



**STANDARD KEMAHIRAN PEKERJAAN KEBANGSAAN
(National Occupational Skills Standard)**

RB-081-3:2012

OIL PALM PLANTATION OPERATION & SUPERVISION

LEVEL 3



**JABATAN PEMBANGUNAN KEMAHIRAN
KEMENTERIAN SUMBER MANUSIA**

Department of Skills Development
Ministry of Human Resources, Malaysia

TABLE OF CONTENTS

Contents	Page No.
1. Introduction.....	i-iii
2. Occupational Area Analysis.....	iv
3. Definition of Competency Level.....	v
4. Malaysian Skills Qualification.....	vi
5. Job Competency.....	vi
6. Working Conditions.....	vi
7. Employment Prospects.....	vi
8. Sources Of Additional Information.....	vii
9. Approval Date.....	vii
10. Acknowledgement.....	vii
11. NOSS Development Committee	
a) Committee Members for Competency Profile Chart (CPC), Competency Profile (CP) and Curriculum of Competency Unit (CoCU)	viii
12. Competency Profile Chart.....	1
13. Competency Profile.....	2 - 18
14. Curriculum of Competency Unit.....	19 - 125

STANDARD PRACTICE

NATIONAL OCCUPATIONAL SKILLS STANDARD (NOSS) FOR;

OIL PALM PLANTATION OPERATION & SUPERVISION LEVEL 3

1. INTRODUCTION

This is a new NOSS for Oil Palm Plantation Operation and Supervision following new format stipulated by Jabatan Pembangunan Kemahiran (JPK) under Plantation Industry. There is a high demand for skilled personnel in this field as the industry is developing rapidly. Based on the oil palm plantation industry growth that aims to propel Malaysia to become a hub for oil palm plantation, the need for skilled personnel from this industry is in demand.

Malaysia's palm oil industry is the fourth largest contributor to the national economy and currently accounts for RM1,889 (8 percent) of the national GNI per capita. The industry spans the entire value chain from plantations to downstream activities. Its development is mainly private sector-driven and is still heavily skewed towards upstream activities, namely production of fresh fruit bunches (FFB) in plantations, processing of FFBs in mills and palm kernel crushing and palm oil refining activities. The palm oil industry in Malaysia is organised around four segments. The plantations segment includes seedling nursery, planting, harvesting, collecting and milling.

The oil palm industry is currently facing problems of labour shortage and increasing cost of production. In order for it to remain competitive and viable, one of the ways is to mechanise its operation to enhance labour productivity and hence reduce its dependency on labour.

Oil Palm Plantation Operation and Supervision is an important area to support Oil Palm Plantation Management and there is a need for properly trained personnel at level 3. This will provide a structured career path and career guidance for individuals and organizations alike. Having a suitable skilled workforce, will improve Malaysia as a centre of excellence in the region and help towards inward investment in the country.

A person who is competent in Oil Palm Plantation Operation and Supervision is an individual who is trained to supervise and control in oil palm plantation operation. This NOSS provides first-hand information to the workers regarding Oil Palm Plantation Operation and Supervision working environment. This NOSS also provides a career path and employment development for those involved in this industry. An existing Occupational Structure is shown in Figure 1.1 Occupational Profile Chart for Oil Palm Plantation Industry.

Consequently, the development of this NOSS at Level 3 (*Refer Figure 1.2 Occupational Area Analysis for Oil Palm Plantation*) is essential so that the sub sector will have complete standards and guidelines to be used by the industry.

Pre-requisite

Based on the workshop findings, it was decided that the minimum requirement for those interested to enrol this course are as follows:

- Medically and physically fit to meet strength, endurance and manual dexterity
- Able to read, write and calculate

These pre-requisite is in line with minimum requirements set by Malaysian Palm Oil Board and Department of Occupational Safety and Health (DOSH).

Regulating bodies for Oil Palm Plantation Industry:

a. Malaysian Palm Oil Board (MPOB)

MPOB is the premier government agency entrusted to serve the country's oil palm industry. Its main role is to promote and develop national objectives, policies and priorities for the wellbeing of the Malaysian oil palm industry. It was incorporated by an Act of Parliament (Act 582) and established on 1 May 2000, taking over, through a merger, the functions of the Palm Oil Research Institute of Malaysia (PORIM) and the Palm Oil Registration and Licensing Authority (PORLA).

The functions of the Board as laid down under Act 582 are as follows:

- Implement policies and development programmes to ensure the viability of the oil palm industry of Malaysia.
- Conduct and promote research and development activities relating to the oil palm industry.
- Regulate, register, co-ordinate and promote all activities relating to the oil palm industry.
- Develop, promote and commercialise research findings as well as provide technical, advisory and consultancy services to the oil palm industry.
- Develop and maintain markets for oil palm products as well as promote efficient marketing.
- Liaise and co-ordinate with other organisations inside or outside Malaysia to further enhance the oil palm industry of Malaysia.
- Plan and implement training programmes and human resource development in line with the needs of the oil palm industry.
- Be the resource and information centre of the oil palm industry including the publication and dissemination of information on oil palm as well as other oils and fats.

b. Department of Occupational Safety and Health (DOSH)

As a regulatory body which enforces the occupational safety and health aspects in Malaysia, the role of DOSH is to study and review the policies and legislations of occupational safety and health. With regard to the respective acts, DOSH comes forward to apply the functions as to:

- Conduct research and technical analysis on issues related to occupational safety and health at the workplace.
- Carry out promotional and publicity programs to employers, workers and the general public to foster and increase the awareness of occupational safety and health.
- Carry out promotional and publicity programs to employers, workers and the general public to foster and increase the awareness of occupational safety and health.
- Become a secretariat for the National Council regarding occupational safety and health

2. OCCUPATIONAL STRUCTURE

Oil Palm Plantation Operation and Supervision (Level 3) is categorised under Oil Palm sub-sector of the Plantation Sector, shown in Fig. 1.1 and Fig. 1.2.

The panel of experts have concluded that the job area should start at Level 3 due to the technical competencies required.

SECTOR	PLANTATION		
SUB SECTOR	OIL PALM		
LEVEL/ AREA	OIL PALM NURSERY OPERATION	PLANTATION OPERATION	MECHANISATION OPERATION
LEVEL 5	<i>OIL PALM NURSERY MANAGER</i>	<i>OIL PALM PLANTATION MANAGER</i>	<i>OIL PALM MECHANISATION MANAGER</i>
LEVEL 4	<i>OIL PALM NURSERY ASSISTANT MANAGER</i>	<i>OIL PALM PLANTATION ASSISTANT MANAGER</i>	<i>OIL PALM MECHANISATION ASSISTANT MANAGER</i>
LEVEL 3	<i>OIL PALM NURSERY SUPERVISOR</i>	<i>OIL PALM PLANTATION SUPERVISOR</i>	<i>OIL PALM MECHANISATION SUPERVISOR</i>
LEVEL 2	<i>OIL PALM NURSERY MANDORE</i>	<i>OIL PALM PLANTATION MANDORE</i>	<i>OIL PALM MECHANISATION OPERATOR</i>
LEVEL 1	<i>OIL PALM NURSERY OPERATOR</i>	<i>OIL PALM PLANTATION OPERATOR</i>	<i>NO LEVEL</i>

Figure 1.1 Occupational Structure for Oil Palm Plantation

SECTOR	PLANTATION		
SUB SECTOR	OIL PALM		
LEVEL/ AREA	OIL PALM NURSERY OPERATION	PLANTATION OPERATION	MECHANISATION OPERATION
LEVEL 5	<i>OIL PALM NURSERY MANAGEMENT</i>	<i>OIL PALM PLANTATION MANAGEMENT</i>	<i>OIL PALM MECHANISATION OPERATION MANAGEMENT</i>
LEVEL 4	<i>OIL PALM NURSERY ADMINISTRATION</i>	<i>OIL PALM PLANTATION ADMINISTRATION</i>	<i>OIL PALM MECHANISATION OPERATION ADMINISTRATION</i>
LEVEL 3	<i>OIL PALM NURSERY OPERATION & SUPERVISION</i>	<i>OIL PALM PLANTATION OPERATION & SUPERVISION</i>	<i>OIL PALM MECHANISATION OPERATION & SUPERVISION</i>
LEVEL 2	-NA-	-NA-	<i>OIL PALM MECHANISATION OPERATION</i>
LEVEL 1	-NA-	-NA-	-NA-

Figure 1.2 Occupational Area Structure for Oil Palm Industry

3. DEFINITION OF COMPETENCY LEVEL

The NOSS is developed for various occupational areas. Candidates for certification must be assessed and trained at certain levels to substantiate competencies. Below is a guideline of each NOSS Level as defined by the Department of Skills Development, Ministry of Human Resources, Malaysia.

Malaysia Skills Certificate Level 1:	Competent in performing a range of varied work activities, most of which are routine and predictable.
Malaysia Skills Certificate Level 2:	Competent in performing a significant range of varied work activities, performed in a variety of contexts. Some of the activities are non-routine and required individual responsibility and autonomy.
Malaysia Skills Certificate Level 3:	Competent in performing a broad range of varied work activities, performed in a variety of contexts, most of which are complex and non-routine. There is considerable responsibility and autonomy and control or guidance of others is often required.
Malaysia Skills Diploma Level 4:	Competent in performing a broad range of complex technical or professional work activities performed in a wide variety of contexts and with a substantial degree of personal responsibility and autonomy. Responsible for the work of others and allocation of resources is often present.
Malaysia Skills Advanced Diploma Level 5:	Competent in applying a significant range of fundamental principles and complex techniques across a wide and often unpredictable variety of contexts. Very substantial personal autonomy and often significant responsibility for the work of others and for the allocation of substantial resources features strongly, as do personal accountabilities for analysis, diagnosis, planning, execution and evaluation.

4. MALAYSIAN SKILL CERTIFICATION

Candidates after being competent verified and fulfilled Malaysian Skills Certification requirements shall be awarded with Sijil Kemahiran Malaysia (SKM) for Level 3

5. JOB COMPETENCIES

- a) The Oil Palm Plantation Operation & Supervision (Level 3) personnel are competent in performing the following core competencies:-
- Oil Palm Planting Operation
 - Oil Palm Field Upkeep and Maintenance
 - Oil Palm Manuring
 - Oil Palm Harvesting and Collection Operation
 - Oil Palm Field Operation Administration
 - Oil Palm Production Operation Quality Control
- b) The Oil Palm Plantation Operation & Supervision (Level 3) personnel are competent in performing the following elective competencies:-
- Oil Palm Mechanisation Application Supervision
 - Oil Palm Nursery Operation Supervision

6. WORKING CONDITIONS

Generally, Oil Palm Plantation Operation and Supervision work is carry out operation on oil palm field of work including assissting Assistant Manager by implementing policies and procedures in the oil palm division.

He/she is also responsible to adhere to the workplace standard operating procedures and oil palm plantation working procedures. They usually work in an office environment in the estate and required to use computer and often required to do site work inspection.

7. EMPLOYMENT PROSPECTS

The Oil Palm Plantation Operation and Supervision has a high employment prospect whether locally or internationally. This is because the local expertise workforce is recognised by other countries as being highly knowledgeable and skilled in Plantation industry. This in turn increases the demand for skilled personnel in this field to be employed locally or internationally.

As Malaysia had identified in the Economic Transfer Plan (ETP), the government will increase employment prospect and also an involvement to enabler for Malaysia to position itself at the international level. Employment growth in the plantation industry is significant and is in current demand. The plantation industry, specifically the Plantation Supervision growing rapidly in Malaysia and there is an acute shortage of well-trained personnel in this area.

Other related occupations with respect to employment opportunities are:

- Plantation Supervisor

Other related industries with respect to employment opportunities are:

- Agriculture

8. SOURCES OF ADDITIONAL INFORMATION

- Malaysian Palm Oil Board (MPOB)
6, Persiaran Institusi
Bandar Baru Bangi
43000 Kajang
Selangor
P.O. Box 10620
50720 Kuala Lumpur

Tel: 603-8769 4400
Fax: 603-8925 9446
Homepage: www.mpob.gov.my
- Ministry of Human Resource,
Level 2, 3 & 4, Block D3, Complex D
Federal Government Administrative Centre
62530 W. P. Putrajaya
Tel: 603 – 8886 5000
Fax: 603 – 8889 2443
Email: jkkp@mohr.gov.my
Web: <http://www.dosh.gov.my>
- Department of Standards Malaysia (Standards Malaysia)
Century Square, Level 1 & 2, Block 2300, Jalan Usahawan,
63000 Cyberjaya, Selangor Darul Ehsan, Malaysia
Tel: 603-8318 0002
Fax: 603-8319 3131
Email: central@standardsmalaysia.gov.my
Web: <http://www.standardsmalaysia.gov.my>
- SIRIM Berhad

No. 1, Persiaran Dato' Menteri, Seksyen 2,
Peti Surat 7035, 40700 Shah Alam
Selangor Darul Ehsan
Tel: 603-55446000
Fax: 603-55108095
Email: web@sirim.my
Web: <http://www.sirim.my>

9. APPROVAL DATE

The National Skills Development Board (MPKK), Ministry of Human Resources has agreed and endorsed this Standard on

10. ACKNOWLEDGEMENT

The Director General of DSD would like to extend his gratitude to the organisations and individuals who have been involved in developing this standard

**11. COMMITTEE MEMBERS FOR DEVELOPMENT OF STANDARD PRACTICE (SP),
COMPETENCY PROFILE CHART (CPC), COMPETENCY PROFILE (CP) AND
CURRICULUM OF COMPETENCY UNIT (CoCU)**

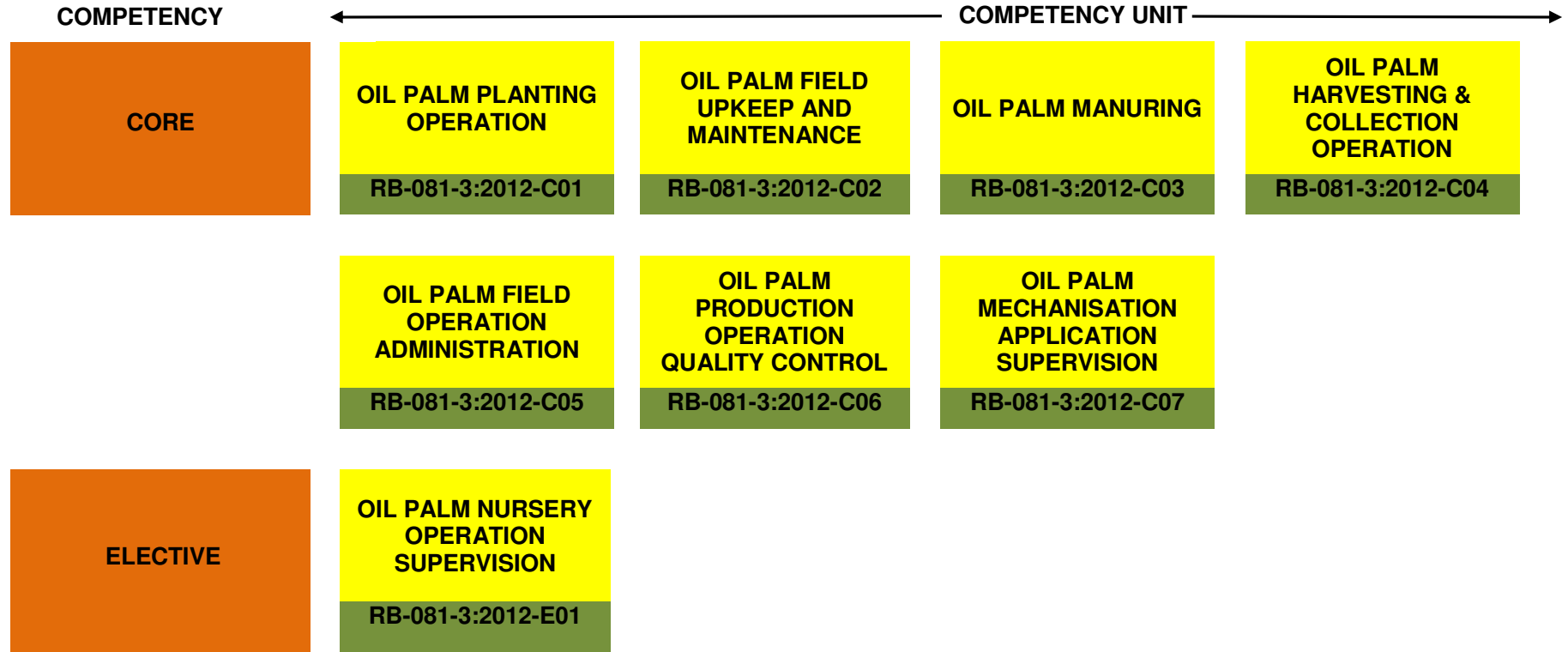
OIL PALM PLANTATION OPERATION AND SUPERVISION

LEVEL 3

PANEL		
1.	En. Azhar Bin Ihsan	Head of Plantation (Mersing) FELCRA Berhad
2.	En. Abd.Rahim Bin Osman	Senior Manager Felda Techoplant Sdn.Bhd
3.	En. Kamarullah Bin Ijai	Manager Felda Agricultural Sdn.Bhd,
4.	En. A Ramlee Bin Tugiman	Senior Supervisor Revertex Malaysia Sdn. Bhd
5.	En. Mohd Salleh Bin Mohd Shariff	Senior Supervisor Felda Agricultural Services Sdn. Bhd
6.	En. Saravanan A/L Muniandi	Field Supervisor Sime Darby Plantation Sdn.Bhd
7.	En. Kalai Vaannan Seluakumar	Replanting & Maintenance of Immature Supervisor Sime Darby Plantation Sdn.Bhd
8.	En. Razman Bin Roslan	Assistant Research Officer Malaysian Palm Oil Board (MPOB)
9.	En. Mohd Norhisam B. Bachik	Assistant Agronomist RISDA
FACILITATOR		
1.	En. Fahiszam Bin Saad	Facilitator PRITEC Academy
2.	Dr. Jasmi Bin Ahmad	Facilitator PRITEC Academy
3.	Tn. Hj. Mamat Bin Awang	Facilitator PRITEC Academy
4.	En. Zulkifli Bin Zakaria	Facilitator PRITEC Academy

COMPETENCY PROFILE CHART (CPC)

SECTOR	PLANTATION		
SUB SECTOR	OIL PALM		
JOB AREA	OIL PALM PLANTATION OPERATION & SUPERVISION		
JOB LEVEL	LEVEL 3	JOB AREA CODE	RB-081-3:2012



Sub Sector	Oil Palm
Job Area	Oil Palm Plantation Operation & Supervision
Level	Three (3)

CU Title	CU Code	CU Descriptor	CU Work Activities	Performance Criteria
1. Oil Palm Planting Operation		<p>This competency unit title describes the competency in oil palm planting operation.</p> <p>The competent person shall be able to plan oil palm planting operation, perform oil palm lining, carry out oil palm planting and assess oil palm planting operation activities</p> <p>The outcome of this competency is to ensure that all activities involved in oil palm planting operation are carried out according to the organisation's plan and SOP.</p>	1. Plan oil palm planting operation	1.1 Organisation's procedures on oil palm planting activities obtained 1.2 Work area to be executed determined 1.3 Estate map and topography obtained 1.4 Category of planting determined 1.5 Planting operation targets established 1.6 Tools and equipment required for planting operation obtained 1.7 Manpower required determined according to man to land ratio requirement 1.8 Planting operation activities confirmed in accordance with planting category 1.9 Time frame confirmed according to planting operation target 1.10 Planting operation plan produced

CU Title	CU Code	CU Descriptor	CU Work Activities	Performance Criteria
2. Oil Palm Field Upkeep And Maintenance		<p>This competency unit title describes the competency in field upkeep and maintenance.</p> <p>The competent person shall be able to identify field upkeep and maintenance activities, perform roads and bridges maintenance, perform oil palm maintenance, perform pest & disease control, perform weed control and report field upkeep and maintenance activities</p> <p>The outcome of this competency is to ensure that all activities in field upkeep and maintenance are carried out effectively.</p>	<ol style="list-style-type: none"> 1. Identify field upkeep and maintenance activities 2. Perform road and bridges maintenance 3. Perform oil palm maintenance 	<ol style="list-style-type: none"> 1.1 Work order received from superior 1.2 Maintenance schedule determined 1.3 Types of upkeep and maintenance work determined 2.1. Road and bridges maintenance activities requirement determined according to superior's instruction 2.2. Maintenance tools, equipment & material for road and bridges maintenance listed out as per requirements 2.3. Road maintenance executed according to requirements 2.4. Bridges repaired according to requirements 2.5. Fencing repaired according to requirements 2.6. Gate maintenance executed according to requirements 2.7. Trenching maintenance executed according to requirements 2.8. Perform cattle grid maintenance executed according to requirements 2.9. Culvert maintenance executed according to requirements 3.1. Oil palm maintenance activity requirements determined according to procedure

CU Title	CU Code	CU Descriptor	CU Work Activities	Performance Criteria
			<p>4. Perform Pest & Disease control</p>	<p>3.2. Maintenance tools, equipment & material listed out and prepared on site</p> <p>3.3. Fronds Pruning activity executed according to correct technique and pruning standards.</p> <p>3.4. De-creeping activities executed according to instructions.</p> <p>3.5. Epiphyte on oil palm removed and killed according to procedure</p> <p>3.6. Oil palm thinning activities executed according to instructions.</p> <p>4.1. Pest & Disease (P&D) control activities determined according to instruction</p> <p>4.2. Pest & Disease control equipment functionality checked according to procedure</p> <p>4.3. Pest control activity executed according to superior's instruction in compliance with OSHA requirements and pesticide act</p> <p>4.4. Rodent control executed according to instruction</p> <p>4.5. Disease control activity executed according to superior's instruction in compliance with OSHA requirements and pesticide act</p>

CU Title	CU Code	CU Descriptor	CU Work Activities	Performance Criteria
			<p>7. Report field upkeep and maintenance activities</p>	<p>executed according to company's procedure</p> <p>6.9 Missed bunches census executed according to company's procedure</p> <p>6.10 Sterile palm census executed according to company's procedure</p> <p>6.11 Immature census executed according to company's procedure</p> <p>6.12 Barn owl census executed according to company's procedure</p> <p>6.13 Beneficial plant census executed according to company's procedure</p> <p>6.14 Rat baiting census executed according to company's procedure</p> <p>7.1 Completion of work recorded and submitted to superior</p>

CU Title	CU Code	CU Descriptor	CU Work Activities	Performance Criteria
3. Oil Palm Manuring		<p>This competency unit title describes the competency in oil palm manuring.</p> <p>The competent person shall be able to identify oil palm manuring activities requirement, prepare manuring tools, equipment and material, carry out manuring and report manuring activity</p> <p>The outcome of this competency is to ensure that all activities involved in manuring are carried out smoothly in compliance with OSHA requirements.</p>	<ol style="list-style-type: none"> 1. Organise oil palm manuring activities requirement 2. Prepare manuring tools, equipment & material 3. Carry out oil palm manuring 4. Report manuring activity 	<ol style="list-style-type: none"> 1.1 Number of workers required determined according to work load. 1.2 Materials determined according to requirements 1.3 Vehicle required determined according to manuring activity. 2.1 Manuring tools & equipment functionality checked according to manuals and standard procedure 2.2 Personal Protective Equipment (PPE) obtained according to OSHA requirements 3.1 Oil Palm manuring executed according to Standard Operation Procedure (SOP) and OSHA requirements 4.1 Each area of application field marked according to procedure 4.2 Completion of work recorded and reported to superior

CU Title	CU Code	CU Descriptor	CU Work Activities	Performance Criteria
4. Oil Palm Harvesting & Collection Operation		<p>This competency unit title describes the competency in oil palm harvesting.</p> <p>The competent person shall be able to prepare harvesting tools & equipment, carry out harvesting activity, carry out infield collection and report harvesting activity</p> <p>The outcome of this competency to ensure that all the activities in oil palm harvesting are carried out effectively in compliance with OSHA requirements.</p>	<ol style="list-style-type: none"> 1. Prepare harvesting tools & equipment 2. Carry out harvesting activity 3. Carry out infield collection 4. Report harvesting activity 	<ol style="list-style-type: none"> 1.1 Work order obtained from superior 1.2 Harvesting location determined according to superior's instruction 1.3 Infield checklist obtained 1.4 Tools & equipment functionality confirmed 1.5 Harvesting tools & equipment prepared on site 1.6 PPE obtained according to OSHA requirements 2.1 Fresh Fruit Bunch (FFB) determined according to ripeness standards 2.2 Fresh Fruit Bunch (FFB) harvested according to ripeness standards 3.1 All Fresh Fruit Bunches (FFB) collected from palm base and delivered to the collection points/ bunch platform 3.2 Loose Fruits (LF) collected from palm base and delivered to the collection points/ bunch platform 3.3 Bunches loaded onto transportation vehicles executed according to procedures 4.1 Fruit bunch tagged according to date, quantity, group number and block

CU Title	CU Code	CU Descriptor	CU Work Activities	Performance Criteria
5. Field Operation Administration		<p>This competency unit describes the competency in field operation administration.</p> <p>The competent person in field operation administration shall be able to identify field operation requirements, maintain operation filing system, prepare budget input data, implement workers health & safety requirements compliance, implement plantation operation security procedure, coordinate workers application for work permit, field operation report in compliance with company's policy.</p> <p>The outcome of this competency is to ensure smooth operation of oil palm mechanisation according to organisation's procedures.</p>	<ol style="list-style-type: none"> 1. Identify field operation requirements 2. Maintain daily and monthly operational records 3. Prepare budget input data 	<ol style="list-style-type: none"> 1.1 Organisation procedure on oil palm mechanisation operation interpreted according to procedures 2.1 Organisation procedure on filing system obtained and interpreted 2.2 List of operation records and documents listed out 2.3 All related records and documents filed according to organisation's filing procedures 2.4 Field operation activities report produced and submitted to superior 3.1 Organisation's procedure on budget preparation obtained and interpreted 3.2 Operation records obtained and interpreted to ascertain previous operation cost 3.3 Human resource requirement determined based on operation planning 3.4 Operation tools, equipment & materials required determined according to requirements 3.5 Input data for budget preparation purposes prepared and submitted to superior

CU Title	CU Code	CU Descriptor	CU Work Activities	Performance Criteria
			<p>4. Implement workers health & safety requirements compliance</p> <p>5. Implement plantation operation security procedures</p> <p>6. Coordinate workers application for work permit</p>	<p>4.1 Organisation procedures on health & safety requirements compliance obtained and interpreted</p> <p>4.2 Health & safety compliance requirements determined</p> <p>4.3 List of regulatory body related to occupation ascertained</p> <p>4.4 Workers and operation activity compliance with regulatory requirements confirmed according to accepted standards.</p> <p>5.1 Organisation procedures on plantation operation security obtained and interpreted</p> <p>5.2 Security post and guards availability checked according to relevant locations</p> <p>5.3 Access control on plantation area implemented according to procedures</p> <p>5.4 Workers compliance to security procedures confirmed according to company's procedures</p> <p>6.1 Type of workers needed determined</p> <p>6.2 Workers permit status identified according to Immigration Law.</p> <p>6.3 Renewal of workers permit arranged according to expiry dates</p> <p>6.4 Worker's permit records updated</p>

CU Title	CU Code	CU Descriptor	CU Work Activities	Performance Criteria
			<p>7. Perform payroll requisition administration</p> <p>8. Perform workers welfare coordination</p> <p>9. Carry out oil palm plantation inventory control</p>	<p>according to company's policy.</p> <p>7.1 Workers payroll requirement identified 7.2 Workers salary and allowances calculation carried out 7.3 Workers payroll claims prepared 7.4 Workers payroll claim recorded</p> <p>8.1 Workers health care activities coordinated 8.2 Subsidies distribution coordinated 8.3 Workers lodging & transportation requirements coordinated 8.4 Workers recreation activities coordinated 8.5 Workers welfare activities evaluated 8.6 Workers welfare activities report produced</p> <p>9.1 Oil palm plantation inventory activities planned 9.2 Tools, equipment and stock checked 9.3 Tools, equipment and stock usage coordinated 9.4 Inventory control activities report prepared</p>

CU Title	CU Code	CU Descriptor	CU Work Activities	Performance Criteria
6. Oil Palm Production Operation Quality Control		<p>This competency unit title describes the competency in production operation quality control.</p> <p>The competent person shall be able to identify production operation supervision requirements, plan workers utilisation, perform upkeep and maintenance activities supervision, perform collection & harvesting activities supervision, perform manuring activities supervision, evaluate workers competency level and prepare production operation report.</p> <p>The outcome of this competency is to ensure that total production performance standard is in accordance with the organisation's standard operating procedure (SOP).</p>	<ol style="list-style-type: none"> 1. Identify production operation supervision requirements 2. Plan workers utilisation 3. Perform upkeep and maintenance activities supervision 	<ol style="list-style-type: none"> 1.1 Organisation's supervision and quality control policies obtained 1.2 Organisation's supervision and quality control activities listed out by referring to procedures 2.1 Workers attendance confirmed and recorded according to procedures 2.2 Number of days required to accomplish the job/activities determined based on work load 2.3 Number of workers required determined by referring to operation planning documents 2.4 Workers group ascertained according to production planning 3.1 List of plantation upkeep and maintenance activities determined 3.2 Upkeep and maintenance activities schedule obtained and interpreted according to operation planning 3.3 Areas to be maintained determined and prioritised according to criticality 3.4 Upkeep activities location confirmed according to upkeep schedule 3.5 Methods of executing upkeep activities listed out and determined according to suitability and company procedures 3.6 Progress on upkeep and maintenance

CU Title	CU Code	CU Descriptor	CU Work Activities	Performance Criteria
			<p>4. Perform collection & harvesting activities supervision</p> <p>5. Perform manuring activities supervision</p>	<p>activities confirmed based on scheduled</p> <p>3.7 Completion of work checked and confirmed in accordance with accepted quality standards</p> <p>4.1 Collection and harvesting schedule obtained and interpreted</p> <p>4.2 Collection & harvesting activities requirements arranged and distributed according to groups/units</p> <p>4.3 Collection & harvesting records assessed to check production performance</p> <p>4.4 Organisation's performance index of total production obtained from management</p> <p>4.5 Method to improve production performance recommended to management</p> <p>4.6 Issues and problems in collection & harvesting activities compiled and reported to management</p> <p>5.1 Manuring schedule prepared according to oil palm manuring standard procedures</p> <p>5.2 Types of fertilisers determined according to company procedure</p> <p>5.3 Manuring activities determined</p>

CU Title	CU Code	CU Descriptor	CU Work Activities	Performance Criteria
			<p>6. Evaluate workers competency level</p> <p>7. Prepare production operation report</p>	<p>according to prepared schedule</p> <p>5.4 Completion of work checked and confirmed in accordance with accepted manuring standards</p> <p>6.1 Organisation's standard of workers competency level obtained from management</p> <p>6.2 Workers competency level assessed using various appraisal technique</p> <p>6.3 Gap of actual and expected performance determined</p> <p>6.4 Recommendation to close the gaps in knowledge, skills and attitude proposed to management</p> <p>7.1 Records of supervision and result of evaluation activities reviewed and compiled</p> <p>7.2 Production operation supervision report produced and submitted to superior</p>

CU Title	CU Code	CU Descriptor	CU Work Activities	Performance Criteria
7. Oil Palm Mechanisation Application Supervision		<p>The competency unit title describes the competency in oil palm mechanisation application supervisor.</p> <p>The competent person shall be able to identify plantation mechanisation application requirements, plan mechanisation operation, evaluate mechanisation operation performance and prepare mechanisation operation report</p> <p>The outcome of this competency is to ensure that all mechanisation activities involved in organisation's effectively coordinated and supported</p>	<ol style="list-style-type: none"> 1. Identify plantation mechanisation application requirements 2. Coordinate mechanisation operation 3. Evaluate mechanisation operation performance 4. Prepare mechanisation operation report 	<ol style="list-style-type: none"> 1.1 Company's mechanisation application Standard Operation Procedures (SOP) obtained 1.2 Company's operational program obtained 1.3 Type of machines and implements determined. 1.4 Machine and implements maintenance schedule obtained 2.1 Machine and implements functionality status confirmed 2.2 Types of machine and implements listed out according to records 2.3 Machines and implements allocated according to production schedule 3.1 Mechanisation operation performance analysed based on production record 4.1 Mechanisation application report prepared and submitted to superior

CU Title	CU Code	CU Descriptor	CU Work Activities	Performance Criteria
8. Oil Palm Nursery Operation Supervision		<p>The competency unit title describes the competency in nursery operation supervision.</p> <p>He or she is responsible to monitor all the operation activities as per nursery work schedule.</p> <p>The competent person shall be able to identify nursery operation supervision requirement, perform nursery operation cost monitoring, monitor nursery maintenance activities, monitor nursery work efficiency, monitor stock inventory, carry out nursery production performance assessment and prepare nursery operation supervision report</p> <p>The outcome of this competency is to ensure all the operation work in nursery will be run smoothly according organisation planning</p>	<ol style="list-style-type: none"> 1. Identify nursery operation supervision requirement 2. Perform nursery operation cost monitoring 3. Monitor nursery maintenance activities 4. Monitor nursery work efficiency 	<ol style="list-style-type: none"> 1.1 Organisation procedure of nursery operational acquired 1.2 Organisation structure acquired 2.1 Costing for nursery operation checked according to estimated operational expenditure 2.2 Nursery operation activities identified 2.3 Allocation budget for nursery operation identified according to work activities 2.4 Nursery operation cost controlled according to allocated budget 3.1 List of nursery maintenance activities identified 3.2 Schedule of nursery maintenance activities interpreted 3.3 Costing for nursery maintenance activities checked according to estimated operational expenditure 3.4 Nursery maintenance activities checked according to maintenance record 4.1 Nursery operational planning interpreted 4.2 Types of nursery operation determined 4.3 Nursery operational work in progress

CU Title	CU Code	CU Descriptor	CU Work Activities	Performance Criteria
			5. Monitor stock inventory 6. Carry out nursery production performance assessment 7. Prepare nursery operation supervision report	checked 5.1 Types of stock inventory determined 5.2 Stock checked according to inventory records 6.1 Nursery production output checked against nursery operation planning 7.1 Nursery operational report produced 7.2 Nursery operational report submitted to superior

CURRICULUM of COMPETENCY UNIT (CoCU)

Sub Sector	PLANTATION						
Job Area	OIL PALM PLANTATION OPERATION & SUPERVISION						
Competency Unit Title	OIL PALM PLANTING OPERATION						
Learning Outcome	<p>The person who is competent in this CU shall be able to ensure that all activities involved in oil palm planting operation are carried out according to plan and organisation's SOP. Upon completion of this competency unit, trainees will be able to:-</p> <ul style="list-style-type: none"> • Plan oil palm planting operation • Perform oil palm lining • Carry out oil palm planting • Assess oil palm planting operation activities 						
Competency Unit ID	RB-081-3:2012-C01	Level	3	Training Duration	220 Hours	Credit Hours	22
Work Activities	Related Knowledge	Related Skills	Attitude / Safety / Environmental	Training Hours	Delivery Mode	Assessment Criteria	
1. Plan oil palm planting operation	<ul style="list-style-type: none"> i. Procedure to acquire organisation's procedure on oil palm planting activities ii. Location of organisation procedure on oil palm planting activities iii. Organisation's oil palm planting activities procedure iv. Procedure of acquiring estate and topography map v. Purpose of estate and topography map vi. Map and topography reading technique vii. Method of determining demarcation area 			15 hours	Lecture and discussion	<ul style="list-style-type: none"> i. Procedure of acquiring organisation procedure on oil palm planting activities ascertained ii. Location of organisation procedures identified iii. Organisation procedure on oil palm planting activities acquired in accordance with company's 	

Work Activities	Related Knowledge	Related Skills	Attitude / Safety / Environmental	Training Hours	Delivery Mode	Assessment Criteria
	<ul style="list-style-type: none"> viii. Method of determining parameter of planting area ix. Types of schedule for planting operation such as: <ul style="list-style-type: none"> • Daily • Monthly x. Method of determining quantity and quality of oil palm seedling xi. Method of determining operation target xii. Types and function of tools and equipment for planting operation xiii. Plantation topography xiv. Man to land ratio requirement xv. Man to land ratio calculation xvi. Planting operation activities xvii. Types of planting categories which include: <ul style="list-style-type: none"> • Re-planting • New planting xviii. Method of determining planting activities time frame xix. Method of preparing operation plan 					<ul style="list-style-type: none"> iv. procedure Work order collected from superior according to company's procedure v. Work order translated according to operation plan vi. Estate and topography map collected according to work order and company's procedure vii. Demarcation and parameter ascertained according to work order viii. Planting operation schedule construed according to operation plan ix. Tool and equipment listed out according to work activities x. Man power requirement determined

Work Activities	Related Knowledge	Related Skills	Attitude / Safety / Environmental	Training Hours	Delivery Mode	Assessment Criteria
		<ul style="list-style-type: none"> i. Determine location/ source of organisation's procedure on oil palm planting activities ii. Retrieve organisation's procedure on oil palm planting activities iii. Acquire estate and topography map iv. Acquire work order from superior v. Interpret work order according to operation plan vi. Determine demarcation area vii. Determine parameter of planting area viii. Acquire planting operation schedule ix. Interpret planting operation schedule x. Determine number of oil palm seedling to be planted xi. Determine planting operation time frame target xii. Determine types of terrain contour 		30 hours	Demonstration & Observation	<ul style="list-style-type: none"> xi. Number of oil palm seedling calculated according to planted area parameter xii. Planting operation target confirmed according to work schedule xiii. Quality of seedling to be planted determined according to procedure xiv. Planting operation schedule interpreted xv. Planting operation time frame confirmed according to planting operation target xvi. Planting operation activities confirmed in accordance with work

Work Activities	Related Knowledge	Related Skills	Attitude / Safety / Environmental	Training Hours	Delivery Mode	Assessment Criteria
		accord xiii. Determine types and quantity of tools and equipment for planting operation xiv. Select tools and equipment for planting operation xv. Calculate number of seedling to be planted xvi. Calculate manpower requirement xvii. Determine planting operation activities xviii. Identify current situation xix. Prepare daily planting operation plan	<u>Attitude:</u> i. Precise in sourcing document ii. Meticulous in identifying and gathering information iii. Meticulous in interpreting document			schedule
2. Perform oil palm lining	i. Procedure of visiting planting area ii. Types of land contour iii. Definition of planting density iv. Types of planting density which include: • 149 palm/ha			25 hours	Lecture	i. Area to perform oil palm planting confirmed ii. Site of proposed planting area visited according to company's

Work Activities	Related Knowledge	Related Skills	Attitude / Safety / Environmental	Training Hours	Delivery Mode	Assessment Criteria
	<ul style="list-style-type: none"> • 146 palm/ha • 143 palm/ha • 139 palm/ha • 136 palm/ha • 134 palm/ha • 131 palm/ha • 128 palm/ha v. Parameter planting area vi. Types of land contour which include: <ul style="list-style-type: none"> • Flat land • Hilly • Swamp vii. Definition and types of planting pattern viii. Standard of oil palm planting distance ix. Estate map boundary x. Map reading technique xi. Types of measuring such as: <ul style="list-style-type: none"> • Measuring tape • Ropes • Theodolite • Wood peg xii. Types of tools and equipment for holing activities xiii. Holing method and size xiv. Types of holing xv. Method of measuring planting distance 					<ul style="list-style-type: none"> procedure iii. Planting area condition checked according to company's procedure iv. Types of land contour listed out v. Company's procedure on oil palm planting density interpreted vi. Company's parameter of planting area ascertained according to company's requirement vii. Oil palm planting density ascertained based on parameter of planting area viii. Company's policy on planting pattern ascertained ix. Oil palm planting density record assessed x. Oil palm planting distance

Work Activities	Related Knowledge	Related Skills	Attitude / Safety / Environmental	Training Hours	Delivery Mode	Assessment Criteria
		<ul style="list-style-type: none"> i. Determine area to perform oil palm planting ii. Visit proposed planting area iii. Inspect condition of planting area iv. Determine types of land contour v. Confirm oil palm planting density base on parameter of planting area vi. Determine company's policy on planting pattern vii. Determine oil palm planting area according to terrain contour viii. Select tools, equipment and material for lining and holing activities ix. Execute oil palm lining activities x. Determine planting distance xi. Execute holing activities 	<p><u>Attitude:</u></p> <ul style="list-style-type: none"> i. Knowledgeable in executing task <p><u>Safety:</u></p> <ul style="list-style-type: none"> i. Wear suitable PPE while carry out oil palm lining activities 	45 hours	Demonstration & Observation	<ul style="list-style-type: none"> confirmed according to company's requirement xi. Oil palm planting area and parameter confirmed according to company's procedure xii. Lining for oil palm planting activities performed according to company's requirement

Work Activities	Related Knowledge	Related Skills	Attitude / Safety / Environmental	Training Hours	Delivery Mode	Assessment Criteria
3. Carry out oil palm planting	i. Method of determining quantity of seedling ii. Abnormal seedling character iii. Seedling variety iv. Planting foundation such as: <ul style="list-style-type: none"> • Terrace • Platform • Drainage • Fence v. Seedling planting technique vi. Seedling planting activities			25 hours	Lecture and discussion	i. Work instruction collected from superior according to company's procedure ii. Work instruction construed according to company's requirement
		i. Interpret work instruction ii. Confirm seedling variety iii. Determine numbers of oil palm seedling required according to work instruction iv. Execute seedling planting according to company's SOP	<u>Attitude:</u> i. Knowledgeable in oil palm planting ii. Meticulous in selecting seedling <u>Safety:</u> i. Adhere to safety and health requirement ii. Wear PPE while	45 hours	Demonstration & Practical Exercise	iii. Variety of seedling ascertained according to work instruction iv. Seedling variety based on tagging confirmed v. Number of seedling planted calculated vi. Seedling planting activities executed correctly vii. Daily planting progress

Work Activities	Related Knowledge	Related Skills	Attitude / Safety / Environmental	Training Hours	Delivery Mode	Assessment Criteria
			carry out oil palm planting activities			documented according to company's SOP
4. Assess oil palm planting operation activities	<ul style="list-style-type: none"> i. Progress report format ii. Method of determining effectiveness of oil palm plantation activities iii. Definition and purpose of progress record iv. Progress report format 			15 hours	Lecture	<ul style="list-style-type: none"> i. Planting schedule interpreted ii. Daily progress record and report confirmed according to schedule
		<ul style="list-style-type: none"> i. Review planting schedule ii. Check daily progress record according to schedule iii. Assess efficiency of oil palm plating activities iv. Compile and summarise daily progress record v. Prepare oil palm planting operation report vi. Submit oil palm planting operation report to superior 		20 hours	Demonstration & Observation	<ul style="list-style-type: none"> iii. Oil palm plantation performance measured according to schedule iv. Daily progress report concluded according to work schedule v. Report of oil palm operation activities produced correctly according to format vi. Oil palm planting operation activities report forwarded to superior

Work Activities	Related Knowledge	Related Skills	Attitude / Safety / Environmental	Training Hours	Delivery Mode	Assessment Criteria
			<u>Attitude:</u> i. Meticulous in assessing oil palm planting activities ii. Knowledgeable in preparing report iii. Diplomatic in submitting report			according to company/s procedure

Employability Skills

Core Abilities	Social Skills
01.01 Identify and gather information. 01.02 Document information procedures or processes. 02.01 Interpret and follow manuals, instructions and SOP's. 02.02 Follow telephone/telecommunication procedures. 02.03 Communicate clearly. 02.04 Prepare brief reports and checklist using standard forms. 02.05 Read/Interpret flowcharts and pictorial information. 03.01 Apply cultural requirement to the workplace. 03.02 Demonstrate integrity and apply practical practices. 03.03 Accept responsibility for own work and work area. 03.04 Seek and act constructively upon feedback about work performance. 03.06 Respond appropriately to people and situations. 03.07 Resolve interpersonal conflicts. 06.01 Understand systems. 06.02 Comply with and follow chain of command. 06.03 Identify and highlight problems. 06.04 Adapt competencies to new situations/systems. 01.04 Analyse information.	1. Communication skills 2. Conceptual skills 3. Interpersonal skills 4. Learning skills 5. Leadership skills 6. Multitasking and prioritizing 7. Self-discipline 8. Teamwork

Core Abilities	Social Skills
<p>04.03 Organize and maintain own workplace.</p> <p>04.04 Apply problem solving strategies.</p> <p>04.05 Demonstrate initiative and flexibility.</p> <p>01.11 Apply thinking skills and creativity.</p> <p>02.10 Prepare reports and instructions.</p> <p>02.11 Convey information and ideas to people.</p> <p>03.09 Manage and improve performance of individuals.</p> <p>03.13 Develop and maintain TEM harmony and resolve conflicts.</p> <p>03.14 Facilitate and coordinate TEMs and ideas.</p> <p>03.15 Liase to achieve identified outcomes.</p> <p>03.16 Identify and assess client/customer needs.</p> <p>05.01 Implement project/work plans.</p> <p>05.02 Inspect and monitor work done and/or in progress.</p>	

Tools, Equipment and Materials (TEM)

ITEMS	RATIO (TEM : Trainees)
1. Whiteboard/ flipchart	1:25
2. Stationeries	As required
3. RSPO document/ MSPO document	1:1
4. Estate map / topography map	1:1
5. Related Act documents	
• Pesticide act 1974	1:1
• OSHA act 1994	1:1
• Environmental Quality (amendment) act 2012	1:1
• Wildlife Conservation act 2010	1:1
6. MPOB standard document	1:1
7. Personal Protective Equipment (PPE)	1:1
8. First aid kit	1:25
9. Heavy vehicles for planting operation	
• Tractor	1:25
• Tractor implements	1:25
• Bulldozer	1:25
• Excavator	1:25
• Trailer	1:25
10. Hand tools for planting activities (such as; hoe, long knife, wire cutter, club hammer, compass)	1:1
11. Tally counter	1:1
12. Muster chit	1:1
13. Log book	1:1
14. Fertiliser	As required
15. Pesticide	As required
16. Seed (such as; oil palm seedling, cover crop)	As required
17. Projector	1:25

REFERENCES

1. Susan M. Martin (2003), *The UP Saga*, Routledge, ISBN-13: 978-8791114205
2. Kulthida Chalooddong (2011), *An Economic Analysis Of Oil Palm Plantation in Northeastern Thailand: A Case Study Of Seka District In Nong Khai Province*, LAP LAMBERT Academic Publishing, ISBN-13: 978-3844303544
3. Esnan Ab. Ghani & Idris Omar (2009), *Perusahaan Sawit di Malaysia*, ISBN : 978-967-961-163-2
4. Esnan Ab. Ghani, Mohd. Tayeb Dolmat & Mohd. Basri Wahid (2002), *Penanaman & Penyelenggaraan Sawit Untuk Pekebun Kecil*, ISBN : 967-961-088-8
5. *Environmental Quality Management in the Plantations*, Malaysian Oil Palm Growers' Council (1995), ISBN-13: 978-9679610581
6. R.H.V. Corley (2003), *The Oil Palm (World Agriculture Series)*, Wiley-Blackwell, ISBN-13: 978-0632052127
7. Jabatan Pertanian (2005) *Pakej Teknologi Kelapa Sawit*, ISBN : 983-047-064-4

CURRICULUM of COMPETENCY UNIT (CoCU)

Sub Sector		PLANTATION						
Job Area		OIL PALM PLANTATION OPERATION & SUPERVISION						
Competency Unit Title		OIL PALM FIELD UPKEEP AND MAINTENANCE						
Learning Outcome		<p>The person who is competent in this CU shall be able to ensure that all activities in field upkeep and maintenance are carried out effectively. Upon completion of this competency unit, trainees will be able to:-</p> <ul style="list-style-type: none"> • Identify field upkeep and maintenance activities • Perform road and bridges maintenance • Perform oil palm maintenance • Perform Pest & Disease control • Perform weed control • Perform oil palm census activities 						
Competency Unit ID		RB-081-3:2012-C02	Level	3	Training Duration	310 Hours	Credit Hours	31
Work Activities	Related Knowledge	Related Skills	Attitude / Safety / Environmental	Training Hours	Delivery Mode	Assessment Criteria		
1. Identify field upkeep and maintenance activities	i. Procedure of acquiring work order ii. Definition and purpose of work order iii. Definition and purpose of work schedule iv. Location/source of work schedule v. Procedure of acquiring work schedule vi. Types of schedule for upkeep and maintenance activities, such as : <ul style="list-style-type: none"> • Maintenance schedule • Manuring schedule • Harvesting interval vii. Field upkeep activities viii. Field maintenance work activities			10 hours	Lecture	i. Location of work order confirmed ii. Procedure of acquiring work order confirmed iii. Work order retrieved from superior in accordance with organisational procedure iv. Work schedule obtained from superior according to company's procedure v. Upkeep and		

Work Activities	Related Knowledge	Related Skills	Attitude / Safety / Environmental	Training Hours	Delivery Mode	Assessment Criteria
		<ul style="list-style-type: none"> i. Determine procedure to acquire work order ii. Acquire annual upkeep and maintenance schedule iii. Collect work order from superior iv. Interpret work schedule based on operational plan v. Interpret upkeep and maintenance schedule vi. List out types of maintenance work to be carried out 	<p><u>Attitude:</u></p> <ul style="list-style-type: none"> i. Precise in sourcing document ii. Meticulous in identifying and gathering information iii. Meticulous in interpreting document 	20 hours	Demonstration & Observation	<ul style="list-style-type: none"> vi. Work schedule interpreted in accordance with work activities vii. Maintenance schedule construed according to operational plan viii. Upkeep and maintenance schedule translated according to operational plan

Work Activities	Related Knowledge	Related Skills	Attitude / Safety / Environmental	Training Hours	Delivery Mode	Assessment Criteria
2. Perform road and bridges maintenance	i. Road and bridge maintenance activities, which include: <ul style="list-style-type: none"> • Road maintenance • Trenching maintenance • Bridge maintenance • Fence maintenance • Culvert maintenance ii. Road and bridge maintenance requirement, such as: <ul style="list-style-type: none"> • Road and bridge maintenance SOP • Maintenance budget iii. Types of tools and equipment for road and bridge maintenance work iv. Types of materials for road and maintenance work v. Types of PPE for oil palm maintenance activities vi. First aid kits contents vii. Types and specification of roads viii. Types and specification of bridges ix. Map reading technique x. Roads gradient, such as: <ul style="list-style-type: none"> • Hilly • Swampy xi. Definition of company's road			14 hours	Lecture	i. Work instruction interpreted in accordance with company's requirement ii. Road and bridge maintenance activities requirement ascertained in accordance with company's SOP iii. Tools and equipment for maintenance activities listed according to work activities iv. Tools and equipments functionality for maintenance activities inspected according to manufacturer's manual v. PPE for oil palm maintenance activities arranged according to work activities vi. Content of first aid kits checked according to OSHA requirement vii. Site visit carried

Work Activities	Related Knowledge	Related Skills	Attitude / Safety / Environmental	Training Hours	Delivery Mode	Assessment Criteria
	<p>network, such as:</p> <ul style="list-style-type: none"> • Collection road • Main road <p>xii. Site visit procedure</p> <p>xiii. Method of inspection on road condition</p> <p>xiv. Types of road damages</p> <p>xv. Types of bridge damages</p> <p>xvi. Identify types of roads maintenance, such as:</p> <ul style="list-style-type: none"> • Road site pruning • Road spraying • Rolling • Patching <p>xvii. Technique of marking road site</p> <p>xviii. Types and function of machinery for road maintenance</p> <p>xix. Method of checking road maintenance quality</p> <p>xx. Bridge area condition, such as:</p> <ul style="list-style-type: none"> • Peat • Flat <p>xxi. Types of materials for bridges maintenance</p> <p>xxii. Technique of repairing wooden bridge</p> <p>xxiii. Technique of repairing concrete bridge</p> <p>xxiv. Types and category of timber</p> <p>xxv. Concrete material</p>					<p>out according to company's procedure</p> <p>viii. Road condition inspected in accordance with company's SOP</p> <p>ix. Road to be maintained measured and marked</p> <p>x. Road maintenance carried out according to work instruction and company's requirement</p> <p>xi. Road maintenance quality checked according to work instruction</p> <p>xii. Bridge condition determined according to company's SOP</p> <p>xiii. Wooden and concrete bridge restored in accordance with work instruction</p> <p>xiv. Material for gate maintenance</p>

Work Activities	Related Knowledge	Related Skills	Attitude / Safety / Environmental	Training Hours	Delivery Mode	Assessment Criteria
	<p>and technique of mixing</p> <p>xxvi. Types of estate gate and component</p> <p>xxvii. Trenching maintenance activities, such as:</p> <ul style="list-style-type: none"> • Desilting • Soil erosion • Clogging <p>xxviii. Types of cattle grid, such as:</p> <ul style="list-style-type: none"> • Wooden • Metal <p>xxix. Types of materials for cattle grid maintenance</p> <p>xxx. Wooden cattle grid maintenance</p> <p>xxxi. Culvert maintenance activities</p> <p>xxxii. Types of materials used for culvert maintenance work</p> <p>xxxiii. Types and size of culvert</p> <p>xxxiv. Field drainage specification</p> <p>xxxv. Gradient of the drainage such as:</p> <ul style="list-style-type: none"> • Peat • Hilly • Flat • Riverine <p>xxxvi. Types of drain, such as:</p> <ul style="list-style-type: none"> • Outlet drain • Main drain 					<p>arranged on site according to company's requirement</p> <p>xv. Estate gate repaired according to work instruction and company's requirements</p> <p>xvi. Site for trenching maintenance activities confirmed according to work order</p> <p>xvii. Trench condition confirmed according to company's requirement</p> <p>xviii. Trench maintenance carried out according to company's SOP and work instruction</p> <p>xix. Cattle grid condition checked according to company's SOP</p> <p>xx. Metal and wooden cattle</p>

Work Activities	Related Knowledge	Related Skills	Attitude / Safety / Environmental	Training Hours	Delivery Mode	Assessment Criteria
	<ul style="list-style-type: none"> • Collection drain • Subsidiary drain xxxvii. Soil specification and characteristic, such as: <ul style="list-style-type: none"> • Costal soil • Peat soil 					grid repaired according to work instruction and company's requirement xxi. Culvert
		i. Interpret work instruction ii. Determine road and bridge maintenance requirement iii. Determine road and bridge maintenance activities iv. Determine types of tools and equipment according to maintenance requirement v. Determine PPE for oil palm maintenance activities vi. Determine types of materials according to maintenance requirements vii. Determine and mark site on block map required for maintenance viii. Execute site visit ix. Determine extent of damages to the road x. Prepare Bill of Materials (BOM) for specified road		45 hours	Demonstration & Observation	xxii. Drainage maintenance executed according to work instruction and company's requirement xxiii. Road and bridge maintenance activities documented according to company's procedure

Work Activities	Related Knowledge	Related Skills	Attitude / Safety / Environmental	Training Hours	Delivery Mode	Assessment Criteria
		<p style="text-align: center;">maintenance according to specification</p> <ul style="list-style-type: none"> xi. Mark road site to be maintained xii. Execute road maintenance xiii. Inspect quality of road maintenance xiv. Determine bridge condition xv. Determine types of drainage to be repaired xvi. Prepare bill of material required for bridge maintenance xvii. Repair wooden bridge xviii. Repair concrete bridge xix. Check work maintenance quality for bridge xx. Determine location of fence to be repaired xxi. Repair fence according to requirements xxii. Determine site to carry out gate maintenance xxiii. Inspect gate condition xxiv. Prepare materials for gate maintenance xxv. Repair gate according to 				

Work Activities	Related Knowledge	Related Skills	Attitude / Safety / Environmental	Training Hours	Delivery Mode	Assessment Criteria
		requirement xxvi. Check gate maintenance work quality xxvii. Determine site to carry out trenching maintenance xxviii. Inspect trench condition according to work instruction xxix. Prepare material for trench maintenance activities xxx. Execute trench maintenance activities according to requirement xxxi. Check trenching maintenance work quality xxxii. Determine site to carry out cattle grid maintenance xxxiii. Inspect cattle grid condition xxxiv. Prepare materials for cattle grid maintenance xxxv. Repair wooden and metal cattle grid xxxvi. Inspect cattle grid maintenance work quality xxxvii. Execute culvert maintenance activities xxxviii. Check culvert maintenance work quality xxxix. Execute desilting				

Work Activities	Related Knowledge	Related Skills	Attitude / Safety / Environmental	Training Hours	Delivery Mode	Assessment Criteria
		maintenance xl. Execute soil erosion maintenance xli. Execute drainage clogging maintenance xlii. Check drainage system maintenance work quality xliii. Record road and bridge maintenance activities	<u>Attitude:</u> i. Knowledgeable in road and bridge maintenance ii. Systematic in executing road and bridge maintenance <u>Safety:</u> iii. Wear suitable PPE while carry out oil palm lining activities iv. Adhere to OSHA requirement			
3. Perform oil palm maintenance	i. Oil palm maintenance activities, such as : <ul style="list-style-type: none"> • Pruning • Stacking • Epiphyte removing • Thinning • De creeping ii. Maintenance schedule such as: <ul style="list-style-type: none"> • Weekly 			14 hours	Lecture	i. Company's standard operating procedure on oil palm maintenance determined according to company's

Work Activities	Related Knowledge	Related Skills	Attitude / Safety / Environmental	Training Hours	Delivery Mode	Assessment Criteria
	<ul style="list-style-type: none"> • Monthly • Annual iii. Types of schedule for oil palm maintenance, such as: <ul style="list-style-type: none"> • Gantt Chart • CPM iv. Types of tools, equipment and material for oil palm maintenance activities v. Front pruning activities such as: <ul style="list-style-type: none"> • Frond cutting • Frond stacking vi. Pruning standard, such as: <ul style="list-style-type: none"> • 5-7 years=48-64 frond/palm • 8-14 years=40-48 fronds/palm • > 14 years=32 fronds/palm vii. De-creeping activities viii. De-creeping technique ix. Types of epiphyte x. Technique of removing epiphyte xi. Purpose and types of oil palm thinning activities xii. Types of palm to be thinning such as: <ul style="list-style-type: none"> • Unproductive palms • Etiolated • Sterile palm • Disease infected palm xiii. Thinning technique 					<ul style="list-style-type: none"> procedure ii. Oil palm maintenance schedule determined according to company's procedure iii. Work instruction interpreted according to operational plan iv. Maintenance activities listed in accordance with maintenance schedule and work instruction v. Tools, equipment and materials required to carry out oil palm maintenance arranged on site according to work instruction and company's procedure vi. Block to carry

Work Activities	Related Knowledge	Related Skills	Attitude / Safety / Environmental	Training Hours	Delivery Mode	Assessment Criteria
	such as: <ul style="list-style-type: none"> • Injection • Felling 	<ol style="list-style-type: none"> i. Determine company's standard operating procedure on oil palm maintenance activities ii. Interpret work order from superior iii. Determine oil palm maintenance schedule iv. Determine types of oil palm maintenance activities v. Prepare tools and equipment required for oil palm maintenance vi. Determine work area to carry out maintenance activities vii. Execute frond pruning viii. Execute frond stacking ix. Execute de-creeping activities x. Execute epiphyte removed and killed activities xi. Carry out thinning activities xii. Record oil palm maintenance activities 	<p><u>Attitude:</u></p> <ol style="list-style-type: none"> i. Knowledgeable in oil palm maintenance 	45 hours	Demonstration & Observation	out frond pruning ascertained according to work instruction vii. Frond pruning carried out according to company's standard viii. De-creeping executed according to company's standard and work instruction ix. Epiphyte removed according to work instruction x. Thinning activities carried out according to work instruction xi. Oil palm maintenance activities documented according to company's SOP

Work Activities	Related Knowledge	Related Skills	Attitude / Safety / Environmental	Training Hours	Delivery Mode	Assessment Criteria
			ii. Systematic in performing oil palm maintenance iii. Follow company's procedure <u>Safety:</u> i. Wear suitable PPE while carry out oil palm maintenance activities ii. Adhere to OSHA requirement iii. Adhere to SOP			
4. Perform pest and disease control	i. Types of disease, such as: <ul style="list-style-type: none"> • Ganoderma • Bagworm • Rhinoceros beetle • Incursions elephant ii. Pest and disease control method, such as: <ul style="list-style-type: none"> • Biology • Chemistry iii. Determine Types tools and equipment for P&D control activities iv. OSHA requirement in oil palm maintenance activities v. Pesticide act vi. Types of pest such as: <ul style="list-style-type: none"> • Defoliating • Beetles 			14 hours	Lecture	i. Work instruction interpreted according to company's requirement ii. Block map assessed according to work instruction iii. Oil palm block confirmed according to work instruction iv. Census report interpreted in accordance with work instruction v. Types of disease ascertained according to

Work Activities	Related Knowledge	Related Skills	Attitude / Safety / Environmental	Training Hours	Delivery Mode	Assessment Criteria
	<ul style="list-style-type: none"> vii. <ul style="list-style-type: none"> • Caterpillar Rodent control activities viii. Rat species, such as: <ul style="list-style-type: none"> • Wood rat • Padi field rat ix. Baiting programme, such as: <ul style="list-style-type: none"> • Pre-baiting census • Baiting • Pos baiting census • Recording x. Types of oil palm disease, such as: <ul style="list-style-type: none"> • Ganoderma • Colletotrichum spp • Fassarium spp xi. Disease control method 					<ul style="list-style-type: none"> work instruction and census report vi. Pest and disease control activities listed according to work instruction and company's requirement vii. Company's procedure on handling P&D control tools and equipment interpret viii. Availability of P&D control equipment confirmed according to work instruction
		<ul style="list-style-type: none"> i. Determine block to carry out P&D activities ii. Examine census report according to work instruction iii. Determine Types of disease iv. Determine pest and disease control activities to be executed v. Review company's procedure on handling P&D control tools and equipment 		50 hours	Demonstration & Observation	<ul style="list-style-type: none"> ix. Functionality of P&D control equipment tested according to manufacturer manual and company's procedure x. OSHA requirement and pesticide acts confirmed in accordance with company's requirements xi. Pest control activities

Work Activities	Related Knowledge	Related Skills	Attitude / Safety / Environmental	Training Hours	Delivery Mode	Assessment Criteria
		<ul style="list-style-type: none"> vi. Check P&D control equipment availability and functionality vii. Determine OSHA requirement and pesticide acts viii. Execute pest control activities ix. Execute rodent control activities x. Determine block to carry out disease control xi. Execute disease control activities xii. Record pest and disease control activities 	<p><u>Attitude:</u></p> <ul style="list-style-type: none"> i. Knowledgeable in carry P&D control activities ii. Systematic in performing P&D control iii. Meticulous in executing pesticide <p><u>Safety:</u></p> <ul style="list-style-type: none"> i. Wear pest and disease PPE while carry out oil palm lining activities ii. Adhere to OSHA requirement iii. Adhere to SOP iv. Pesticide act 			<ul style="list-style-type: none"> executed in accordance with work instruction and in compliance with OSHA requirement and pesticides act xii. Block to carried out rodent control activities ascertained according to work instruction xiii. Rodent control activities carried out in accordance with work instruction and in compliance with OSHA requirement and pesticides act xiv. Block to carry out disease control activities ascertained according to work instruction and company's requirement xv. Disease control activities carried out according to superior instruction and in compliance with OSHA requirement and

Work Activities	Related Knowledge	Related Skills	Attitude / Safety / Environmental	Training Hours	Delivery Mode	Assessment Criteria
						xvi. pesticide act P&D control activities documented according to company's procedure
5. Perform weed control	i. Weed control in palm circles, such as: <ul style="list-style-type: none"> • Circle size • Circle cleanliness • Spraying frequency ii. Weed control method, such as: <ul style="list-style-type: none"> • Palm circle • Along drain edge • Along road iii. Types of tools and equipment for weed control activities iv. Procedure and technique of diluting pesticide and herbicide material v. Types of material required for weed control vi. Types of weed such as: <ul style="list-style-type: none"> • Woodies • Lalang vii. Woody erects slashing equipment, such as: <ul style="list-style-type: none"> • Grass cutter • Parang viii. Weed spraying equipment, such as: <ul style="list-style-type: none"> • Knapsack sprayer 			14 hours		i. Work instruction on weed control activities confirmed according to company's requirement and work schedule ii. Company's SOP on weed control activities interpreted in accordance with work instruction iii. OSHA requirements and pesticide act interpreted in accordance with company's SOP and requirement iv. Tools and equipment availability confirmed according to company's procedure

Work Activities	Related Knowledge	Related Skills	Attitude / Safety / Environmental	Training Hours	Delivery Mode	Assessment Criteria
	<ul style="list-style-type: none"> • Motorised power sprayer ix. Spraying technique x. Types of herbicide 					v. Quantity of material required for weed controls activities confirmed according to work instruction
		<ul style="list-style-type: none"> i. Interpret work instruction on oil palm weed control activities ii. Determine company's SOP on weed control activities iii. Determine OSHA and pesticide acts compliance requirement iv. Check tools and equipment availability and functionality for weed control v. Calculate quantity of material for determined activities vi. Check weed control materials availability and sufficiency according to work instruction vii. Determine types of weed viii. Execute woody erects slashing according to instruction ix. Select suitable 		40 hours		<ul style="list-style-type: none"> vi. Weed slashing executed according to correct technique vii. Spraying equipment selected according to work instruction viii. Herbicide and pesticide diluted according to manufactures instruction and OSHA requirement ix. P&D control activities carried out according to work instruction and OSHA requirement x. Spraying activities carry out according to work instruction and in compliance with OSHA and pesticide acts

Work Activities	Related Knowledge	Related Skills	Attitude / Safety / Environmental	Training Hours	Delivery Mode	Assessment Criteria
		spraying equipment as per work activities x. Mix herbicide according to manufacturer's instruction xi. Execute P&D control activities according to instruction xii. Record P&D control activities	<p><u>Attitude:</u></p> i. Knowledgeable in weed control activities ii. Ensure good housekeeping			xi. P&D control activities documented according to company's procedure

Work Activities	Related Knowledge	Related Skills	Attitude / Safety / Environmental	Training Hours	Delivery Mode	Assessment Criteria
6. Perform oil palm census	<ul style="list-style-type: none"> i. Oil palm census procedure ii. Oil palm census schedule iii. Types of palm census, such as : <ul style="list-style-type: none"> • Black bunch • Fresh fruit bunch iv. Types of defected palm census, such as : <ul style="list-style-type: none"> • Ganoderma • Bagworm • Rhinoceros beetle v. Incursions elephant vi. Census form format vii. Census record procedure viii. Reporting format ix. Report submission procedure x. Method of distinguishing unproductive palm 			14 hours		<ul style="list-style-type: none"> i. Company's procedure of oil palm census activities ascertained ii. Company's oil palm census schedule confirmed according to work instruction and company's requirements iii. Ganoderma census executed according to company's procedure iv. Bagworm census executed according to company's procedure
		<ul style="list-style-type: none"> i. Determine company's procedure on oil palm census activity ii. Determine company's schedule on oil palm census activities iii. Execute stand per hectare census 		30 hours		<ul style="list-style-type: none"> v. Rhinoceros beetle census executed according to company's procedure vi. Incursions elephant census

Work Activities	Related Knowledge	Related Skills	Attitude / Safety / Environmental	Training Hours	Delivery Mode	Assessment Criteria
		<ul style="list-style-type: none"> iv. Execute Black bunch census (BBC) v. Execute Fresh Fruit Bunch grading census vi. Execute missed bunches census vii. Execute sterile palm census viii. Execute immature palm census ix. Execute barn owl census x. Execute beneficial plant census xi. Execute rat baiting census xii. Record census outcome according to company's procedure xiii. Prepare oil palm census activities report and submit to superior 	<p><u>Attitude:</u></p> <ul style="list-style-type: none"> i. Systematic in performing census activities ii. Meticulous when filling census checklist iii. Knowledgeable in oil palm census activities iv. Meticulous in report writing 			<ul style="list-style-type: none"> executed according to company's procedure vii. Stand per hectare census executed according to company's procedure viii. Black bunch census (BBC) executed according to company's procedure ix. Fresh Fruit Bunch grading census executed according to company's procedure x. Missed bunches census executed according to company's procedure xi. Sterile palm census executed according to company's procedure xii. Immature census executed according to company's

Work Activities	Related Knowledge	Related Skills	Attitude / Safety / Environmental	Training Hours	Delivery Mode	Assessment Criteria
			<u>Safety:</u> i. Wear PPE while carry out census activities ii. Adhere to SOP			procedure xiii. Barn owl census executed according to company's procedure xiv. Beneficial plant census executed according to company's procedure xv. Rat baiting census executed according to company's procedure xvi. Company's damage census form filled in according to company's procedure xvii. Census outcome registered according to company's procedure xviii. Census activity report produced according to correct format xix. Report forwarded to superior

Employability Skills

Core Abilities	Social Skills
<p>01.01 Identify and gather information. 01.02 Document information procedures or processes. 02.01 Interpret and follow manuals, instructions and SOP's. 02.02 Follow telephone/telecommunication procedures. 02.03 Communicate clearly. 02.04 Prepare brief reports and checklist using standard forms. 02.05 Read/Interpret flowcharts and pictorial information. 03.01 Apply cultural requirement to the workplace. 03.02 Demonstrate integrity and apply practical practices. 03.03 Accept responsibility for own work and work area. 03.04 Seek and act constructively upon feedback about work performance. 03.06 Respond appropriately to people and situations. 03.07 Resolve interpersonal conflicts. 06.01 Understand systems. 06.02 Comply with and follow chain of command. 06.03 Identify and highlight problems. 06.04 Adapt competencies to new situations/systems. 01.04 Analyse information. 04.03 Organize and maintain own workplace. 04.04 Apply problem solving strategies. 04.05 Demonstrate initiative and flexibility. 01.11 Apply thinking skills and creativity. 02.10 Prepare reports and instructions. 02.11 Convey information and ideas to people. 03.09 Manage and improve performance of individuals. 03.13 Develop and maintain TEM harmony and resolve conflicts. 03.14 Facilitate and coordinate TEMs and ideas. 03.15 Liase to achieve identified outcomes. 03.16 Identify and assess client/customer needs. 05.01 Implement project/work plans. 05.02 Inspect and monitor work done and/or in progress.</p>	<ol style="list-style-type: none"> 1. Communication skills 2. Conceptual skills 3. Interpersonal skills 4. Learning skills 5. Leadership skills 6. Multitasking and prioritizing 7. Self-discipline 8. Teamwork

Tools, Equipment and Materials (TEM)

ITEMS	RATIO (TEM : Trainees)
1. Stock issue book	1:1
2. Spraying equipment	
• Knapsack spray	1:1
• Power sprayer	1:1
• Mist blower	1:1
• ULV	1:1
3. Whiteboard/ flipchart	1:25
4. Stationeries	As required
5. RSPO document/ MSPO document	1:1
6. Estate map / Topography map	1:1
7. Related Act documents	
• Pesticide act 1974	1:1
• OSHA act 1994	1:1
• Environmental Quality (amendment) act 2012	1:1
• Wildlife Conservation act 2010	1:1
8. MPOB standard document	1:1
9. Personal Protective Equipment (PPE)	1:25
10. First aid kit	
11. Heavy vehicles for upkeep operation	
• Tractor	1:25
• Trailer	1:25
• Motor grader	1:25
• Backhoe	1:25
12. Hand tools for upkeep activities (such as; hoe, long knife, wire cutter,, compass)	1:1
13. Type of implement's :	
• Rotor slashes	1:25
• Power sprayer	1:25
• Compactor	1:25
• Back bucket	1:25
• Water tank	1:25
14. Muster chit	1:1
15. Log book	1:1
16. Water container	1:25

REFERENCES

1. Susan M. Martin (2003), *The UP Saga*, Routledge, ISBN-13: 978-8791114205
2. Kulthida Chalooddong (2011), *An Economic Analysis Of Oil Palm Plantation in Northeastern Thailand: A Case Study Of Seka District In Nong Khai Province*, LAP LAMBERT Academic Publishing, ISBN-13: 978-3844303544
3. Esnan Ab. Ghani & Idris Omar (2009), *Perusahaan Sawit di Malaysia*, ISBN : 978-967-961-163-2
4. Esnan Ab. Ghani, Mohd. Tayeb Dolmat & Mohd. Basri Wahid (2002), *Penanaman & Penyelenggaraan Sawit Untuk Pekebun Kecil*, ISBN : 967-961-088-8
5. *Environmental Quality Management in the Plantations*, Malaysian Oil Palm Growers' Council (1995), ISBN-13: 978-9679610581
6. R.H.V. Corley (2003), *The Oil Palm (World Agriculture Series)*, Wiley-Blackwell, ISBN-13: 978-0632052127
7. Jabatan Pertanian (2005) *Pakej Teknologi Kelapa Sawit*, ISBN : 983-047-064-4

CURRICULUM of COMPETENCY UNIT (CoCU)

Sub Sector	PLANTATION						
Job Area	OIL PALM PLANTATION OPERATION & SUPERVISION						
Competency Unit Title	OIL PALM MANURING						
Learning Outcome	<p>The person who is competent in this CU shall be able to ensure that all activities involved in manuring are carried out smoothly in compliance with OSHA requirements. Upon completion of this competency unit, trainees will be able to:-</p> <ul style="list-style-type: none"> • Organise oil palm manuring activities requirement • Prepare manuring tools, equipment & material • Carry out oil palm manuring 						
Competency Unit ID	RB-081-3:2012-C03	Level	3	Training Duration	130 Hours	Credit Hours	13

Work Activities	Related Knowledge	Related Skills	Attitude / Safety / Environmental	Training Hours	Delivery Mode	Assessment Criteria
1. Organise oil palm manuring activities requirement	i. Man to land ratio ii. Manuring area iii. Type of manuring iv. Procedure of acquiring work instruction v. Types of fertilizer such as: •Compound •Straight fertiliser •SRF / compos vi. Type of manuring activities vii. Type of vehicles for manuring activities			10 hours	Lecture	i. Location source of work instruction identified ii. Work instruction acquired from superior according to company procedure iii. Work instruction translated according to

Work Activities	Related Knowledge	Related Skills	Attitude / Safety / Environmental	Training Hours	Delivery Mode	Assessment Criteria
		<ul style="list-style-type: none"> i. Determine location/ source of work instruction ii. Collect work instruction iii. Interpret work instruction iv. Determine manuring work activities v. Identify mandays to carried out work activities vi. Determine manuring block vii. Determine manuring schedule viii. Identify types of material for manuring activities ix. Determine fertilizer quantity required x. Identify block for manuring activities 	<p><u>Attitude:</u></p> <ul style="list-style-type: none"> i. Knowledgeable in oil palm manuring activities ii. Detail in calculating mandays required 	20 hours	Demonstration & Observation	<ul style="list-style-type: none"> company's requirement iv. Work activities listed out v. Time frame determined according to company' procedure vi. Number of workers confirmed according to procedures vii. Block parameter for manuring activities confirmed viii. Manuring schedule confirmed according to work instruction ix. Type of materials for manuring activities determined according to company's manuring policy

Work Activities	Related Knowledge	Related Skills	Attitude / Safety / Environmental	Training Hours	Delivery Mode	Assessment Criteria
						<ul style="list-style-type: none"> x. Quantity of manuring material calculated in accordance with work instruction and company policy xi. Type of manuring activities determined according to work instruction and company's requirement xii. Block parameter for manuring activities determined xiii. Number of vehicles required ascertained according to block parameter and work instruction

Work Activities	Related Knowledge	Related Skills	Attitude / Safety / Environmental	Training Hours	Delivery Mode	Assessment Criteria
2. Prepare manuring tools, equipment & material	<ul style="list-style-type: none"> i. Manuring tools and equipment ii. Functions of manuring tools and equipment iii. Manuring tools and equipment maintenance iv. Types of PPE v. Function of PPE vi. OSHA requirement vii. Function of PPE base on OSHA requirement 			10 hours	Lecture	<ul style="list-style-type: none"> i. Type of manuring tools and equipment selected according to manuring schedule and work instruction ii. Functionality tools and equipment inspected according to manufacturer manual and standard procedure
		<ul style="list-style-type: none"> i. Choose type of manuring tools and equipment ii. Check functionality of tools and equipment iii. Identify type of PPE iv. Prepare PPE for manuring activities 	<p><u>Attitude:</u></p> <ul style="list-style-type: none"> i. Knowledgeable and meticulous in preparing manuring tools and equipment ii. Meticulous in checking tools and equipment functionality 	40 hours	Demonstration & Observation	<ul style="list-style-type: none"> iii. Type of PPE for manuring activities determined according to OSHA requirement iv. PPE for manuring activities arrange on site according to company's policy and OSHA requirement

Work Activities	Related Knowledge	Related Skills	Attitude / Safety / Environmental	Training Hours	Delivery Mode	Assessment Criteria
			<u>Safety:</u> i. Wear suitable PPE while carry out manuring tools, equipment and material manuring preparation ii. Adhere to OSHA requirement iii. Adhere to SOP			
3. Carry out oil palm manuring	i. Determine of work order ii. Definition of manuring iii. Manuring activities			10 hours	Lecture	i. Work order clarified according to company's requirement ii. Location of manuring activities confirmed according to work instruction
		i. Obtain fertilizer for manuring activities ii. Determine quantity of fertilizer to be applied iii. Execute manuring activities according to instruction, SOP and OSHA requirement iv. Mark each area of application field	<u>Attitude:</u> i. Knowledgeable in oil palm manuring activities ii. Strictly followed manuring schedule	40 hours	Demonstration & Observation	iii. Manuring activities carried out according to work instruction, SOP and OSHA requirement

Work Activities	Related Knowledge	Related Skills	Attitude / Safety / Environmental	Training Hours	Delivery Mode	Assessment Criteria
			<u>Safety:</u> i. Wear suitable PPE while carry out oil palm manuring preparation ii. Adhere to OSHA requirement iii. Adhere to SOP			iv. Each of application field labelled according to company's procedure

Employability Skills

Core Abilities	Social Skills
01.01 Identify and gather information. 01.02 Document information procedures or processes. 02.01 Interpret and follow manuals, instructions and SOP's. 02.02 Follow telephone/telecommunication procedures. 02.03 Communicate clearly. 02.04 Prepare brief reports and checklist using standard forms. 02.05 Read/Interpret flowcharts and pictorial information. 03.01 Apply cultural requirement to the workplace. 03.02 Demonstrate integrity and apply practical practices. 03.03 Accept responsibility for own work and work area. 03.04 Seek and act constructively upon feedback about work performance. 03.06 Respond appropriately to people and situations. 03.07 Resolve interpersonal conflicts. 06.01 Understand systems. 06.02 Comply with and follow chain of command. 06.03 Identify and highlight problems.	1. Communication skills 2. Conceptual skills 3. Interpersonal skills 4. Learning skills 5. Leadership skills 6. Multitasking and prioritizing 7. Self-discipline 8. Teamwork

Core Abilities	Social Skills
<p>06.04 Adapt competencies to new situations/systems.</p> <p>01.04 Analyse information.</p> <p>04.03 Organize and maintain own workplace.</p> <p>04.04 Apply problem solving strategies.</p> <p>04.05 Demonstrate initiative and flexibility.</p> <p>01.07 Utilize database applications to locate a process information.</p> <p>01.08 Utilize spreadsheets applications to locate and process information.</p> <p>01.10 Apply a variety of mathematical techniques.</p> <p>01.11 Apply thinking skills and creativity.</p> <p>02.10 Prepare reports and instructions.</p> <p>02.11 Convey information and ideas to people.</p> <p>03.09 Manage and improve performance of individuals.</p> <p>03.13 Develop and maintain TEM harmony and resolve conflicts.</p> <p>03.14 Facilitate and coordinate TEMs and ideas.</p> <p>03.15 Liase to achieve identified outcomes.</p> <p>03.16 Identify and assess client/customer needs.</p> <p>05.01 Implement project/work plans.</p> <p>05.02 Inspect and monitor work done and/or in progress.</p>	

Tools, Equipment and Materials (TEM)

ITEMS	RATIO (TEM : Trainees)
1. Manuring schedule	1:1
2. Muster chit	1:1
3. Log book	1:1
4. Weighing scale	1:1
5. Stock issue book	1:1
6. Whiteboard/ flipchart	1:25
7. Stationeries	As required
8. RSPO document/ MSPO document	1:1
9. Estate map / topography map	1:1
10. Related Act documents	
• OSHA act 1994	1:1
• Environmental Quality (amendment) act 2012	1:1
11. MPOB standard document	1:1
12. Personal Protective Equipment (PPE)	1:1
13. First aid kit	1:25
14. Heavy vehicles for upkeep operation	
• Tractor	1:25
• Trailer	1:25
• Lorry	1:25
15. Hand tools for manuring activities (such as; bucket, bowl, knife)	1:1
16. Type of implement's :	
• Vicon spreader	1:25

REFERENCES

1. Susan M. Martin (2003), *The UP Saga*, Routledge, ISBN-13: 978-8791114205
2. Kulthida Chalooddong (2011), *An Economic Analysis Of Oil Palm Plantation in Northeastern Thailand: A Case Study Of Seka District In Nong Khai Province*, LAP LAMBERT Academic Publishing, ISBN-13: 978-3844303544
3. Esnan Ab. Ghani & Idris Omar (2009), *Perusahaan Sawit di Malaysia*, ISBN : 978-967-961-163-2
4. Esnan Ab. Ghani, Mohd. Tayeb Dolmat & Mohd. Basri Wahid (2002), *Penanaman & Penyelenggaraan Sawit Untuk Pekebun Kecil*, ISBN : 967-961-088-8
5. *Environmental Quality Management in the Plantations*, Malaysian Oil Palm Growers' Council (1995), ISBN-13: 978-9679610581
6. R.H.V. Corley (2003), *The Oil Palm (World Agriculture Series)*, Wiley-Blackwell, ISBN-13: 978-0632052127
7. Jabatan Pertanian (2005) *Pakej Teknologi Kelapa Sawit*, ISBN : 983-047-064-4

CURRICULUM of COMPETENCY UNIT (CoCU)

Sub Sector	PLANTATION						
Job Area	OIL PALM PLANTATION OPERATION & SUPERVISION						
Competency Unit Title	OIL PALM HARVESTING & COLLECTION OPERATION						
Learning Outcome	<p>The person who is competent in this CU shall be able to ensure that all the activities in oil palm harvesting are carried out effectively in compliance with OSHA requirements. Upon completion of this competency unit, trainees will be able to:-</p> <ul style="list-style-type: none"> • Prepare harvesting tools & equipment • Carry out harvesting activity • Carry out infield collection • Report harvesting activity 						
Competency Unit ID	RB-081-3:2012-C04	Level	3	Training Duration	175 Hours	Credit Hours	17

Work Activities	Related Knowledge	Related Skills	Attitude / Safety / Environmental	Training Hours	Delivery Mode	Assessment Criteria
1. Prepare harvesting tools and equipment	i. Definition and purpose of work order ii. Procedure of acquiring of work order iii. Technique of identifying harvesting location iv. Harvesting activities v. Harvesting tools and equipment, such as: <ul style="list-style-type: none"> • Manual cutter • Mechanical cutter vi. PPE for harvesting activities vii. OSHA requirement for harvesting activities			10 hours	Lecture	i. Location /source of work order determined ii. Work order collected from superior according to company's procedure iii. Work order interpreted according to operational plan

Work Activities	Related Knowledge	Related Skills	Attitude / Safety / Environmental	Training Hours	Delivery Mode	Assessment Criteria
		<ul style="list-style-type: none"> i. Identify location of work order ii. Acquire work order from superior iii. Determine harvesting activities according to work order iv. Determine harvesting location v. Interpret harvesting work order vi. Select harvesting tools and equipment according to work order vii. Prepare harvesting tools and equipment viii. Identify PPE for harvesting activities ix. Select PPE for harvesting activities according to OSHA requirements 	<p><u>Attitude:</u></p> <ul style="list-style-type: none"> i. Precise in sourcing document ii. Knowledgeable in interpreting document iii. Follow procedure in obtaining information 	25 hours	Demonstration & Observation	<ul style="list-style-type: none"> iv. Harvesting location confirmed according to work instruction and company's requirement v. Harvesting tools and equipment chose according to work instruction and company's requirement vi. Harvesting tools and equipment checked and arranged on site according to company's procedure vii. PPE for harvesting activities determined in accordance with OSHA requirement

Work Activities	Related Knowledge	Related Skills	Attitude / Safety / Environmental	Training Hours	Delivery Mode	Assessment Criteria
2. Carry out harvesting activities	<ul style="list-style-type: none"> i. FFB ripeness standard ii. Method of identifying FFB ripeness standard iii. Technique of harvesting FFB iv. FFB harvesting procedure 			15 hours	Lecture	<ul style="list-style-type: none"> i. Company's policy on ripeness standard confirmed ii. FFB determined according to company's ripeness standard
		<ul style="list-style-type: none"> i. Determine company's policy on ripeness standard ii. Identify fresh fruit bunch (FFB) according to ripeness standard iii. Confirm FFB to be harvested iv. Execute FFB harvesting according to company's standard 	<p><u>Attitude:</u></p> <ul style="list-style-type: none"> i. Meticulous in determining ripeness standard ii. Meticulous in executing harvesting activity <p><u>Safety:</u></p> <ul style="list-style-type: none"> i. Wear suitable PPE while carry out oil palm harvesting activities 	40 hours	Demonstration & Observation	<ul style="list-style-type: none"> iii. FFB to be harvested ascertained in accordance with company's ripeness standard iv. FFB harvested according to company's procedure work instruction and OSHA requirements

Work Activities	Related Knowledge	Related Skills	Attitude / Safety / Environmental	Training Hours	Delivery Mode	Assessment Criteria
			<ul style="list-style-type: none"> ii. Adhere to OSHA requirement iii. Adhere to SOP 			
3. Carry out infield collection	<ul style="list-style-type: none"> i. FFB collection procedure ii. Procedure of recording infield collection checklist iii. Methods of FFB collection 			15 hours	Lecture	<ul style="list-style-type: none"> i. Infield check list collected according to company's procedure ii. Harvested FFB manually collected from palm based and delivered to platform according to company's procedure
		<ul style="list-style-type: none"> i. Obtain infield bunch record form ii. Collect all FFB from oil palm based and delivered to collection point iii. Fill up infield bunch record 	<p><u>Attitude:</u></p> <ul style="list-style-type: none"> i. Knowledgeable in oil palm infield collection activities ii. Meticulous in recording infield checklist <p><u>Safety:</u></p> <ul style="list-style-type: none"> i. Wear suitable PPE while carry 	40 hours	Demonstration & Observation	<ul style="list-style-type: none"> iii. Infield bunch record completed according to company's procedure

Work Activities	Related Knowledge	Related Skills	Attitude / Safety / Environmental	Training Hours	Delivery Mode	Assessment Criteria
			<ul style="list-style-type: none"> out oil palm infield collection ii. Adhere to OSHA requirement iii. Adhere to SOP 			
4. Report harvesting activities	<ul style="list-style-type: none"> i. Method of tagging fruit bunch according to date, quantity, group number and block ii. Method of total up quality of bunches iii. Report writing technique iv. Report writing format v. Report submission procedure 			10 hours		<ul style="list-style-type: none"> i. Completed infield bunch record confirmed according to work instruction ii. Labelling of fruit bunch carried out according to date, quantity, group number and block
		<ul style="list-style-type: none"> i. Tag FFB according to date, quantity, group number and block ii. Gather completed infield bunch record from various block iii. Total up and record quantity of FFB iv. Compile final harvesting and collection data v. Prepare harvesting activities report vi. Submit report to superior 		20 hours		<ul style="list-style-type: none"> iii. Collected infield bunch record from various block interpreted according to company's procedure iv. Quantity of FFB confirmed according to company's procedure v. Total quantity of FFB registered according to company's procedure

Work Activities	Related Knowledge	Related Skills	Attitude / Safety / Environmental	Training Hours	Delivery Mode	Assessment Criteria
			<u>Attitude:</u> i. Meticulous in report writing ii. Diplomatic in forwarding to superior			vi. Final harvesting and collection data documented according to company's procedure vii. Harvesting and collection report produced according to company's requirements viii. Harvesting activities report submitted to superior

Employability Skills

Core Abilities	Social Skills
<p>01.01 Identify and gather information.</p> <p>01.02 Document information procedures or processes.</p> <p>02.01 Interpret and follow manuals, instructions and SOP's.</p> <p>02.02 Follow telephone/telecommunication procedures.</p> <p>02.03 Communicate clearly.</p> <p>02.04 Prepare brief reports and checklist using standard forms.</p> <p>02.05 Read/Interpret flowcharts and pictorial information.</p> <p>03.01 Apply cultural requirement to the workplace.</p> <p>03.02 Demonstrate integrity and apply practical practices.</p> <p>03.03 Accept responsibility for own work and work area.</p> <p>03.04 Seek and act constructively upon feedback about work performance.</p> <p>03.06 Respond appropriately to people and situations.</p> <p>03.07 Resolve interpersonal conflicts.</p> <p>06.01 Understand systems.</p> <p>06.02 Comply with and follow chain of command.</p> <p>06.03 Identify and highlight problems.</p> <p>06.04 Adapt competencies to new situations/systems.</p> <p>01.04 Analyse information.</p> <p>04.03 Organize and maintain own workplace.</p> <p>04.04 Apply problem solving strategies.</p> <p>04.05 Demonstrate initiative and flexibility.</p> <p>01.11 Apply thinking skills and creativity.</p> <p>02.10 Prepare reports and instructions.</p> <p>02.11 Convey information and ideas to people.</p> <p>03.09 Manage and improve performance of individuals.</p> <p>03.13 Develop and maintain TEM harmony and resolve conflicts.</p> <p>03.14 Facilitate and coordinate TEMs and ideas.</p> <p>03.15 Liase to achieve identified outcomes.</p> <p>03.16 Identify and assess client/customer needs.</p>	<ol style="list-style-type: none"> 1. Communication skills 2. Conceptual skills 3. Interpersonal skills 4. Learning skills 5. Leadership skills 6. Multitasking and prioritizing 7. Self-discipline 8. Teamwork

Core Abilities	Social Skills
05.01 Implement project/work plans. 05.02 Inspect and monitor work done and/or in progress.	

Tools, Equipment and Materials (TEM)

ITEMS	RATIO (TEM : Trainees)
1. Counter	1:1
2. Muster chit	1:1
3. Harvesting interval	1:1
4. Whiteboard	1:25
5. Flipchart	1:25
6. Stationeries	As required
7. RSPO document/ MSPO document	1:1
8. Estate map	
9. Related Act documents	1:1
• OSHA act 1994	1:1
10. MPOB standard document	1:1
11. Personal Protective Equipment (PPE)	1:1
12. First aid kit	1:25
13. Heavy vehicles for FFB collection	
• Tractor	1:25
• Trailer	1:25
• Lorry	1:25
• Graber	1:25
14. Harvesting tools activities (such as: poll, sickle, chisel, earth basket, axe, hook, wheelbarrow)	1:1
15. Muster chit	1:1

REFERENCES

1. Susan M. Martin (2003), *The UP Saga*, Routledge, ISBN-13: 978-8791114205
2. Kulthida Chaloodong (2011), *An Economic Analysis Of Oil Palm Plantation in Northeastern Thailand: A Case Study Of Seka District In Nong Khai Province*, LAP LAMBERT Academic Publishing, ISBN-13: 978-3844303544
3. Esnan Ab. Ghani & Idris Omar (2009), *Perusahaan Sawit di Malaysia*, ISBN : 978-967-961-163-2
4. Esnan Ab. Ghani, Mohd. Tayeb Dolmat & Mohd. Basri Wahid (2002), *Penanaman & Penyelenggaraan Sawit Untuk Pekebun Kecil*, ISBN : 967-961-088-8
5. *Environmental Quality Management in the Plantations*, Malaysian Oil Palm Growers' Council (1995), ISBN-13: 978-9679610581
6. R.H.V. Corley (2003), *The Oil Palm (World Agriculture Series)*, Wiley-Blackwell, ISBN-13: 978-0632052127
7. Jabatan Pertanian (2005) *Pakej Teknologi Kelapa Sawit*, ISBN : 983-047-064-4

CURRICULUM of COMPETENCY UNIT (CoCU)

Sub Sector	PLANTATION						
Job Area	OIL PALM PLANTATION OPERATION & SUPERVISION						
Competency Unit Title	OIL PALM FIELD OPERATION ADMINISTRATION						
Learning Outcome	<p>The person who is competent in this CU shall be able to ensure that all the activities in oil palm harvesting are carried out effectively in compliance with OSHA requirements. Upon completion of this competency unit, trainees will be able to:-</p> <ul style="list-style-type: none"> • Identify field operation requirements • Maintain daily and monthly operational records • Prepare budget input data • Implement workers health & safety requirements compliance • Implement plantation operation security procedure • Coordinate workers application for work permit • Perform payroll requisition administration • Perform workers welfare coordination • Carry out oil palm plantation inventory control • Prepare field operation activities report 						
Competency Unit ID	RB-081-3:2012-C05	Level	3	Training Duration	251 Hours	Credit Hours	25

Work Activities	Related Knowledge	Related Skills	Attitude / Safety / Environmental	Training Hours	Delivery Mode	Assessment Criteria
1. Identify field operation requirements	i. Procedure of acquiring company's document ii. Definition of field operation iii. Oil palm field operation procedure			2 hours	Lecture	i. Organisation's procedure on oil palm field operation acquired according to company's procedure
		i. Acquire organisation's procedure on oil palm field operation ii. Interpret organisation's procedure on oil palm field operation		5 hours	Demonstration & Observation	ii. Organisation procedure on oil palm field operation interpreted

Work Activities	Related Knowledge	Related Skills	Attitude / Safety / Environmental	Training Hours	Delivery Mode	Assessment Criteria
		iii. Determine organisation's procedure on oil palm operation	<u>Attitude:</u> i. Meticulous in interpreting document ii. Adhere to procedure iii. Adhere to SOP			according to company's requirement iii. Organisation's procedure on oil palm confirmed
2. Maintain daily and monthly operational records	i. Filling system procedure ii. Type of record and documents in filed operation iii. Method of recording report and document iv. Report writing technique			9 hours	Lecture	i. Organisation procedure on filling system collected according to company's procedure ii. Organisation procedure on filling system determined according to company's requirement
		i. Acquire organisation procedure on filling system ii. Interpret organisation procedure on filing system iii. Interpret operational records and document of field operation iv. Determine types of record and document in field operation v. File in all related record and documents vi. Record all related documents according to company's filing		9 hours	Demonstration & Observation	iii. Operational record and document determined according to company's procedure iv. Type of operation records and document listed v. All related

Work Activities	Related Knowledge	Related Skills	Attitude / Safety / Environmental	Training Hours	Delivery Mode	Assessment Criteria
		procedure vii. Compile all related documents according to company's procedure viii. Prepare daily and monthly operation report and submit to superior	<u>Attitude:</u> i. Meticulous in report writing ii. Knowledgeable in reporting verbally iii. Knowledgeable and meticulous in collecting information			record and document kept in file according to company's procedure vi. Operational report and record checked according to company's procedure vii. Record and document of field operation activities compiled according to company's procedure viii. Report on field operation activities produced and submitted to superior
3. Prepare budget input data	i. Budget preparation procedure ii. Step in preparing budgets iii. Definition of field operation iv. Type of field operation record v. Field operation activities vi. Human resource requirement for field			11 hours	Lecture	i. Organisation procedure on budget preparation acquired according to company's procedure ii. Organisation procedure on

Work Activities	Related Knowledge	Related Skills	Attitude / Safety / Environmental	Training Hours	Delivery Mode	Assessment Criteria
	<ul style="list-style-type: none"> vii. operation activities viii. Field operation tools and equipment ix. Type of material required in field operation activities x. Definition of input data xi. Budget preparation procedure 					<ul style="list-style-type: none"> iii. budget preparation construed according to company's requirement iii. Field operational record translated according to company's budget
		<ul style="list-style-type: none"> i. Obtain organisation procedure on budget preparation ii. Interpret organisation's procedure on budget preparation iii. Obtain field operational records iv. Interpret field operational record v. Interpret field operational planning vi. Determine human resource requirements vii. Identify field operation activities viii. Determine operation tools and equipment required ix. Determine material required for field operation x. Review previous field operation record and report xi. Prepare input data for budget preparation 		24 hours	Demonstration & Observation	<ul style="list-style-type: none"> iv. Human resource requirements confirmed according to operational activities v. Labour cost estimated according to work load vi. Field operation activities determined according to operational plan vii. Operation tools and equipment listed according to company's

Work Activities	Related Knowledge	Related Skills	Attitude / Safety / Environmental	Training Hours	Delivery Mode	Assessment Criteria
		proposal	<u>Attitude:</u> i. Knowledgeable and meticulous in preparing budget input data ii. Knowledgeable in carry out budget preparation			requirement viii. Operational material listed according to company's requirements ix. Material cost calculated according to company's standard x. Field operation record and report assessed xi. Input data for budget preparation purposes produced according to company's procedure
4. Implement workers health & safety requirements compliance	i. Worker health and safety compliance requirement ii. Regulatory body related to occupational such as: • DOSH • Labour Department • Department of Health iii. Type of workers activities compliance with regulatory			8 hours	Lecture	i. Organisation procedure on health and safety compliance requirements acquired according to company's procedure ii. Organisation procedure on health and

Work Activities	Related Knowledge	Related Skills	Attitude / Safety / Environmental	Training Hours	Delivery Mode	Assessment Criteria
	requirements					safety compliance requirement determined
		<ul style="list-style-type: none"> i. Obtain organisation procedure on health and safety compliance requirements ii. Interpret organisation procedure on health and safety compliance requirements iii. Identify regulatory body related to occupation iv. Identify workers activity compliance with regulatory requirements v. Identify operational activity compliance with regulatory requirements vi. Verify workers activities compliance with regulatory requirements 	<p><u>Attitude:</u></p> <ul style="list-style-type: none"> i. Knowledgeable in health and safety requirement ii. Meticulous in obtaining workers health and safety requirement iii. Adhere to 	20 hours	Demonstration & Observation	<ul style="list-style-type: none"> iii. Regulatory body related to occupational listed iv. Workers activity compliance with regulatory requirement listed according to accepted standard v. Operational activities compliance with regulatory listed according to accepted standard vi. Workers and operation activities compliance with regulatory requirement ascertained according to OSHA

Work Activities	Related Knowledge	Related Skills	Attitude / Safety / Environmental	Training Hours	Delivery Mode	Assessment Criteria
			safety and health procedure			
5. Implement plantation operation security procedure	<ul style="list-style-type: none"> i. Definition of operation security ii. Parameters and boundary of plantation operation security iii. Security post and guards requirements iv. Function of security post v. Guard responsibility vi. Definition and purpose of access control vii. Plantation access control procedure viii. Plantation security procedure 			8 hours	Lecture	<ul style="list-style-type: none"> i. Organisation procedure on plantation operation security acquired according to company's procedure ii. Organisation's procedure on plantation operation security determined iii. Location of security post and guard determined according to company's SOP
		<ul style="list-style-type: none"> i. Interpret organisation procedure on plantation operation security ii. Identify location of security post and guard iii. Check security post and guard availability iv. Determine implementation of access control on plantation area v. Assess company's procedure on workers compliance to 		20 hours	Demonstration & Observation	<ul style="list-style-type: none"> iv. Security post and guard availability ascertained v. Implementation of access control on plantation area established according to company's procedure

Work Activities	Related Knowledge	Related Skills	Attitude / Safety / Environmental	Training Hours	Delivery Mode	Assessment Criteria
		security procedure vi. Determine workers compliance to security procedure	<u>Attitude:</u> i. Knowledgeable in plantation operation security procedure ii. Meticulous in implementing plantation security requirement <u>Safety :</u> i. Wear PPE while checking security post ii. Adhere to safety and health requirements			vi. Company's procedure on workers in compliance to security procedure confirmed
6. Coordinate workers application for work permit	i. Type of workers needs ii. Immigration law on workers permit iii. Procedure of renewal workers permit iv. Procedure of documenting workers permit record			8 hours	Lecture	i. Workers needs related to work permit determined according to company's procedure ii. Immigration law on workers permit requirements explained
		i. Identify workers needs related to work permit ii. Assess immigration law on work permit requirements iii. Determine workers permit status iv. Identify requirement		20 hours	Demonstration & Observation	iii. Workers permit status ascertained according to immigration law

Work Activities	Related Knowledge	Related Skills	Attitude / Safety / Environmental	Training Hours	Delivery Mode	Assessment Criteria
		<ul style="list-style-type: none"> for renewal of workers permit v. Arrange workers permit renewal vi. Update workers permit record 	<p><u>Attitude:</u></p> <ul style="list-style-type: none"> i. Knowledgeable in coordinating workers application work permit ii. Adhere to company's SOP iii. Adhere to immigration law 			<ul style="list-style-type: none"> iv. Requirement for renewal workers permit determined according to company's procedure v. Workers permit renewal coordinated according to expiring date vi. Workers permit record updated according to company's procedure
7. Perform payroll requisition administration	<ul style="list-style-type: none"> i. Definition of workers payroll ii. Workers payroll requirements iii. Definition of salary and allowances iv. Workers payroll claim procedure v. Payroll claim process 			8 hours	Lecture	<ul style="list-style-type: none"> i. Workers payroll requirements determined ii. Workers salary and allowances status ascertained according to entitlement
		<ul style="list-style-type: none"> i. Identify workers payroll requirements ii. Check workers salary and allowances status iii. Calculate workers salary and allowances iv. Determine company's procedure on workers payroll claims 		20 hours	Demonstration & Observation	<ul style="list-style-type: none"> iii. Workers salary and allowances calculated according to work record iv. Company's procedure on workers payroll

Work Activities	Related Knowledge	Related Skills	Attitude / Safety / Environmental	Training Hours	Delivery Mode	Assessment Criteria
		v. Prepare workers payroll claims vi. Submit workers payroll for approval vii. Record workers payroll preparation activities	<u>Attitude:</u> i. Knowledgeable in preparing payroll requisition ii. Knowledgeable and meticulous in carry out task regarding workers salary and allowances			Claims ascertained v. Workers payroll claim produced according to company's procedure vi. Prepared workers payroll claim forwarded to superior for approval according to company's procedure vii. Workers payroll claim documented according to company's procedure
8. Perform workers welfare coordination	i. Definition of workers health and care ii. Plantation workers health and care activities iii. Definition of subsidies iv. Subsidies distribution concept v. Workers lodging and transportation policy vi. Type of recreation facilities vii. Type of recreation activities			11 hours	Lecture	i. Workers health care activities determined ii. Workers health care activities arranged according to company's procedure iii. Subsidise distribution activities arranged according to

Work Activities	Related Knowledge	Related Skills	Attitude / Safety / Environmental	Training Hours	Delivery Mode	Assessment Criteria
	viii. Definition of workers welfare ix. Workers welfare activities					company's policy iv. Company's policy on workers lodging and transporting requirements determined
		i. Identify workers health care activities ii. Coordinate workers health care activities iii. Coordinate subsidies distribution activities iv. Identify company's policy on workers lodging and transportation requirements v. Determine workers recreation activities facilities availability vi. Coordinate workers recreation activities vii. Collect information on workers welfare activities viii. Prepare workers welfare activities report	<u>Attitude:</u> i. Knowledgeable in coordinating workers welfare	25 hours	Demonstration & Observation	v. Workers lodging and transport requirement arranged according to company's procedure vi. Availability of workers recreation facilities ascertained according to inventory record vii. Workers recreation activities arranged viii. Information on workers welfare activities acquired according to company's procedure ix. Workers

Work Activities	Related Knowledge	Related Skills	Attitude / Safety / Environmental	Training Hours	Delivery Mode	Assessment Criteria
						welfare activities report produced
9. Carry out oil palm plantation inventory control	i. Definition of inventory ii. Inventory control procedure iii. Oil palm inventory activities such as: <ul style="list-style-type: none"> • Stock taking • Stock record • Stock tagging • Inventory count iv. Definition of stock v. Procedure to coordinate stock, tools and equipment			8 hours	Lecture	i. Company's policy on inventory activities determined ii. Oil palm plantation inventory activities confirmed according to company's procedure iii. Inventory activities scheduled according to company's requirement
		i. Identify company's policy on inventory activities ii. Determine oil palm plantation inventory activities iii. Plan inventory activities iv. Inspect stock, tools and equipment status v. Arrange tools, equipment and stock usage according to company's SOP vi. Compile inventory activities record		20 hours	Demonstration & Observation	iv. Stock, tools and equipment checked according to company's procedure v. Stock, tools and equipment coordinated

Work Activities	Related Knowledge	Related Skills	Attitude / Safety / Environmental	Training Hours	Delivery Mode	Assessment Criteria
		vii. Prepare report on inventory control activities	<u>Attitude:</u> i. Meticulous in handling inventory activities ii. Knowledgeable in report writing iii. Adhere to SOP			according to company's policy and procedure vi. Inventory activities record documented in accordance with company's procedure vii. Inventory activities record confirmed according to company's requirement viii. Inventory control activities report produced according to company's procedure
10. Prepare field operation activities report	i. Method of verifying report and record ii. Document compiling procedure iii. Report writing technique and format			5 hours	Lecture	i. Field operation report and record of various activities documented according to company's procedure

Work Activities	Related Knowledge	Related Skills	Attitude / Safety / Environmental	Training Hours	Delivery Mode	Assessment Criteria
		<ul style="list-style-type: none"> i. Compile field operation report and record of various activities ii. Verify reports and records according to company's procedure iii. Prepare field operation activities report and submit to superior 	<p><u>Attitude:</u></p> <ul style="list-style-type: none"> i. Meticulous in writing report ii. Knowledgeable in report writing 	10 hours	Demonstration & Observation	<ul style="list-style-type: none"> ii. Reports and records of various activities according to company's procedure confirmed according to company's procedure iii. Field operation activities report produced and forwarded to superior

Employability Skills

Core Abilities	Social Skills
<p>01.01 Identify and gather information.</p> <p>01.02 Document information procedures or processes.</p> <p>02.01 Interpret and follow manuals, instructions and SOP's.</p> <p>02.02 Follow telephone/telecommunication procedures.</p> <p>02.03 Communicate clearly.</p> <p>02.04 Prepare brief reports and checklist using standard forms.</p> <p>02.05 Read/Interpret flowcharts and pictorial information.</p> <p>03.01 Apply cultural requirement to the workplace.</p> <p>03.02 Demonstrate integrity and apply practical practices.</p> <p>03.03 Accept responsibility for own work and work area.</p> <p>03.04 Seek and act constructively upon feedback about work performance.</p> <p>03.06 Respond appropriately to people and situations.</p> <p>03.07 Resolve interpersonal conflicts.</p> <p>06.01 Understand systems.</p> <p>06.02 Comply with and follow chain of command.</p> <p>06.03 Identify and highlight problems.</p> <p>06.04 Adapt competencies to new situations/systems.</p> <p>01.04 Analyse information.</p> <p>04.03 Organize and maintain own workplace.</p> <p>04.04 Apply problem solving strategies.</p> <p>04.05 Demonstrate initiative and flexibility.</p> <p>01.11 Apply thinking skills and creativity.</p> <p>02.10 Prepare reports and instructions.</p> <p>02.11 Convey information and ideas to people.</p> <p>03.09 Manage and improve performance of individuals.</p> <p>03.13 Develop and maintain TEM harmony and resolve conflicts.</p> <p>03.14 Facilitate and coordinate TEMs and ideas.</p> <p>03.15 Liase to achieve identified outcomes.</p> <p>03.16 Identify and assess client/customer needs.</p> <p>05.01 Implement project/work plans.</p> <p>05.02 Inspect and monitor work done and/or in progress.</p>	<ol style="list-style-type: none"> 1. Communication skills 2. Conceptual skills 3. Interpersonal skills 4. Learning skills 5. Leadership skills 6. Multitasking and prioritizing 7. Self-discipline 8. Teamwork

Tools, Equipment and Materials (TEM)

ITEMS	RATIO (TEM : Trainees)
1. Whiteboard/ flipchart	1:25
2. Stationeries	As required
3. RSPO document/ MSPO document	1:1
4. Estate map / Topography map	1:1
5. Related Act documents	
• Pesticide act 1974	1:1
• OSHA act 1994	1:1
• Environmental Quality (amendment) act 2012	1:1
• Wildlife Conservation act 2010	1:1
• Labour act	1:1
6. MPOB standard document	1:1
7. Calculator	1:1
8. Computer system	1:1
9. Printer	1:25
10. Office productivity software	1:1

REFERENCES

1. Susan M. Martin (2003), *The UP Saga*, Routledge, ISBN-13: 978-8791114205
2. Kulthida Chaloodong (2011), *An Economic Analysis Of Oil Palm Plantation in Northeastern Thailand: A Case Study Of Seka District In Nong Khai Province*, LAP LAMBERT Academic Publishing, ISBN-13: 978-3844303544
3. Esnan Ab. Ghani & Idris Omar (2009), *Perusahaan Sawit di Malaysia*, ISBN : 978-967-961-163-2
4. Esnan Ab. Ghani, Mohd. Tayeb Dolmat & Mohd. Basri Wahid (2002), *Penanaman & Penyelenggaraan Sawit Untuk Pekebun Kecil*, ISBN : 967-961-088-8
5. *Environmental Quality Management in the Plantations*, Malaysian Oil Palm Growers' Council (1995), ISBN-13: 978-9679610581
6. R.H.V. Corley (2003), *The Oil Palm (World Agriculture Series)*, Wiley-Blackwell, ISBN-13: 978-0632052127
7. Jabatan Pertanian (2005) *Pakej Teknologi Kelapa Sawit*, ISBN : 983-047-064-4

CURRICULUM of COMPETENCY UNIT (CoCU)

Sub Sector	PLANTATION						
Job Area	OIL PALM PLANTATION OPERATION & SUPERVISION						
Competency Unit Title	OIL PALM PRODUCTION OPERATION QUALITY CONTROL						
Learning Outcome	<p>The person who is competent in this CU shall be able to ensure that total production performance standard is in accordance with the organisation's standard operating procedure (SOP). Upon completion of this competency unit, trainees will be able to:-</p> <ul style="list-style-type: none"> • Identify production operation supervision requirements • Plan workers utilisation • Perform upkeep and maintenance activities supervision • Perform collection & harvesting activities supervision • Perform manuring activities supervision • Evaluate workers competency level • Prepare production operation report 						
Competency Unit ID	RB-081-3:2012-C06	Level	3	Training Duration	189 Hours	Credit Hours	18

Work Activities	Related Knowledge	Related Skills	Attitude / Safety / Environmental	Training Hours	Delivery Mode	Assessment Criteria
1. Identify production operation supervision requirements	i. Definition of production ii. Definition of quality control iii. Element of supervision iv. Supervision and quality control activities			4 hours	Lecture	i. Organisation's supervision and quality control policy collected according to company's procedure ii. Organisation's supervision and quality control policies explained according to
		i. Acquire organisation's supervision and quality control policies ii. Determine organisation's		10 hours	Demonstration & Observation	

Work Activities	Related Knowledge	Related Skills	Attitude / Safety / Environmental	Training Hours	Delivery Mode	Assessment Criteria
		supervision and quality control policies iii. Acquire organisation's supervision and quality control activities by referring to procedure iv. Determine organisation's supervision and quality control activities	<u>Attitude:</u> i. Precise in sourcing document ii. Meticulous in interpreting document			company's procedure iii. Organisation's supervision and quality control activities acquired according to company's policy iv. Organisation's supervision and quality control activities listed out by referring to procedure

Work Activities	Related Knowledge	Related Skills	Attitude / Safety / Environmental	Training Hours	Delivery Mode	Assessment Criteria
2. Plan workers utilisation	<ul style="list-style-type: none"> i. Procedure of acquiring workers record ii. Attendance recording procedure iii. Definition of work schedule iv. Method of preparing work schedule v. Method of calculating number of days required to accomplish determined job vi. Method of determining number of workers required to accomplish targeted job 			8 hours	Lecture	<ul style="list-style-type: none"> i. Workers attendance collected from subordinate according to company's procedure ii. Workers attendance record confirmed according to procedure iii. Work schedule interpreted according to operation plan iv. Numbers of days required to accomplish the job/ activities determined according to workload and schedule v. Number of workers required determined according to workload vi. Workers group identified according to workload and
		<ul style="list-style-type: none"> i. Obtain workers records according to company's procedure ii. Determine workers attendance according to record iii. Determine work schedule referring to operational planning iv. Identify number of days required to accomplish the job/ activities v. Determine number of workers required vi. Determine workers group according to production planning 		20 hours	Demonstration & Observation	

Work Activities	Related Knowledge	Related Skills	Attitude / Safety / Environmental	Training Hours	Delivery Mode	Assessment Criteria
			<u>Attitude:</u> i. Knowledgeable in preparing mandays requirement ii. Data accuracy iii. Detail in determining number of day required to accomplish the job			production planning
3. Perform upkeep and maintenance activities supervision	i. Oil palm maintenance activities, such as : • Road • Bridge • Drainage ii. Oil palm upkeep activities, such as : • Pruning • stacking iii. Method of executing upkeep activities iv. Method of executing oil palm maintenance activities v. Method of checking upkeep and maintenance activities progress and quality vi. Type of corrective action, such as : • Discussion • Coaching			14 hours	Lecture	i. Maintenance activities schedule interpreted according to operation plan ii. Upkeep and maintenance activities listed out according to work schedule and operational plan iii. Area to be maintained located according to work instruction iv. Area to be

Work Activities	Related Knowledge	Related Skills	Attitude / Safety / Environmental	Training Hours	Delivery Mode	Assessment Criteria
		<ul style="list-style-type: none"> i. Interpret maintenance activities schedule ii. Determine upkeep and maintenance activities iii. Determine area to be maintained iv. Prioritised area to be maintained according to criticality v. Determine upkeep activities location according to upkeep schedule vi. Determine method of executing upkeep and maintenance activities vii. Carry out upkeep and maintenance activities according to company's procedure viii. Inspect upkeep and maintenance activities progress and quality ix. Determine performance problem on upkeep and maintenance activities x. Carry out corrective action on performance problem xi. Record upkeep and 		35 hours	Demonstration & Observation	<ul style="list-style-type: none"> maintained prioritised according to criticality v. Method of executing upkeep activities listed out according to company's procedure and work instruction vi. Upkeep activities monitoring executed according to company's procedure vii. Upkeep and maintenance activities progress confirmed according to work schedule viii. Work completion inspected and confirmed in accordance

Work Activities	Related Knowledge	Related Skills	Attitude / Safety / Environmental	Training Hours	Delivery Mode	Assessment Criteria
		maintenance activities progress	<u>Attitude:</u> i. Knowledgeable in upkeep and maintenance activities <u>Safety:</u> i. Wear suitable PPE while carrying out upkeep and maintenance activities supervision i. Adhere to OSHA requirement ii. Adhere to SOP requirement			with quality standard ix. Corrective action taken according to company's procedure x. Upkeep and maintenance supervision activities recorded according to company's procedure xi. Upkeep and maintenance supervision report produced and submitted to superior according to company's procedure

Work Activities	Related Knowledge	Related Skills	Attitude / Safety / Environmental	Training Hours	Delivery Mode	Assessment Criteria
4. Perform harvesting and collection activities supervision	<ul style="list-style-type: none"> i. Harvesting and collection activities ii. Harvesting and collection record procedure iii. Harvesting and collection monitoring procedure iv. Definition of performance index v. Method of calculating gap between determined performance index and current performance index vi. Procedure of compiling documents 			8 hours		<ul style="list-style-type: none"> i. Collection and harvesting schedule translated according to work activities and instruction ii. Collection and harvesting activities requirement listed out according to work location and work instruction iii. Collection and harvesting activities requirement coordinated according to company's procedure
		<ul style="list-style-type: none"> i. Interpret collection and harvesting schedule ii. Arrange collection and harvesting activities requirement iii. Analyse collection and harvesting record iv. Interpret organisation performance index of total production v. Determine upkeep 		20 hours		<ul style="list-style-type: none"> iv. Collection and harvesting record compile according to company's procedure v. Collection and harvesting record interpreted according to

Work Activities	Related Knowledge	Related Skills	Attitude / Safety / Environmental	Training Hours	Delivery Mode	Assessment Criteria
		and maintenance performance problem vi. Propose method to improve production performance vii. Compile issue and problem in collection and harvesting activities viii. Report collection and harvesting activities to management	<u>Attitude:</u> i. Knowledgeable in supervision activities ii. Systematic in executing supervision activities iii. Knowledgeable in identifying method to improve production performance iv. Meticulous in collecting data an information v. Precise in sourcing document			procedure and work schedule vi. Organisation performance index of total production explained according to operational plan vii. Method to improve production performance explained according to company's procedure iii. Method to improve production performance recommended to management for further action according to procedure ix. Issue and problem in collection and harvesting activities documented according to company's requirement

Work Activities	Related Knowledge	Related Skills	Attitude / Safety / Environmental	Training Hours	Delivery Mode	Assessment Criteria
			<u>Safety:</u> i. Wear suitable PPE while carry out supervision activities on harvesting and collection ii. Adhere to OSHA requirement iii. Adhere to SOP requirement			x. Collection and harvesting report prepared and submitted to superior according to company's procedure
5. Perform manuring activities supervision	i. Definition of manuring Type of manuring activities ii. Type of fertilizer iii. Method of estimating time required to accomplish manuring activities iv. OSHA requirement in manuring activities v. Procedure of monitoring manuring activities			8 hours		i. Manuring activities listed out according to operation plan ii. Manuring activities time frame estimated according to work load and schedule iii. Manuring schedule produced according to operational plan and standard format
		i. Determine manuring activities ii. Determine time frame to accomplish manuring activities according to instructions iii. Determine types and quantity of fertilizer		20 hours		iv. Types and quantity of fertilisers ascertained according to

Work Activities	Related Knowledge	Related Skills	Attitude / Safety / Environmental	Training Hours	Delivery Mode	Assessment Criteria
		<p>according to company's standard</p> <ul style="list-style-type: none"> iv. Request and received fertiliser v. Prepare manuring schedule vi. Coordinate manuring activities according to schedule vii. Check manuring activities in compliance with OSHA requirement viii. Inspect completion of work according to schedule ix. Record manuring activities 	<p><u>Attitude:</u></p> <ul style="list-style-type: none"> i. Meticulous in collecting data an information <p><u>Safety:</u></p> <ul style="list-style-type: none"> i. Wear PPE while carrying out manuring supervision activities ii. Adhere to OSHA requirement iii. Adhere to SOP requirement 			<p>company's procedure</p> <ul style="list-style-type: none"> v. Manuring activities arranged according to SOP and work schedule vi. Manuring activities inspected in compliance with OSHA requirement vii. Completion of work checked according to work schedule and company's procedure viii. Completion of work confirmed in accordance with company's manuring standard ix. Manuring activities documented according to company's procedure

Work Activities	Related Knowledge	Related Skills	Attitude / Safety / Environmental	Training Hours	Delivery Mode	Assessment Criteria
6. Evaluate workers competency level	<ul style="list-style-type: none"> i. Definition of evaluation and competency ii. Workers competency standard iii. Method of determining gap of actual and expected performance iv. Method of enhancing workers knowledge, skills and attitude 			8 hours		<ul style="list-style-type: none"> i. Organisation's standard of workers competency level gathered according to company's procedure ii. Workers competency level determined according to performance record
		<ul style="list-style-type: none"> i. Acquire organisation's standard of workers competency level ii. Interpret workers competency level iii. Determine gap of actual and expected performance iv. Propose method of closing the gap in knowledge, skills and attitude 	<p><u>Attitude:</u></p> <ul style="list-style-type: none"> i. Fair in evaluating workers competency level ii. Meticulous in measuring gap of performance iii. Detail in proposed recommendation to management 	20 hours		<ul style="list-style-type: none"> iii. Organisation's standard of workers competency level measured using various appraisal technique iv. Gap of actual and expected performance identified according to procedure v. Method of closing the gap in knowledge, skills and attitude recommended

Work Activities	Related Knowledge	Related Skills	Attitude / Safety / Environmental	Training Hours	Delivery Mode	Assessment Criteria
			iv. Honest in carrying out evaluation			to superior according to company's procedure
7. Prepare production operation report	<ul style="list-style-type: none"> i. Definition of assessment and evaluation ii. Report writing technique iii. Procedure of submitting document to higher management 			4 hours		<ul style="list-style-type: none"> i. Record of monitoring and result of evaluation activities examined in accordance with company's procedure
		<ul style="list-style-type: none"> i. Assess monitoring record and result of evaluation ii. Compile records and report on production operation activities iii. Prepare production operational report and submit to superior 	<p><u>Attitude:</u></p> <ul style="list-style-type: none"> i. Meticulous in writing report ii. Diplomatic in submitting report to superior 	10 hours	Demonstration & observation	<ul style="list-style-type: none"> ii. Record of monitoring and result of evaluation compiled according to company's procedure iii. Report of production operation activities produced according to company's standard format

Work Activities	Related Knowledge	Related Skills	Attitude / Safety / Environmental	Training Hours	Delivery Mode	Assessment Criteria
						iv. Report of production operation activities submitted to superior according to procedure

Employability Skills

Core Abilities	Social Skills
01.01 Identify and gather information. 01.02 Document information procedures or processes. 02.01 Interpret and follow manuals, instructions and SOP's. 02.02 Follow telephone/telecommunication procedures. 02.03 Communicate clearly. 02.04 Prepare brief reports and checklist using standard forms. 02.05 Read/Interpret flowcharts and pictorial information. 03.01 Apply cultural requirement to the workplace. 03.02 Demonstrate integrity and apply practical practices. 03.03 Accept responsibility for own work and work area. 03.04 Seek and act constructively upon feedback about work performance. 03.06 Respond appropriately to people and situations. 03.07 Resolve interpersonal conflicts. 06.01 Understand systems. 06.02 Comply with and follow chain of command. 06.03 Identify and highlight problems. 06.04 Adapt competencies to new situations/systems. 01.04 Analyse information.	1. Communication skills 2. Conceptual skills 3. Interpersonal skills 4. Learning skills 5. Leadership skills 6. Multitasking and prioritizing 7. Self-discipline 8. Teamwork

Core Abilities	Social Skills
<p>04.03 Organize and maintain own workplace.</p> <p>04.04 Apply problem solving strategies.</p> <p>04.05 Demonstrate initiative and flexibility.</p> <p>01.07 Utilize database applications to locate a process information.</p> <p>01.08 Utilize spreadsheets applications to locate and process information.</p> <p>01.10 Apply a variety of mathematical techniques.</p> <p>01.11 Apply thinking skills and creativity.</p> <p>02.10 Prepare reports and instructions.</p> <p>02.11 Convey information and ideas to people.</p> <p>03.09 Manage and improve performance of individuals.</p> <p>03.13 Develop and maintain TEM harmony and resolve conflicts.</p> <p>03.14 Facilitate and coordinate TEMs and ideas.</p> <p>03.15 Liase to achieve identified outcomes.</p> <p>03.16 Identify and assess client/customer needs.</p> <p>05.01 Implement project/work plans.</p> <p>05.02 Inspect and monitor work done and/or in progress.</p>	

Tools, Equipment and Materials (TEM)

ITEMS	RATIO (TEM : Trainees)
1. Whiteboard/ flipchart	1:25
2. Stationeries	As required
3. RSPO document/ MSPO document	1:1
4. Estate map / Topography map	1:1
5. Related Act documents	
• Pesticide act 1974	1:1
• OSHA act 1994	1:1
• Environmental Quality (amendment) act 2012	1:1
• Wildlife Conservation act 2010	1:1
• Labour act	1:1
6. MPOB standard document	1:1
7. Calculator	1:1
8. Computer system	1:1
9. Printer	1:25
10. Office productivity software	1:1
11. Work schedule	1:1
12. Projector	1:25
13. Tally counter	1:1
14. Infield bunch record	1:1
15. Rainfall figure	1:1
16. Roll call book	1:1

REFERENCES

1. Susan M. Martin (2003), *The UP Saga*, Routledge, ISBN-13: 978-8791114205
2. Kulthida Chaloodong (2011), *An Economic Analysis Of Oil Palm Plantation in Northeastern Thailand: A Case Study Of Seka District In Nong Khai Province*, LAP LAMBERT Academic Publishing, ISBN-13: 978-3844303544
3. Esnan Ab. Ghani & Idris Omar (2009), *Perusahaan Sawit di Malaysia*, ISBN : 978-967-961-163-2
4. Esnan Ab. Ghani, Mohd. Tayeb Dolmat & Mohd. Basri Wahid (2002), *Penanaman & Penyelenggaraan Sawit Untuk Pekebun Kecil*, ISBN : 967-961-088-8
5. *Environmental Quality Management in the Plantations*, Malaysian Oil Palm Growers' Council (1995), ISBN-13: 978-9679610581
6. R.H.V. Corley (2003), *The Oil Palm (World Agriculture Series)*, Wiley-Blackwell, ISBN-13: 978-0632052127
7. Jabatan Pertanian (2005) *Pakej Teknologi Kelapa Sawit*, ISBN : 983-047-064-4

CURRICULUM of COMPETENCY UNIT (CoCU)

Sub Sector	PLANTATION						
Job Area	OIL PALM PLANTATION OPERATION & SUPERVISION						
Competency Unit Title	OIL PALM MECHANISATION APPLICATION SUPERVISION						
Learning Outcome	<p>The person who is competent in this CU shall be able to ensure that all mechanisation activities involved in organisation's effectively coordinated and supported. Upon completion of this competency unit, trainees will be able to:-</p> <ul style="list-style-type: none"> • Identify plantation mechanisation application requirements • Coordinate mechanisation operation • Evaluate mechanisation operation performance • Prepare mechanisation operation report 						
Competency Unit ID	RB-081-3:2012-C07	Level	3	Training Duration	96 Hours	Credit Hours	9

Work Activities	Related Knowledge	Related Skills	Attitude / Safety / Environmental	Training Hours	Delivery Mode	Assessment Criteria
1. Identify plantation mechanisation application requirements	i. Definition and purpose of SOP ii. Procedure of acquiring company's document iii. Types of machine and implements in oil palm plantation such as: <ul style="list-style-type: none"> • Mechanical cutter • Mechanical loader iv. Machine and implements maintenance <ul style="list-style-type: none"> • Purpose • Activities 			8 hours	Lecture	i. Company's mechanisation application Standard Operation Procedures (SOP) collected according to company's procedure ii. Company's mechanisation application

Work Activities	Related Knowledge	Related Skills	Attitude / Safety / Environmental	Training Hours	Delivery Mode	Assessment Criteria
		<ul style="list-style-type: none"> i. Acquire company's mechanisation application Standard Operation Procedures(SOP) ii. Interpret company's mechanisation application Standard Operation Procedures(SOP) iii. Determine company's operational program according to operational schedule iv. Determine types of machine and implements according to inventory record v. Assess machine and implements maintenance schedule 	<p><u>Attitude:</u></p> <ul style="list-style-type: none"> i. Precise in sourcing document ii. Meticulous in interpreting document 	17 hours	Demonstration & Observation	<ul style="list-style-type: none"> Standard Operation Procedures (SOP) explained according to requirement iii. Company's operation program describe according to company's procedure iv. Types of machine and implements listed out v. Machine and implements maintenance schedule interpreted according to company's operation program

Work Activities	Related Knowledge	Related Skills	Attitude / Safety / Environmental	Training Hours	Delivery Mode	Assessment Criteria
2. Coordinate mechanisation operation	<ul style="list-style-type: none"> i. Type of machine and implements ii. Technique of checking machine functionality iii. Procedure of allocating machine and implements to various unit 			6 hours	Lecture	<ul style="list-style-type: none"> i. Types of machine and implements listed out according to inventory record ii. Machine and implements selected according to job requirements
		<ul style="list-style-type: none"> i. Determine types of machine and implements according to inventory record ii. Inspect machine and implements functionality according to manufacturer manual iii. Arrange machine and implements according to production schedule 	<p><u>Attitude:</u></p> <ul style="list-style-type: none"> i. Knowledgeable in coordinating mechanisation operation ii. Diplomatic and polite in giving instruction 	20 hours	Demonstration & Observation	<ul style="list-style-type: none"> iii. Machine and implements functionality tested according to manufacturer's instruction iv. Machine and implements distributed to various unit according to production schedule and company's SOP

Work Activities	Related Knowledge	Related Skills	Attitude / Safety / Environmental	Training Hours	Delivery Mode	Assessment Criteria
3. Evaluate mechanisation operation performance	<ul style="list-style-type: none"> i. Mechanisation operation performance evaluation procedure ii. Performance recording procedure iii. Method of analysing mechanisation operation performance 			10 hours	Lecture	<ul style="list-style-type: none"> i. Mechanisation operation performance record/ report acquired according to company's procedure
		<ul style="list-style-type: none"> i. Collect mechanisation operation performance record/ report ii. Analyse mechanisation operation performance record/ report iii. Determine mechanisation performance 	<p><u>Attitude:</u></p> <ul style="list-style-type: none"> i. Knowledgeable in assessing operation performance ii. Meticulous in interpreting previous record 	20 hours	Demonstration & Observation	<ul style="list-style-type: none"> ii. Mechanisation operation performance record and report examined according to company's procedure iii. Mechanisation operation performance measured against operational target iv. Mechanisation operation performance confirmed

Work Activities	Related Knowledge	Related Skills	Attitude / Safety / Environmental	Training Hours	Delivery Mode	Assessment Criteria
4. Prepare mechanisation operational report	<ul style="list-style-type: none"> i. Reports standard format ii. Report writing technique iii. Procedure of submitting report to superior 			5 hours		<ul style="list-style-type: none"> i. Mechanisation operation performance report/ record documented according to company's procedure
		<ul style="list-style-type: none"> i. Compile mechanisation operation performance report/ record ii. Prepare mechanisation application report iii. Submit report to superior 	<p><u>Attitude:</u></p> <ul style="list-style-type: none"> i. Knowledgeable in report writing ii. Diplomatic in submitting report to superior 	10 hours	Demonstration & Observation	<ul style="list-style-type: none"> ii. Mechanisation application report produced according to standard format iii. Mechanisation application report forwarded to superior according to company's procedure

Employability Skills

Core Abilities	Social Skills
<p>01.01 Identify and gather information.</p> <p>01.02 Document information procedures or processes.</p> <p>02.01 Interpret and follow manuals, instructions and SOP's.</p> <p>02.02 Follow telephone/telecommunication procedures.</p> <p>02.03 Communicate clearly.</p> <p>02.04 Prepare brief reports and checklist using standard forms.</p> <p>02.05 Read/Interpret flowcharts and pictorial information.</p> <p>03.01 Apply cultural requirement to the workplace.</p> <p>03.02 Demonstrate integrity and apply practical practices.</p> <p>03.03 Accept responsibility for own work and work area.</p> <p>03.04 Seek and act constructively upon feedback about work performance.</p> <p>03.06 Respond appropriately to people and situations.</p> <p>03.07 Resolve interpersonal conflicts.</p> <p>06.01 Understand systems.</p> <p>06.02 Comply with and follow chain of command.</p> <p>06.03 Identify and highlight problems.</p> <p>06.04 Adapt competencies to new situations/systems.</p> <p>01.04 Analyse information.</p> <p>04.03 Organize and maintain own workplace.</p> <p>04.04 Apply problem solving strategies.</p> <p>04.05 Demonstrate initiative and flexibility.</p> <p>01.07 Utilize database applications to locate a process information.</p> <p>01.08 Utilize spreadsheets applications to locate and process information.</p> <p>01.10 Apply a variety of mathematical techniques.</p> <p>01.11 Apply thinking skills and creativity.</p> <p>02.10 Prepare reports and instructions.</p> <p>02.11 Convey information and ideas to people.</p> <p>03.09 Manage and improve performance of individuals.</p> <p>03.13 Develop and maintain TEM harmony and resolve conflicts.</p>	<ol style="list-style-type: none"> 1. Communication skills 2. Conceptual skills 3. Interpersonal skills 4. Learning skills 5. Leadership skills 6. Multitasking and prioritizing 7. Self-discipline 8. Teamwork

Core Abilities	Social Skills
03.14 Facilitate and coordinate TEMs and ideas. 03.15 Liase to achieve identified outcomes. 03.16 Identify and assess client/customer needs. 05.01 Implement project/work plans. 05.02 Inspect and monitor work done and/or in progress.	

Tools, Equipment and Materials (TEM)

ITEMS	RATIO (TEM : Trainees)
1. Spraying equipment <ul style="list-style-type: none"> • Tractor mounted spray 	1:25
2. Manuring equipment <ul style="list-style-type: none"> • Vicon spreader 	1:25
3. Maintenance equipment <ul style="list-style-type: none"> • Grass cutter • Grader • Backhoe • Tractor 	1:25 1:25 1:25 1:25
4. Harvesting equipment <ul style="list-style-type: none"> • Mechanical cutter (Cantas) • Mechanical loader • Engine powered wheelbarrow 	1:10 1:25 1:25
5. Whiteboard	1:1
6. Flipchart	1:1
7. Stationeries	1:1
8. RSPO document	1:1
9. MSPO document	1:1
10. Estate map / Topography map	1:1
11. Related Act documents <ul style="list-style-type: none"> • OSHA act 1994 • Environmental Quality (amendment) act 2012 	1:1 1:1

<ul style="list-style-type: none"> • Wildlife Conservation act 2010 	1:1
12. MPOB standard document	1:25
13. First aid kit	1:25
14. Heavy vehicles for upkeep operation	
<ul style="list-style-type: none"> • Tractor 	1:25
<ul style="list-style-type: none"> • Trailer 	1:25
<ul style="list-style-type: none"> • Motor grader 	1:25
<ul style="list-style-type: none"> • Backhoe 	1:25
15. Type of implement's :	1:25
<ul style="list-style-type: none"> • Rotor slashes 	
<ul style="list-style-type: none"> • Power sprayer 	1:25
<ul style="list-style-type: none"> • Compactor 	1:25
<ul style="list-style-type: none"> • Back bucket 	1:25
<ul style="list-style-type: none"> • Water tank 	1:25
16. Muster chit	1:1
17. Log book	1:1
18. Water container	1:5
19. Manufacturer's manual	1:1
20. Requisition form	

REFERENCES

1. Susan M. Martin (2003), *The UP Saga*, Routledge, ISBN-13: 978-8791114205
2. Kulthida Chalooddong (2011), *An Economic Analysis Of Oil Palm Plantation in Northeastern Thailand: A Case Study Of Seka District In Nong Khai Province*, LAP LAMBERT Academic Publishing, ISBN-13: 978-3844303544
3. Esnan Ab. Ghani & Idris Omar (2009), *Perusahaan Sawit di Malaysia*, ISBN : 978-967-961-163-2
4. Esnan Ab. Ghani, Mohd. Tayeb Dolmat & Mohd. Basri Wahid (2002), *Penanaman & Penyelenggaraan Sawit Untuk Pekebun Kecil*, ISBN : 967-961-088-8
5. *Environmental Quality Management in the Plantations*, Malaysian Oil Palm Growers' Council (1995), ISBN-13: 978-9679610581
6. R.H.V. Corley (2003), *The Oil Palm (World Agriculture Series)*, Wiley-Blackwell, ISBN-13: 978-0632052127
7. Jabatan Pertanian (2005) *Pakej Teknologi Kelapa Sawit*, ISBN : 983-047-064-4

CURRICULUM of COMPETENCY UNIT (CoCU)

Sub Sector	PLANTATION						
Job Area	OIL PALM PLANTATION OPERATION & SUPERVISION						
Competency Unit Title	OIL PALM NURSERY OPERATION SUPERVISION						
Learning Outcome	<p>The person who is competent in this CU shall be able to ensure all the operation work in nursery will be run smoothly according organisation planning. Upon completion of this competency unit, trainees will be able to:-</p> <ul style="list-style-type: none"> • Identify nursery operation supervision requirement • Perform nursery operation cost monitoring • Monitor nursery maintenance activities • Monitor nursery work efficiency • Monitor stock inventory • Carry out nursery production performance assessment • Prepare nursery operation supervision report 						
Competency Unit ID	RB-081-3:2012-E01	Level	3	Training Duration	140 Hours	Credit Hours	14

Work Activities	Related Knowledge	Related Skills	Attitude / Safety / Environmental	Training Hours	Delivery Mode	Assessment Criteria
1. Identify nursery operation supervision requirement	i. Nursery operational plan ii. Definition of organisational structure iii. Method of translating organisational structure iv. Element of supervision v. Types of nursery vi. Oil palm nursery activities vii. Nursery operational activities			6 hours	Lecture	i. Organisation procedure on nursery operation obtained according to company's procedure ii. Organisation procedure on nursery operation translated

Work Activities	Related Knowledge	Related Skills	Attitude / Safety / Environmental	Training Hours	Delivery Mode	Assessment Criteria
		<ul style="list-style-type: none"> i. Acquire organisational procedure on nursery operational plan ii. Interpret organisation's structure iii. Determine nursery operational procedure iv. Determine nursery operational activities v. Identify operational time frame according to work load 	<p><u>Attitude:</u></p> <ul style="list-style-type: none"> i. Precise in sourcing information or document ii. Adhere to procedure when collecting document 	10 hours	Demonstration & Observation	<ul style="list-style-type: none"> according to company's requirement iii. Organisation structure described according to company's requirements iv. Nursery operational activities listed out according to operational plan v. Operational activities time frame determined according to work load
2. Perform nursery operational cost monitoring	<ul style="list-style-type: none"> i. Operational expenditure ii. Method of estimating operational expenditure iii. Types of nursery operation activities iv. Monitoring and control technique and procedure 			8 hours	Lecture	<ul style="list-style-type: none"> i. Report/ record of expenditure on nursery operation gathered according to company's procedure ii. Nursery operation

Work Activities	Related Knowledge	Related Skills	Attitude / Safety / Environmental	Training Hours	Delivery Mode	Assessment Criteria
		<ul style="list-style-type: none"> i. Acquire report/ record of expenditure on nursery operation ii. Check nursery operation expenditure iii. Identify nursery operation activities iv. Allocate budget for nursery operation v. Monitor nursery operational cost according to budget planned vi. Record nursery operational costing status 	<p><u>Attitude:</u></p> <ul style="list-style-type: none"> i. Knowledgeable in monitoring nursery operation cost ii. Meticulous in checking nursery operation cost iii. Knowledgeable in operation cost control 	20 hours	Demonstration & Observation	<ul style="list-style-type: none"> expenditure examined according to estimated operational expenditure iii. Nursery operation activities listed out according to nursery operational plan iv. Nursery operation budget determined according to operational plan v. Nursery operational budget distributed to various unit according to work activities vi. Nursery operational cost monitored according to allocated budget vii. Nursery operational costing status determined according to

Work Activities	Related Knowledge	Related Skills	Attitude / Safety / Environmental	Training Hours	Delivery Mode	Assessment Criteria
						budget plan viii. Nursery operational costing status documented according to company's procedure
3. Monitor nursery maintenance activities	<ul style="list-style-type: none"> i. Nursery maintenance activities ii. Method of interpreting nursery maintenance schedule iii. Definition and purpose of maintenance expenditure iv. Technique of recording maintenance activities v. Method of checking nursery maintenance activities progress 			8 hours	Lecture	<ul style="list-style-type: none"> i. Schedule of nursery maintenance activities acquired according to company's procedure ii. Nursery maintenance activities determined according to schedule
		<ul style="list-style-type: none"> i. Interpret schedule of nursery maintenance ii. Identify nursery maintenance activities iii. Check costing for nursery maintenance activities iv. Check nursery maintenance activities progress 		20 hours	Demonstration & Observation	<ul style="list-style-type: none"> iii. Schedule of nursery maintenance activities describe according to nursery operation plan iv. Costing for

Work Activities	Related Knowledge	Related Skills	Attitude / Safety / Environmental	Training Hours	Delivery Mode	Assessment Criteria
		v. Record nursery maintenance activities	<u>Attitude:</u> i. Diplomatic in giving advice ii. Follow procedure while collecting information or data <u>Safety:</u> i. Wear PPE while performing monitoring nursery maintenance activities ii. Adhere to OSHA requirement iii. Adhere to SOP requirement			nursery maintenance activities examined according to estimated operational expenditure v. Nursery maintenance activities progress assessed according to maintenance record vi. Nursery maintenance activity effectiveness determined according to maintenance record and schedule
4. Monitor nursery work efficiency	i. Nursery operation planning ii. Technique of monitoring work in progress iii. Type of nursery			6 hours		i. Nursery operational planning describe according to company's

Work Activities	Related Knowledge	Related Skills	Attitude / Safety / Environmental	Training Hours	Delivery Mode	Assessment Criteria
	operation iv. Monitoring tools v. Purpose of monitoring vi. Monitoring procedure					requirement and company's goals and objective ii. Type of nursery operation listed out according to operational plan and work schedule
		i. Interpret nursery operational planning ii. Determine types of nursery operation activities iii. Inspect nursery operational work in progress iv. Determine nursery activities efficiency v. Record nursery work efficiency	<u>Attitude:</u> i. Knowledgeable in nursery work ii. Meticulous in checking work progress <u>Safety:</u> i. Wear suitable PPE while monitoring nursery work ii. Adhere to OSHA requirement iii. Adhere to SOP requirement	14 hours		iii. Nursery operation work in progress checked against work schedule iv. Nursery work efficiency confirmed according to work schedule and operational target v. Nursery work progress documented according to company's procedure

Work Activities	Related Knowledge	Related Skills	Attitude / Safety / Environmental	Training Hours	Delivery Mode	Assessment Criteria
5. Monitor stock inventory	<ul style="list-style-type: none"> i. Type of inventory ii. Stock taking procedure iii. Inventory record procedure iv. Stock monitoring procedure 			4 hours		<ul style="list-style-type: none"> i. Type of stock inventory listed out according to standard ii. Stock taking carried out according to inventory record and company's procedure
		<ul style="list-style-type: none"> i. Determine type of stock inventory ii. Check stock according to inventory record iii. Determine inventory stock status iv. Report inventory stock status 	<p><u>Attitude:</u></p> <ul style="list-style-type: none"> i. Tactful in checking stock ii. Meticulous in interpreting inventory record 	10 hours		<ul style="list-style-type: none"> iii. Inventory stock status confirmed according to company's procedure iv. Inventory stock status report prepared according to company's procedure
6. Carry out nursery production performance assessment	<ul style="list-style-type: none"> i. Definition of production output ii. Method of checking production output iii. Method of assessing actual production performance iv. Report writing technique v. Procedure of submitting report to 			4 hours		<ul style="list-style-type: none"> i. Nursery production performance record acquired according to company's procedure ii. Nursery production output checked against nursery

Work Activities	Related Knowledge	Related Skills	Attitude / Safety / Environmental	Training Hours	Delivery Mode	Assessment Criteria
	superior					operation planning target iii. Gap between nursery production output and nursery operation planning target measured according to operation schedule and company's procedure iv. Report on production performance status produced according company's procedure
		i. Access nursery production performance record ii. Assess nursery production output against nursery operation planning target iii. Determine gap between production output and nursery operation planning target iv. Prepare report on production performance status and submit to superior	<u>Attitude:</u> i. Knowledgeable in measuring nursery production output ii. Meticulous in writing report iii. Diplomatic in submitting report to superior	10 hours		

Work Activities	Related Knowledge	Related Skills	Attitude / Safety / Environmental	Training Hours	Delivery Mode	Assessment Criteria
7. Prepare nursery operation supervision report	<ul style="list-style-type: none"> i. Nursery recording and reporting procedure ii. Report writing technique iii. Communication skill 			6 hours		<ul style="list-style-type: none"> i. Record and report of nursery operation activities acquired according to company's procedure
		<ul style="list-style-type: none"> i. Collect report and record of nursery operation performance ii. Verify report and record of nursery operational performance iii. Compile record and report of nursery operation activities performance iv. Produce nursery operational report v. Submit nursery operational report to superior 	<p><u>Attitude:</u></p> <ul style="list-style-type: none"> i. Knowledgeable and meticulous in writing report ii. Practice effective communication 	14 hours		<ul style="list-style-type: none"> ii. Record and report performance checked according to company's procedure iii. Nursery operational record and report documented according to standard format iv. Nursery operational report prepared and forwarded to superior according to company's procedure

Employability Skills

Core Abilities	Social Skills
<p>01.01 Identify and gather information.</p> <p>01.02 Document information procedures or processes.</p> <p>02.01 Interpret and follow manuals, instructions and SOP's.</p> <p>02.02 Follow telephone/telecommunication procedures.</p> <p>02.03 Communicate clearly.</p> <p>02.04 Prepare brief reports and checklist using standard forms.</p> <p>02.05 Read/Interpret flowcharts and pictorial information.</p> <p>03.01 Apply cultural requirement to the workplace.</p> <p>03.02 Demonstrate integrity and apply practical practices.</p> <p>03.03 Accept responsibility for own work and work area.</p> <p>03.04 Seek and act constructively upon feedback about work performance.</p> <p>03.06 Respond appropriately to people and situations.</p> <p>03.07 Resolve interpersonal conflicts.</p> <p>06.01 Understand systems.</p> <p>06.02 Comply with and follow chain of command.</p> <p>06.03 Identify and highlight problems.</p> <p>06.04 Adapt competencies to new situations/systems.</p> <p>01.04 Analyse information.</p> <p>04.03 Organize and maintain own workplace.</p> <p>04.04 Apply problem solving strategies.</p> <p>04.05 Demonstrate initiative and flexibility.</p> <p>01.07 Utilize database applications to locate a process information.</p> <p>01.08 Utilize spreadsheets applications to locate and process information.</p> <p>01.10 Apply a variety of mathematical techniques.</p> <p>01.11 Apply thinking skills and creativity.</p> <p>02.10 Prepare reports and instructions.</p> <p>02.11 Convey information and ideas to people.</p> <p>03.09 Manage and improve performance of individuals.</p>	<ol style="list-style-type: none"> 1. Communication skills 2. Conceptual skills 3. Interpersonal skills 4. Learning skills 5. Leadership skills 6. Multitasking and prioritizing 7. Self-discipline 8. Teamwork

Core Abilities	Social Skills
03.13 Develop and maintain TEM harmony and resolve conflicts. 03.14 Facilitate and coordinate TEMs and ideas. 03.15 Liase to achieve identified outcomes. 03.16 Identify and assess client/customer needs. 05.01 Implement project/work plans. 05.02 Inspect and monitor work done and/or in progress.	

Tools, Equipment and Materials (TEM)

ITEMS	RATIO (TEM : Trainees)
1. Whiteboard 2. Flipchart 3. Stationeries 4. RSPO document 5. MSPO document 6. Estate map / Topography map 7. Related Act documents <ul style="list-style-type: none"> • Pesticide act 1974 • OSHA act 1994 • Environmental Quality (amendment) act 2012 • Wildlife Conservation act 2010 8. MPOB standard document 9. Personal Protective Equipment (PPE) 10. First aid kit 11. Tally counter 12. Muster chit 13. Nursery record 14. Fertiliser 15. Pesticide	1:5 1:1 1:25 1:25 1:1 1:5 1:1 1:1 1:1 1:1 1:1 1:1 1:1 1:1 1:25 1:1 1:1 1:1 As required As required

16. Seed (such as; oil palm seedling)	As required
17. Projector	1:25
18. Requisition form	1:1
19. Budget document	1:1
20. Nursery layout plan	1:1

REFERENCES	
1.	Susan M. Martin (2003), The UP Saga, Routledge, ISBN-13: 978-8791114205
2.	Kulthida Chaloodong (2011), An Economic Analysis Of Oil Palm Plantation in Northeastern Thailand: A Case Study Of Seka District In Nong Khai Province, LAP LAMBERT Academic Publishing, ISBN-13: 978-3844303544
3.	Esnan Ab. Ghani & Idris Omar (2009), Perusahaan Sawit di Malaysia, ISBN : 978-967-961-163-2
4.	Esnan Ab. Ghani, Mohd. Tayeb Dolmat & Mohd. Basri Wahid (2002), Penanaman & Penyelenggaraan Sawit Untuk Pekebun Kecil, ISBN : 967-961-088-8
5.	Environmental Quality Management in the Plantations, Malaysian Oil Palm Growers' Council (1995), ISBN-13: 978-9679610581
6.	R.H.V. Corley (2003), The Oil Palm (World Agriculture Series), Wiley-Blackwell, ISBN-13: 978-0632052127
7.	Jabatan Pertanian (2005) Pakej Teknologi Kelapa Sawit, ISBN : 983-047-064-4
8.	Basri, MW; Norman, K;Idris, A.S;Ariffin, D;Shamal, S;Ramle,M an Siti Ramlah,AA(2003).Handbook of Pests and Diseases of Oil Palm. MPOB,Bangi 113 hlm.
9.	Duckett (1989). A Guide to Oil Palm Nurseries. Incorporated Society of Planters, Kuala Lumpur. 109 hlm
10.	Hishamudin Mohd Jamil (1984). Perusahaan Kelapa Sawit-Satu anduan. PORIM,Bangi.109 hlm
11.	Mohd Tayeb Colmat (2005). Technologies for lanting Oil Palm on Peat. MPOB,Bangi.55 hlm
12.	JWL Bevan, T Fleming & BS Gray (1966) Planting Techniques for Oil Palms in Malaysia,The Incorporated Society of Planters, Kuala Lumpur, 1966.

CONTACT HOUR DISTRIBUTION FOR ; OIL PALM PLANTATION OPERATION

MODULE NO.	COMPETENCY UNIT TITLE	WORK ACTIVITIES	GUIDED		TOTAL (HRS)
			RELATED KNOWLEDGE	RELATED SKILL	
RB-081-3:2012-C01	OIL PALM PLANTING OPERATION	Plan oil palm planting operation	15	30	220
		Perform oil palm lining	25	45	
		Carry out oil palm planting	25	45	
		Assess oil palm planting operation activities	15	20	
		TOTAL HOURS	80	140	
RB-081-3:2012-C02	OIL PALM FIELD UPKEEP AND MAINTENANCE	Identify field upkeep and maintenance activities	10	20	310
		Perform road and bridges maintenance	14	45	
		Perform oil palm maintenance	14	45	
		Perform Pest & Disease control	14	50	
		Perform weed control	14	40	
		Perform oil palm census activities	14	30	
		TOTAL HOURS	80	230	
RB-081-3:2012-C03	OIL PALM MANURING	Organise oil palm manuring activities requirement	10	20	130
		Prepare manuring tools, equipment & material	10	40	
		Carry out oil palm manuring	10	40	
		TOTAL HOURS	30	100	
RB-081-3:2012-C04	OIL PALM HARVESTING & COLLECTION OPERATION	Prepare harvesting tools & equipment	10	25	175
		Carry out harvesting activity	15	40	
		Carry out infield collection	15	40	
		Report harvesting activity	10	20	
		TOTAL HOURS	50	125	
RB-081-3:2012-C05	FIELD OPERATION ADMINISTRATION	Identify field operation requirements	2	5	251
		Maintain daily and monthly operational records	9	9	
		Prepare budget input data	11	24	
		Implement workers health & safety requirements compliance	8	20	
		Implement plantation operation security procedures	8	20	
		Coordinate workers application for work permit	8	20	
		Perform payroll requisition administration	8	20	
		Perform workers welfare coordination	11	25	
		Carry out oil palm plantation inventory control	8	20	
		Prepare field operation activities report	5	10	
		TOTAL HOURS	78	173	

CONTACT HOUR DISTRIBUTION FOR ; OIL PALM PLANTATION OPERATION

MODULE NO.	COMPETENCY UNIT TITLE	WORK ACTIVITIES	GUIDED		TOTAL (HRS)
			RELATED KNOWLEDGE	RELATED SKILL	
RB-081-3:2012-C06	OIL PALM PRODUCTION OPERATION QUALITY CONTROL	Identify production operation supervision requirements	4	10	189
		Plan workers utilisation	8	20	
		Perform upkeep and maintenance activities supervision	14	35	
		Perform collection & harvesting activities supervision	8	20	
		Perform manuring activities supervision	8	20	
		Evaluate workers competency level	8	20	
		Prepare production operation report	4	10	
		TOTAL HOURS	54	135	
RB-081-3:2012-C07	OIL PALM MECHANISATION APPLICATION SUPERVISION	Identify plantation mechanisation application requirements	8	17	96
		Coordinate mechanisation operation	6	20	
		Evaluate mechanisation operation performance	10	20	
		Prepare mechanisation operation report	5	10	
		TOTAL HOURS	29	67	
RB-081-3:2012-E01	OIL PALM NURSERY OPERATION SUPERVISION	Identify nursery operation supervision requirement	6	10	140
		Perform nursery operation cost monitoring	8	20	
		Monitor nursery maintenance activities	8	20	
		Monitor nursery work efficiency	6	14	
		Monitor stock inventory	4	10	
		Carry out nursery production performance assessment	4	10	
		Prepare nursery operation supervision report	6	14	
		TOTAL HOURS	42	98	
JUMLAH KREDIT					1371
<p>TERPANDU/GUIDED (KULIAH LATIHAN, DIBENGKEL, MAKMAL, KERJA LAPANGAN)</p> <p>PEMBELAJARAN SENDIRI / SELF LEARNING (PEMBACAAN TUGASAN,PENULISAN LAPORAN,PENYEDIAAN UNTUK PENILAIAN DAN PEPERIKSAAN)</p> <p>* 1 KREDIT = 10 JAM NATIONAL</p>					