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 supplys of social, industial economic, and personnal 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 : Helicopters ช่างอากาศยาน (เฮลิคอปเตอร์) 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.
101509	Perform advanced troubleshooting in aircraft mechanical maintenance.
101510	Weigh aircraft and perform aircraft weight and balance calculations as a result.
101511	Apply systems engineering procedures to airworthiness engineering design.
102501	Assess structural repair/modification requirements and evaluate structural.

10. ระดับคุณวุฒิ

10.1 สาขาวิชาชีพการบิน สาขางานเทคนิคและฝึกอบรม Aircraft Mechanics : Helicopters ช่างอากาศยาน (เฮลิคอปเตอร์) 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. Legitimates 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: Helicopters

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.

101509 Perform advanced troubleshooting in aircraft mechanical maintenance.

101510 Weigh aircraft and perform aircraft weight and balance calculations as a result.

101511 Apply systems engineering procedures to airworthiness engineering design.

102501 Assess structural repair/modification requirements and evaluate structural.

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	
คำอธิบาย	รหัส	คำอธิบาย	รหัส	คำอธิบาย
To promote and support aircraft maintenance of a aircraft mechanics group	10	Aircraft Mechanics	101	Aircraft Mechanics: Airplane
			102	Aircraft Mechanics Helicopter

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.	10150 1.01	Identify task requirements and steps plan to complete task.
				101501 .02	Organize work.
		101502	Plan and implement civil aircraft maintenance activities.	10150 2.01	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.	10150 3.01	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.	10150 4.01	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.	10150 5.01	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.	10150 6.01	Research data, draft publication or publication amendment.
				101506 .02	Process draft publication or amendment.
		101507	Manage self in the aviation maintenance environment.	10150 7.01	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.	10150 8.01	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.	10150 8.02	Build agreement for budgets and financial plans.
				101508 .03	Maintain and store backup copies of data, monitor and control activities against plans.
		101509	Perform advanced troubleshooting in aircraft mechanical maintenance.	10150 9.01	Verify the defect.
				101509 .02	Isolate the defect.
				101509 .03	Determine defect rectification requirements.
				101509 .04	Verify defect rectification.
		101510	Weigh aircraft and perform aircraft weight and balance calculations as a result.	10151 0.01	Weigh aircraft.
				101510 .02	Calculate the weight and balance impact of a modification.
		101511	Apply systems engineering procedures to airworthiness engineering design.	10151 1.01	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.
102	Aircraft Mechanics Helicopter	102501	Assess structural repair/modification requirements and evaluate structural.	10250 1.01	Assess structural repair or modification requirements.
				102501 .02	Perform colour contrast dye penetrant NDT.

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
☐	☐	☐	☐	☑	☐	☐	☐

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

1	2	3	4	5	6	7	8
☐	☐	☐	☐	☑	☐	☐	☐

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 การสาธิตการปฏิบัติงาน
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 are to appropriate management personnel in accordance with enterprise policies and procedures.	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 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. 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 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

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)
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 การสาธิตการปฏิบัติงาน

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 atsupervisor 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 การสาธิตการปฏิบัติงาน

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 การสาธิตการปฏิบัติงาน
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 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 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 managementAssessment 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 concernsRisk 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 investigationHazardous events include:
- Accidents.
- Fires and explosions.
- Emergencies, e.g. fuel or chemical spills.
- Bomb scares.
- Violent incidentsWHS 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 operationWHS 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. 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 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)

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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.

Resource requirements include:	- Personnel. - Spare parts/fly-away kits. - Ground support equipment. - Facilities. - Vehicles.. - Finance
Maintenance personnel qualifications and authorisations include:	- Duty statements. - Job descriptions. - Maintenance personnel uthorization workbooks .
Detachment locality authorities include:	- Military command. - Location facilities personnel. - Civilian authorities. - Other detached units or organisations.
Airworthiness regulations, ADF policies and procedures include:	- Aircraft maintenance regulations. - Safety manuals. - Work health and safety (WHS) legislation. - Defence instructions.. - Standing instructions - Local instructions. - Specific aircraft/equipment maintenance manuals. - Servicing schedules .
Pre-detachment inspections include:	- Facilities/accommodation. - Fuel. - Technical facilities. - Site survey. - Spare parts. - Fire-fighting equipment . - Personal protective equipment (PPE) .

Higher authorities include:	- Authorised maintenance organisations. - Authorised engineering organisations. - Director General Technical Airworthiness .
Ethical behaviourincludes:	• 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.
- 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

1	2	3	4	5	6	7	8
☐	☐	☐	☐	☑	☐	☐	☐

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

Assessmen 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:	• Print-based • Electronic • Microfiche
Style and layout can be determined from one or more of:	• An applicable style guide • Contract requirements • Industry standards and specifications
Relevant data sources include:	• 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:	• 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

1	2	3	4	5	6	7	8
☐	☐	☐	☐	☑	☐	☐	☐

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

1	2	3	4	5	6	7	8
☐	☐	☐	☐	☑	☐	☐	☐

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

Assessmen 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.

Legislation, codes and national standards relevant to the workplace include:	• 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.
Strategic opportunities include:	• Aircraft operators and fleet operators seeking to outsource maintenance. • Aeronautical product_maintenance needs. • Changing_regulatory_require ments 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 .
Budgets and plans include:	Aircraft maintenance budgets • Aeronautical product maintenance budgets. • Financial budget. • Logistic services sales budgets. • Regulatory compliance budgets. • Capital expenditure budgets. • Cash flow plans .
Relevant groups and individuals include:	All personnel within the organisation affected by the budgets and financial plans being developed .
Investment target rates include:	The minimum percentage rate of return required by the organisation for a capital investment project to proceed .
Capital expenditure includes:	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.

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:	• 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:	• Monitoring expenditure. • Authorising expenditure within limits. • Reporting on variances to budget/plan. • Taking remedial action within budget authority .
Audit requirements include:	• The internal standards required in the management of budgets and financial plans, approved by external/internal auditors .
Risk manangement includes:	• 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 .

Appropriate non-financial objectives include:	• Environmental. • Sustainability. • Compliance with Maintenance . • Compliance with requirements of the applicable airworthiness regulator . • WHS. • Quality and safety management . • Trust. • Integrity.
Ethical behaviourincludes:	• 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.
- 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, then an appropriate simulation should be used in the range of conditions of the workplace it reflects real situations encountered in managing budgets organizational and financial plans.
- The candidate must have access to all materials and documentation required and must be permitted to refer to any place of relevant operating procedures, 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.
- 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.
- Assessors must meet the requirements of the National Education and Vocational Regulator.

1. รหัสหน่วยสมรรถนะ 101509

2. ชื่อหน่วยสมรรถนะ Perform advanced troubleshooting in aircraft mechanical 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 the application of basic knowledge systems theory and diagnostic skills to identify advanced fault during the execution of scheduled maintenance or not the cause of defects in fixed and rotary wing aircraft which are -delà boundary fault diagnosis guides the maintenance manual. This can be achieved in individual activities or for monitoring other staff.

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)
101509.01 Verify the defect.	101509.01.01 Available information from flight crew, such as flight phase, aircraft configuration, and so on; maintenance documentation both current and previous history; is used as necessary, to assist in fault determination. Inspection of the affected system is carried out to check both physical integrity and correct operation. 101509.01.02 Information gained from Central Maintenance. Systems is verified against physical integrity and correct operation, where applicable, while observing, all relevant work health and safety (WHS) requirements.	ข้อสอบข้อเขียน การสัมภาษณ์ การสาธิตการปฏิบัติงาน

สมรรถนะย่อย (Element)	เกณฑ์ในการปฏิบัติงาน (Performance Criteria)	วิธีการประเมิน (Assessment)
101509.02 Isolate the defect.	101509.02.01 Logical processes, including the application of basic principles and system knowledge and known facts, are used to augment maintenance manual fault diagnosis guides to ensure efficient and accurate troubleshooting. 101509.02.02 Specialist advice is obtained, where required and/or available, to assist with the troubleshooting process, and faults are located and the causes of the defects are clearly identified and correctly recorded in maintenance documentation, including any other systems disturbed, where required.	ข้อสอบข้อเขียน การสัมภาษณ์ การสาธิตการปฏิบัติงาน
101509.03 Determine defect rectification requirements.	101509.03.01 Defect rectification requirements are determined and the necessary repair action initiated once verification and isolation of the defect are confirmed.	ข้อสอบข้อเขียน การสัมภาษณ์ การสาธิตการปฏิบัติงาน
101509.04 Verify defect rectification.	101509.04.01 Defect is rectified in accordance with approved maintenance data, and all systems disturbed or accessed during troubleshooting are restored, as applicable, using maintenance. 101509.04.02 Manuals, repair schemes or approved maintenance data while observing relevant WHS procedures. All checks required by approved maintenance data to ensure correct operation of all disturbed systems are performed.	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, and must include:

• Applying relevant WHS procedures

• Diagnosing 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. The underlying skills inherent in this unit should be transferable across a range of inspection, testing and troubleshooting applications related to mechanical systems, and where applicable other system interfaces/integration. It is essential that system test procedures take into account all safety precautions applicable to the system being maintained. Ability to interpret inspection procedures and specifications (allowable limits) and ensure that they are applied 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 the applicable systems listed in the Range of Conditions, including system interfaces/integration.

(b) Knowledge Evidence

For systems and components relevant to the scope of the licence/ratings sought knowledge is required 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 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.

Troubleshooting

- The competency applies to 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, their engines and all systems (and parts thereof) operated by inherently mechanical or hydro-mechanical 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

Applicable systems include:

- Hydro-mechanical systems
- Pneumatic systems
- Flight control systems
- Engines and engine systems
- Propeller and rotor systems

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 systems listed in the Range of Conditions, and related system components.
- 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.

1. รหัสหน่วยสมรรถนะ 101510

2. ชื่อหน่วยสมรรถนะ Weigh aircraft and perform aircraft weight and balance calculations as a result.

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 basic knowledge regarding aircraft weighing and the use of relevant maintenance publications and modification data (where applicable) to weigh a fixed and rotary wing aircraft and use the results to calculate centre of gravity and confirm that it is within limits. Weighing may be performed during scheduled or unscheduled maintenance and involve individual activities and the 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)
101510.01 Weigh aircraft.	101510.01.01 The requirement for aircraft weighing is determined in accordance with the specified procedure while observing all relevant work health and safety (WHS) requirements. 101510.01.02 Aircraft weighing results are provided to the Continuing Airworthiness Management Organisation (CAMO).	ข้อสอบข้อเขียน การสัมภาษณ์ การสาธิตการปฏิบัติงาน
101510.02 Calculate the weight and balance impact of a modification.	101510.02.01 The new empty weight of the aircraft is determined and it is ensured that the weight is within the predetermined limits set by the CAMO. 101510.02.02 The new empty weight centre of gravity of the aircraft is calculated and it is ensured that the centre of gravity is within the predetermined limits set by the CAMO and maintenance records are updated with new figures.	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 allof the requirements of the elements and performance criteria under the specified conditions of

Assessment, and must include:

- Applying relevant WHS procedures.
- Configuring aircraft for weighing.
- Weighing aircraft.
- Using weighing results to calculate centre of gravity.

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 basic knowledge related to weighing of aircraft and calculation of centre 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:

- Types of weighing equipment used to weigh aircraft and associated safety precautions:
- Mechanical platform scales.
- Electronic platform scales.
- Electronic load pots.
- Methods used to level aircraft for weighing.
- The importance of correctly configuring aircraft for weighing.
- Mathematical formulae used to calculate centre of gravity.

15. ขอบเขต (Range Statement)

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.Centre of gravity of theaircraft is calculated:

Using the results obtained by weighing an aircraftUsing the weight and moment arm data for amodificationProcedures andrequirements 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 may be assessed in the workplace or in the training environment. The aircraft weighing work plan should take account of applicable safety and quality requirements in accordance with the industry and regulatory standards, especially in relation to aircraft jacking and levelling.

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 การสาธิตการปฏิบัติงาน

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

Assessmen 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.

Systems engineering process management:	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.
System requirements analysis:	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.
Functional analysis and allocation:	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.
Baselines:	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.

Technical data packages include:	• 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.
Ethical behaviourincludes:	• 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 102501

2. ชื่อหน่วยสมรรถนะ Assess structural repair/modification requirements and evaluate structural.

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 interpretation of structural data repair and modification to determine the necessary measures and to determine compliance with airworthiness requirements or minor repairs performed structural changes. In addition, the color contrast performance penetrant non-destructive testing (NDT) on the applicable component is included.

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)
102501.01 Assess structural repair or modification requirements.	102501.01.01 Structural repair requirements are determined from maintenance manuals or approved repair schemes. Damage beyond repair scheme limits is referred to relevant personnel/authorities. 102501.01.02 Modification requirements are determined from approved drawings and specifications/ instructions or requirements are referred to relevant personnel/authorities, and completed work is evaluated for compliance with airworthiness requirements.	ข้อสอบข้อเขียน การสัมภาษณ์ การสาธิตการปฏิบัติงาน

สมรรถนะย่อย (Element)	เกณฑ์ในการปฏิบัติงาน (Performance Criteria)	วิธีการประเมิน (Assessment)
102501.02 Perform colour contrast dye penetrant NDT.	102501.02.01 Inspection requirements are identified from relevant maintenance data or to confirm a visually identified defect. Surfaces to be inspected are prepared for the dye penetrant process. Dye penetrant materials are selected in accordance with standard operating procedures, and penetrant test is performed in accordance with standard operating procedures and while observing all relevant work health and safety (WHS) precautions. 102501.02.02 Defect indications are checked and identified in accordance with standard operating procedures. Penetrant testing equipment is correctly maintained and stored while observing all relevant WHS requirements, Including the use of material safety data sheets (MSDS)and items of personal protective equipment (PPE), and results are recorded in accordance with standard enterprise and regulatory requirements.	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 underthe specified conditions of assessment, and must include:

• Interpreting damage limits and identifying applicable repair schemes.
• Interpreting all requirements of modification drawings and assessing work against them.
• Evaluating completed minor repairs and modifications for compliance with the applicable data and with airworthiness requirements.
• Recognising weld defects.
• Performing colour contrast dye penetrant NDT to confirm defects in applicable aircraft components.
• Application of relevant WHS practices, including the use of MSDS and PPE. The underlying skills inherent in this unit should be transferable across a range of repair and modification applications related to the structure of aircraft. It is essential that the repair and modification procedures take into account all applicable safety precautions. The ability to interpret repair scheme and modification requirements, including applicable specifications (allowable limits) and ensure that they are applied in practice is critical. This must be demonstrated through the correct determination of repair requirements and the determination of compliance with repair schemes and modification drawings. The ability to assess sound weld minor repairs must also be demonstrated.

(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 at a post-trade level of:

• Application of regulatory requirements and of manufacturer's requirements in the determination of structural maintenance needs.
• Assessment of the extent of damage and an understanding of the need for a professional engineer to develop or extend a repair scheme where damage is beyond the limits of maintenance manual repair schemes, including the identification of relevant personnel and authorities.
• Assessment of new equipment or component mounting requirements and an understanding of the need to have drawings and specifications developed by a professional engineer, including the identification of relevant personnel and authorities
• The need for shoring and support to maintain aerodynamic shape and for safe performance of structural maintenance.
• The need for mensuration checks and the techniques used to perform them.
• How to determine welding requirements and the recognition of sound welds.
• The correct application of colour contrast dye penetrant NDT and the limitations of the testing method.
• Dye penetrant test procedures:
• Relevant WHS precautions and how to obtain PPE and MSDS.
• Cleaning and preparation processes and materials.
• Consequences of incorrect preparation.
• Basic concepts and principles of NDT and appropriate use of the colour contrast dye penetrant technique.
• General properties of penetrants (penetrability, removability and visibility).
• Types of emulsifiers and developers.
• Established procedures and techniques.
• Defect types and their consequences.
• Post-test cleaning methods.
• Aircraft welding regulations.
• Aircraft welding processes and relevant parent metal groups.
• Defects applicable to each welding process and parent metal group.

15. ขอบเขต (Range Statement)

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.

Range of tasks and practices includes:

- Standard practices for structural repair and modification, including damage measurement and assessment against approved repair schemes.
- The process for referral of damage details and modification requirements to relevant personnel/authorities.
- Supervision of repair scheme and modification incorporation, including evaluation of work against drawings and specifications.
- Scheduled or unscheduled maintenance.

- Individual activities or supervision of other personnel performing maintenance tasks classified in CASR part 145 as specialist maintenance, including:
- Non-destructive inspection.
- Welding.
- Surface plating.
- Surface finishing.
- Preparing structural repair components.
- Machining.

Surface preparation for dye penetrant NDT includes:

- Removal of surface finishes where applicable.
- Thorough cleaning of the surface.
- Drying of the surface.
- Processes included in standard procedures.

Dye penetrant materials include:

- Appropriate surface cleaning materials.
- Emulsifiers.
- Developers.
- Materials for surface cleaning after testing.

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 will be assessed in the training environment using a combination of practical exercises and scenarios. Applicable work plans should take account of applicable safety (including safe handling of heavy components) and quality requirements in accordance with the industry and regulatory standards.
- A person cannot be assessed as competent until it can be demonstrated to the satisfaction of the workplace assessor that the elements and performance criteria of the unit of competency are being achieved across the tasks and practices listed in the Range of Conditions under supervision without intervention.