายหน่วยสมรรถนะ (Description of Unit of Competency)

Systems engineering procedures are applied in establishing management procedures engineering design projects related to the design of complex systems that require integration of subsystems and / or components of a multidisciplinary engineering team. Management processes can refer to all design stages and may include the development of software systems. In the stages of production and management life cycle, the output data systems engineering design phase can be used in the implementation of procedures for configuration management (CM) and / or to support the implementation of logistical support integrated (ILS) where justified by the size and complexity of the system or when required by contract.

7. สำหรับระดับคุณวุฒิ

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8. กลุ่มอาชีพ (Sector)

10 Aircraft Mechanics

9. ชื่ออาชีพและรหัสอาชีพอื่นที่หน่วยสมรรถนะนี้สามารถใช้ได้ (ถ้ามี)

- 101 Aircraft Maintenance: Airplane
 102 Aircraft Maintenance: Helicopter
 103 Aircraft Maintenance: Avionic

10. ข้อกำหนดหรือกฎระเบียบที่เกี่ยวข้อง (Licensing or Regulation Related) (ถ้ามี)

ICAO Doc 7192 / EASA Part 66

11. สมรรถนะย่อยและเกณฑ์การปฏิบัติงาน (Elements and Performance Criteria)

สมรรถนะย่อย (Element)	เกณฑ์ในการปฏิบัติงาน (Performance Criteria)	วิธีการประเมิน (Assessment)
101511.01 Document system requirements and perform functional analysis.	101511.01.01 Identify and document customer or contractual system requirements and relevant regulatory requirements and set up a systems engineering team to allocate responsibilities. 101511.01.02 Review and develop functional analysis outcomes against requirements and revise where necessary.	ข้อสอบข้อเขียน การสัมภาษณ์ การสาธิตการปฏิบัติงาน
101511.02 Manage preliminary and detail design activities.	101511.02.01 Coordinate the development of performance specifications for the system and components. 101511.02.02 Coordinate the development of item, software specifications, engineering drawings, process and material specifications.	ข้อสอบข้อเขียน การสัมภาษณ์ การสาธิตการปฏิบัติงาน

สมรรถนะย่อย (Element)	เกณฑ์ในการปฏิบัติงาน (Performance Criteria)	วิธีการประเมิน (Assessment)
101511.03 Provide oversight of production and delivery for life-cycle management of the system, components and software.	101511.03.01 Apply product review and verification procedures and initiate action to remedy design or production deficiencies, Where there is a contractual requirement for the application of CM, provide technical data package and define the configuration items and baselines. 101511.03.02 Where there is a contractual requirement for ILS, provide the technical data package and data required for the development of the relevant ILS plans. Where there is no contractual requirements relating to life cycle management, deliver the package of technical data and develop procedures for managing system configuration, system components and software that meet the relevant regulatory requirements.	ข้อสอบข้อเขียน การสัมภาษณ์ การสังเกตการปฏิบัติงาน

12. ความรู้และทักษะก่อนหน้าที่จำเป็น (Pre-requisite Skill & Knowledge)

- 101401 Use computers in aviation maintenance-related integrated logistic support activities.
- 101506 Write aviation maintenance technical publications.

13. ทักษะและความรู้ที่ต้องการ (Required Skills and Knowledge)

- (ก) ความต้องการด้านทักษะ
N/A
- (ข) ความต้องการด้านความรู้
N/A

14. หลักฐานที่ต้องการ (Evidence Guide)

(a) Performance Evidence

Evidence required to demonstrate competency in this unit must be relevant to and satisfy all of the requirements of the elements and performance criteria and include basic knowledge of:

- The systems engineering process and management procedures, including relevant airworthiness regulations.
- How to set up and manage the activities of a systems engineering design team.
- Development of specifications and standards.
- Identification of applicable published specifications and standards.
- How to set up and manage a systems analysis and control database.
- How to use process outputs to set up CM and ILS systems for through-life management.
- How to develop and document an applicable life-cycle management system where CM or ILS is not prescribed or is inappropriate.
- Ethical considerations in systems engineering.

(b) Knowledge Evidence

This unit may be assessed on the job, off the job or a combination of both on and off the job. Where assessment occurs off the job, that is, the candidate is not in productive work, then a simulated working environment must be used that reflects realistic workplace situations and conditions.

- The competencies covered by this unit would be demonstrated by an individual working alone or as part of a team.
- Where applicable, reasonable adjustment must be made to work environments and training situations to accommodate ethnicity, age, gender, demographics and disability.
- Assessment methods must be by direct observation of tasks and include questioning on underpinning knowledge to ensure its correct interpretation and application.
- Assessment may be applied under project-related conditions (real or simulated) and require evidence of process.
- Assessment must confirm a reasonable inference that competency is able not only to be satisfied under the particular circumstance, but is able to be transferred to other circumstances.
- Assessors must be satisfied that the candidate can competently and consistently perform all elements of the unit as specified by the criteria, including required knowledge, and be capable of applying the competency in managing the application of the systems engineering process.
- Assessment may be in conjunction with assessment of other units of competency where required.

(c) Assessment recommendation

N/A

Assessment methods

15. ขอบเขต (Range Statement)

(a) Recommendation

This field allows for different work environments and conditions that may affect performance. Essential operating conditions that may be present (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) are included.

<p>Systems engineering process management:</p>	<p>The systems engineering process is an integrated process for the design and integration of complex systems covering a wide range of engineering disciplines. The work of actual design is carried out by qualified engineers specialists and management process ensures that the design activities are coordinated and integrated into a system that meets the requirements specified performance and complies with the relevant standards airworthiness.</p>
<p>System requirements analysis:</p>	<p>Requirements analysis system consists of inputs such as customer needs and objectives, regulatory requirements and technological base. It should clarify and define the functional requirements and design constraints.</p>
<p>Functional analysis and allocation:</p>	<p>Functional analysis and allocation provides a greater understanding of what the system has to do and allocates overall system performance requirements to lower level subsystem and component functions. In so doing, it provides information essential to optimising physical solutions.</p>
<p>Baselines:</p>	<p>Baselines, functional and document a product assigned products at a specific stage of design definition. Line functional basis describes the system-level requirements, the assigned base reference describes the design requirements for items below the level of systems and product baseline describes the physical product detail.</p>

<p>Technical data packages include:</p>	<ul style="list-style-type: none"> • Engineering drawings and associated lists. • Technical manuals. • Manufacturing part programs. • Verification provisions. • Spares provisioning lists. • Specifications developed for the system and system components. • Specifications and standards from international and national bodies (government and non-government). • Relevant regulatory standards and requirements.
<p>Ethical behaviour includes:</p>	<ul style="list-style-type: none"> • Trust. • Integrity. • Privacy and confidentiality of the session. • Following organizational policies. • Knowing own limitations. • Having a range of other intervention referrals ready when needed. • Honesty. • Fairness to others.

(b) Description

N/A

16. หน่วยสมรรถนะร่วม (ถ้ามี)

N/A

17. อุตสาหกรรมร่วม/กลุ่มอาชีพร่วม (ถ้ามี)

N/A

18. รายละเอียดกระบวนการและวิธีการประเมิน (Assessment Description and Procedure)

The assessment are based on combination of paper exams, interviewing, and practical demonstrations depending on the assessors' judgement. Evidence required to demonstrate competency in this unit should be of interest and meet all requirements of the elements and performance criteria under the specified conditions assessment, and should include:

- Setting up and managing procedures for systems analysis and control that comply with relevant airworthiness regulations.
- Setting up and managing a systems engineering team.
- Developing and implementing procedures for identification of systems engineering process inputs.
- Managing, and recording the outcomes of, requirements analysis.
- Managing and recording the outcomes of functional analysis and allocation and apply the requirements loop process .
- Developing and documenting the functional baseline.
- Managing the development of the system specification and preliminary design .
- Developing and documenting the allocated baseline .
- Applying the design loop process .
- Managing the detail design process and using outputs to develop a technical data package that meets airworthiness regulatory requirements .
- Developing and documenting the product baseline .
- Maintaining oversight of the production and delivery phase .
- Providing process outputs for the establishment of CM procedures or ILS plans .
- Determining requirements for life-cycle management where CM or ILS is not required and setting up and documenting a life-cycle management system that complies with relevant airworthiness regulations.

1. รหัสหน่วยสมรรถนะ 103501
2. ชื่อหน่วยสมรรถนะ Perform administrative processes to prepare for certification of civil aircraft.
3. ทบทวนครั้งที่ N/A
4. สร้างใหม่ ปรับปรุง

5. สำหรับชื่ออาชีพและรหัสอาชีพ (Occupational Classification)

7232 Aircraft engine mechanics and fitters

6. คำอธิบายหน่วยสมรรถนะ (Description of Unit of Competency)

It covers the skills to interpret and apply the requirements of airworthiness and certification in the aircraft planned or unplanned maintenance correctly.

7. สำหรับระดับคุณวุฒิ

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8. กลุ่มอาชีพ (Sector)

7232 Aircraft Mechanics

9. ชื่ออาชีพและรหัสอาชีพอื่นที่หน่วยสมรรถนะนี้สามารถใช้ได้ (ถ้ามี)

N/A

10. ข้อกำหนดหรือกฎระเบียบที่เกี่ยวข้อง (Licensing or Regulation Related) (ถ้ามี)

N/A

11. สมรรถนะย่อยและเกณฑ์การปฏิบัติงาน (Elements and Performance Criteria)

สมรรถนะย่อย (Element)	เกณฑ์ในการปฏิบัติงาน (Performance Criteria)	วิธีการประเมิน (Assessment)
103501.01 Determine the registration status, eligibility to certify the completion of aircraft maintenance activities.	103501.01.01 Able to determine the registration status and identify the person responsible for airworthiness and maintenance control. 103501.01.02 Able to establish eligibility to certify in terms of licence privileges, establish eligibility to certify in terms of the Aviation Maintenance Organization (AMO) Class/Rating is established.	ข้อสอบข้อเขียน การสัมภาษณ์ การสาธิตการปฏิบัติงาน
103501.02 Prepare for return of aircraft to service, Compile and process maintenance documentation and reports.	103501.02.01 Able to coordinate completion of all planned and unplanned maintenance activities, determine the requirement for a maintenance test flight and prepare documentation for return of aircraft to service. 103501.02.02 Able to raise and compile maintenance documentation for certification, configuration management procedures, maintenance-related reports are compiled and processed, perform technical communication activities, both oral and written.	ข้อสอบข้อเขียน การสัมภาษณ์ การสาธิตการปฏิบัติงาน

12. ความรู้และทักษะก่อนหน้าที่จำเป็น (Pre-requisite Skill & Knowledge)

N/A

13. ทักษะและความรู้ที่ต้องการ (Required Skills and Knowledge)

(ก) ความต้องการด้านทักษะ

See Appendix A

(ข) ความต้องการด้านความรู้

See Appendix A

14. หลักฐานที่ต้องการ (Evidence Guide)

(a) Performance Evidence

It is essential that the airworthiness compliance requirements are fully understood and applied without error. Evidence is required of underlying knowledge and skills associated with the application of airworthiness legislation and compliance requirements, as well as evidence of appropriate levels of literacy in English and speaking skills associated with the presentation of clear and concise information.

Competencies must be demonstrated in:

- Describing and applying the requirements applicable to the privileges of their authority.
- Application of Airworthiness Directive (AD) requirements.
- Application of maintainers' responsibilities.
- Application of aviation maintenance personnel licensing requirements.
- Application of requirements related to conduct and issue of maintenance certifications and Certificates of Release to Service for the aircraft or aeronautical product.
- Demonstrating a familiarity with requirements related to the tasks and functions they may perform.
- Demonstration of literacy and oral expression skills required for clear written and oral communication.

(b) Knowledge Evidence

Evidence required to demonstrate competency in this unit must be relevant to and satisfy all of the requirements of the elements and performance criteria and include basic knowledge of:

- AD requirements.
- Maintainers' responsibilities.
- Aircraft registration and markings.
- Aviation maintenance personnel licensing requirements.
- Maintenance organizations requirements.
- Design organizations.
- Maintenance Training Organizations (MTO).

15. ขอบเขต (Range Statement)

This part allows different environments and working conditions that can affect the performance. Essential operating conditions that may be present (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) are included.

Remark : Range statements listed below are numbered to facilitate precise specification of the assessment requirements included in the Assessment Conditions

Certification tasks: The competency applies to the certification of aircraft maintenance activities, including:

1. Planned maintenance.
2. Unplanned maintenance.
3. Configuration changes.
4. Modification incorporation .
5. Minor repairs.

In performing Tasks 1 to 5, knowledge is to be applied with regard to airworthiness regulatory systems and legislation, and the application of compliance requirements in the performance, recording and certification of maintenance activities, as follows:

6. International and national regulatory bodies and recognition agreements, including bilateral agreements.
7. Airworthiness regulatory bodies and the legislative framework.

8. The basis of airworthiness certification and determination of non-conformity.
9. Procedures for release of aircraft to service following maintenance, including the determination of the requirement for a maintenance test flight.
10. Procedures for certification of scheduled and unscheduled maintenance activities.
11. Procedures for certification of the incorporation of modifications.
12. Procedures for certifying the completion of minor repairs.
13. Determining and applying configuration management procedures, including the weighing of aircraft and the determination of the center of gravity.
14. Compiling and processing service difficulty reports.
15. Compiling and processing technical investigation reports.
16. Compiling and processing condition reports.
17. Orally communicating on technical and airworthiness compliance topics.
18. Communicating in writing on technical and airworthiness compliance issues.

16. หน่วยสมรรถนะร่วม (ถ้ามี)

N/A

17. อุตสาหกรรมร่วม/กลุ่มอาชีพร่วม (ถ้ามี)

N/A

18. รายละเอียดกระบวนการและวิธีการประเมิน (Assessment Description and Procedure)

The assessment are based on combination of paper exams, interviewing, and practical demonstrations depending on the assessors' judgement.

- Competency should be assessed in the work environment under supervision but without intervention for the purpose of Log entries, and/or by use of simulated activities, covering the interpretation and application of airworthiness control and certification requirements.
- An individual cannot be evaluated as competent until it can be demonstrated to the satisfaction of the workplace assessor that the relevant elements and performance criteria of the unit of competency are being achieved under supervision without intervention on a range of tasks fully representative of Groups 1 to 18 in the Range of Conditions. The body of evidence for this unit may be collected and logged during simulated activities and/or performance during supervised workplace activities, such as Practical Consolidation of Training (PCT) assessments.
- Knowledge must also be demonstrated of the concept of airworthiness that underpins the legislative framework and compliance requirements.

1. รหัสหน่วยสมรรถนะ 103502
2. ชื่อหน่วยสมรรถนะ Perform advanced troubleshooting in aircraft avionic maintenance.
3. ทบทวนครั้งที่ N/A
4. สร้างใหม่ ปรับปรุง

5. สำหรับชื่ออาชีพและรหัสอาชีพ (Occupational Classification)

7232 Aircraft engine mechanics and fitters

6. คำอธิบายหน่วยสมรรถนะ (Description of Unit of Competency)

This unit of competency requires application of hand skills and the use of fundamental system/component knowledge and applicable maintenance publications and test equipment to troubleshoot faults in avionic systems of fixed and rotary wing aircraft that are beyond the bounds of maintenance manual fault diagnosis guides during scheduled or unscheduled maintenance. Work may be completed individually or as part of a team.

7. สำหรับระดับคุณวุฒิ

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8. กลุ่มอาชีพ (Sector)

7232 Aircraft Mechanics

9. ชื่ออาชีพและรหัสอาชีพอื่นที่หน่วยสมรรถนะนี้สามารถใช้ได้ (ถ้ามี)

N/A

10. ข้อกำหนดหรือกฎระเบียบที่เกี่ยวข้อง (Licensing or Regulation Related) (ถ้ามี)

N/A

11. สมรรถนะย่อยและเกณฑ์การปฏิบัติงาน (Elements and Performance Criteria)

สมรรถนะย่อย (Element)	เกณฑ์ในการปฏิบัติงาน (Performance Criteria)	วิธีการประเมิน (Assessment)
103502.01 Verify /Isolate the defect.	103502.01.01 Able to use available information from flight crew and maintenance documentation to assist in fault determination and able to carry out inspection of the affected system to check both physical integrity and correct operation, take the effects on a system from interfaces/integration with other systems into account. 103502.01.02 Able to use logical processes, obtain specialist advice, to augment maintenance manual fault diagnosis guides to ensure efficient and accurate troubleshooting and able to locate faults and clearly identify and correctly record the causes of the defects in maintenance documentation, including any other systems disturbed, where required.	ข้อสอบข้อเขียน การสัมภาษณ์ การสาธิตการปฏิบัติงาน

สมรรถนะย่อย (Element)	เกณฑ์ในการปฏิบัติงาน (Performance Criteria)	วิธีการประเมิน (Assessment)
103502.02 Determine/Verify defect rectification.	103502.02.01 Able to determine defect rectification requirements and the necessary repair action initiated once verification and isolation of the defect are confirmed and able to rectify defect in accordance with approved maintenance data. 103502.02.02 Able to restore all systems disturbed or accessed during troubleshooting as applicable using maintenance manuals, repair schemes or approved maintenance data and Perform all checks required by approved maintenance data to ensure correct operation of all disturbed systems.	ข้อสอบข้อเขียน การสัมภาษณ์ การสาธิตการปฏิบัติงาน

12. ความรู้และทักษะก่อนหน้าที่จำเป็น (Pre-requisite Skill & Knowledge)

N/A

13. ทักษะและความรู้ที่ต้องการ (Required Skills and Knowledge)

(ก) ความต้องการด้านทักษะ

See Appendix A

(ข) ความต้องการด้านความรู้

See Appendix A

14. หลักฐานที่ต้องการ (Evidence Guide)

(a) Performance Evidence

Evidence required to demonstrate competency in this unit must be relevant to and satisfy all of the requirements of the elements and performance criteria under the specified conditions of assessment.

- Skill must be demonstrated in the diagnosis of faults that are beyond the coverage of maintenance manual fault diagnosis guides in simulated applications in the training environment and/or in the workplace across a representative range of systems and components as specified in the Assessment Conditions.
- The underlying skills inherent in this unit should be transferable across a range of inspection, testing and troubleshooting applications related to avionic systems, and where applicable other system interfaces/integration. It is essential that system testing procedures, cleanliness requirements and safety precautions applicable to the system being maintained are fully observed, understood and complied with. Ability to interpret inspection procedures and specifications (allowable limits) and apply them in practice is critical, as is the demonstrated ability to apply fundamental system theory in the logical diagnosis of complex faults.
- Evidence of transferability of skills and knowledge related to performance and supervision of inspection, testing and troubleshooting is essential. This must be demonstrated through application across a number of aircraft avionic systems, including system interfaces/integration.

(b) Knowledge Evidence

For systems and components relevant to the scope of the licence/ratings sought as per aviation standards, look for evidence that confirms basic knowledge of:

- Theory related to system operation and interfaces between systems and with electrical/electronic control media to a level that will facilitate the diagnosis of faults beyond the level of maintenance manual fault diagnosis guides using reported symptoms and functional test results.
- Component construction and theory of operation to a level that will facilitate the diagnosis of faults beyond the level of maintenance manual fault diagnosis guides using reported symptoms and functional test results.
- Advanced fault diagnostic techniques.
- Condition monitoring and trend analysis techniques.

15. ขอบเขต (Range Statement)

This part allows for different work environments and conditions that may affect performance. Essential operating conditions that may be present (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) are included.

Systems and related components include:

- Electrical systems.
- Electronic systems.
- Instrument systems.
- Radio communication and navigation systems.
- Autoflight systems.

Troubleshooting, for the purpose of this unit, is defined as:

- The troubleshooting from first principles, of defects beyond available maintenance data in the systems of fixed or rotary wing aircraft types.

Troubleshooting must be demonstrated across a range of typical systems and system components that includes but is not limited to airframes, engine(s) and other systems (and parts thereof) operated by inherently electrical, electronic, instrument or radio principles or means. Coverage is not required of specific type systems that are included in type training and practical consolidation of training (PCT) activities leading to a specific type licence rating.

Procedures and requirements include:

- Industry standard procedures specified by manufacturers, regulatory authorities or the enterprise.

16. หน่วยสมรรถนะร่วม (ถ้ามี)

N/A

17. อุตสาหกรรมร่วม/กลุ่มอาชีพร่วม (ถ้ามี)

N/A

18. รายละเอียดกระบวนการและวิธีการประเมิน (Assessment Description and Procedure)

The assessment are based on combination of paper exams, interviewing, and practical demonstrations depending on the assessors' judgement.

- Competency is assessed in the workplace or simulated workplace and shall involve successfully dealing with a number of maintenance and fault scenarios across a range of avionic systems and related system components of:

- Electrical systems.
- Electronic systems.
- Instrument systems.
- Radio communication and navigation .

- The troubleshooting approach should clearly demonstrate an in-depth knowledge of underpinning theory of a system, with this knowledge being used in a logical process to augment and extend the scope of the aircraft/system fault-finding guide. The fault rectification work plan should take account of applicable safety (including safe handling of heavy components) and quality requirements in accordance with the industry and regulatory standards.

- An individual cannot be evaluated as competent until it can be demonstrated to the satisfaction of the workplace assessor that the relevant elements and performance criteria of the unit of competency are being achieved under supervision without intervention and the ability has been demonstrated to identify the causes of defects not covered fully by maintenance manual fault diagnosis guides.

1. รหัสหน่วยสมรรถนะ 103503
2. ชื่อหน่วยสมรรถนะ Perform aircraft weight and balance calculations as a result of modifications.
3. ทบทวนครั้งที่ N/A
4. สร้างใหม่ ปรับปรุง

5. สำหรับชื่ออาชีพและรหัสอาชีพ (Occupational Classification)

7232 Aircraft engine mechanics and fitters

6. คำอธิบายหน่วยสมรรถนะ (Description of Unit of Competency)

This unit of competency requires application of mathematical formulae to calculate the weight and balance effect of components installed in fixed and rotary wing aircraft during modification incorporation and may involve individual activities or supervision of other personnel.

7. สำหรับระดับคุณวุฒิ

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8. กลุ่มอาชีพ (Sector)

7232 Aircraft Mechanics

9. ชื่ออาชีพและรหัสอาชีพอื่นที่หน่วยสมรรถนะนี้สามารถใช้ได้ (ถ้ามี)

N/A

10. ข้อกำหนดหรือกฎระเบียบที่เกี่ยวข้อง (Licensing or Regulation Related) (ถ้ามี)

N/A

11. สมรรถนะย่อยและเกณฑ์การปฏิบัติงาน (Elements and Performance Criteria)

สมรรถนะย่อย (Element)	เกณฑ์ในการปฏิบัติงาน (Performance Criteria)	วิธีการประเมิน (Assessment)
103503.01 Determine the empty weight of the aircraft.	103503.01.01 Able to determine the requirement for aircraft weighing. 103503.01.02 Able to determine the new empty weight of the aircraft and it is ensured that the weight is within the predetermined limits set by the Continuing Airworthiness Management Organization (CAMO).	ข้อสอบข้อเขียน การสัมภาษณ์ การสาธิตการปฏิบัติงาน
103503.02 Calculate the weight and balance impact of a modification.	103503.02.01 Able to calculate the new empty weight center of gravity of the aircraft using the weight and moment arm data for a modification and it is ensured that the center of gravity is within the predetermined limits set by the CAMO. 103503.02.02 Able to update maintenance records with new figures.	ข้อสอบข้อเขียน การสัมภาษณ์ การสาธิตการปฏิบัติงาน

12. ความรู้และทักษะก่อนหน้าที่จำเป็น (Pre-requisite Skill & Knowledge)

N/A

13. ทักษะและความรู้ที่ต้องการ (Required Skills and Knowledge)

(ก) ความต้องการด้านทักษะ

See Appendix A

(ข) ความต้องการด้านความรู้

See Appendix A

14. หลักฐานที่ต้องการ (Evidence Guide)

(a) Performance Evidence

Evidence required to demonstrate competency in this unit must be relevant to and satisfy all of the requirements of the elements and performance criteria under the specified conditions of assessment, and must include:

- Calculating the effect on aircraft weight and center of gravity of components installed during modification incorporation using weight and moment arm data.

The underlying skills inherent in this unit should be transferable across a range of aircraft types. Ability to interpret the instructions for configuring and weighing aircraft is critical.

Evidence of transferability of skills and knowledge related to aircraft weight and calculation of center of gravity is essential

(b) Knowledge Evidence

Evidence required to demonstrate competency in this unit must be relevant to and satisfy all of the requirements of the elements and performance criteria and include basic knowledge of:

- Mathematical formulae used to calculate center of gravity of an aircraft.

15. ขอบเขต (Range Statement)

This part allows for different work environments and conditions that may affect performance. Essential operating conditions that may be present (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) are included.

Procedures and requirements include:

- Industry standard procedures specified by manufacturers, regulatory authorities or the enterprise.

16. หน่วยสมรรถนะร่วม (ถ้ามี)

N/A

17. อุตสาหกรรมร่วม/กลุ่มอาชีพร่วม (ถ้ามี)

N/A

18. รายละเอียดกระบวนการและวิธีการประเมิน (Assessment Description and Procedure)

The assessment are composed of paper exams , interviews, and practical demonstrations, which the paper exam is the main testing. The selection of interviews and practical demonstrations are depending on the assessors' judgment.

An individual cannot be evaluated as competent until it can be demonstrated to the satisfaction of the workplace assessor that the relevant elements and performance criteria of the unit of competency are being achieved under supervision without intervention.

This shall be established via simulated activities at the approved Maintenance Training Organization and performance during observed workplace activities.