



STANDARD KEMAHIRAN PEKERJAAN KEBANGSAAN
(*NATIONAL OCCUPATIONAL SKILLS STANDARD*)

SIGNAGE PRODUCTION AND INSTALLATION
LEVEL 2



JPK
JABATAN PEMBANGUNAN KEMAHIRAN
KEMENTERIAN SUMBER MANUSIA
MALAYSIA

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STANDARD PRACTICE

NATIONAL OCCUPATIONAL SKILLS STANDARD (NOSS) FOR SIGNAGE PRODUCTION AND INSTALLATION LEVEL 2

1. INTRODUCTION

This is a revised NOSS for following signage through the new format stipulated by JPK. There is a high demand for skilled personnel in this field as the industry is developing rapidly. Signage is a very important communication tool, to convey information to the receiver, so that they can make cognitive decisions based on the information provided. Signage can be classified into functions such as informative signage, directional signage and identification signage.

Signage personnel work starts from study requirement from the client to the signage installation work at site. The responsibilities include site survey, material preparation, production, quality control and installation. The person who is competent in signage site survey should be able to carry out an inventory for data collection, record details, prepare analysis of data, diagramming input for a conceptual output, conclude all analysis and evaluate data to produce site survey report. The person who is competent in signage material preparation should be able to accomplish time delivery, managing the supply and purchase the material/product in order to provide a material/product for production works according to the clients' requirement and specification. In addition, the person who is competent in signage production should be able to prepare manpower, material & equipment, fabricate signage components, assemble signage components, perform quality checking as well as perform signage packaging and labelling. The person who is competent in signage quality control should be able to review procedure, establish checklist, inspect activities and control defect during and after production and installation to ensure the specification of the product is followed. Besides, they also responsible to conduct testing and commissioning process by establishing checklist according to manufacturers' operation manual. The person who is competent in signage installation should be able to prepare signage installation work information, carry out site preparation, installation and maintenance in accordance with specification.

Signage work is recognised globally and hence there is a need for properly trained personnel at level 2 and 3. Having a competent workforce will renounce Malaysia as a centre of excellence in the region and help towards inward investment in the country. Consequently, the development of this NOSS at Level 2 and 3 (*Refer Figure 1.1 Occupational Structure for Signage Production and Installation*) is essential so that the sub sector will have complete standards and guidelines to be used by the industry.

2. OCCUPATIONAL STRUCTURE

SECTOR	BUILDING AND CONSTRUCTION
SUB SECTOR	ARCHITECTURAL AND BUILDING
LEVEL/ AREA	SIGNAGE PRODUCTION AND INSTALLATION
LEVEL 5	SIGNAGE MANAGER
LEVEL 4	SIGNAGE DESIGNER
LEVEL 3	SIGNAGE SUPERVISOR
LEVEL 2	SIGNAGE FABRICATOR
LEVEL 1	SIGNAGE INSTALLER

Figure 1.1 Occupational Structure for Signage Production and Installation

3. OCCUPATIONAL AREA STRUCTURE

SECTOR	BUILDING AND CONSTRUCTION
SUB SECTOR	ARCHITECTURAL AND BUILDING
LEVEL/ AREA	SIGNAGE PRODUCTION AND INSTALLATION
LEVEL 5	SIGNAGE MANAGEMENT
LEVEL 4	SIGNAGE DESIGNING
LEVEL 3	SIGNAGE SUPERVISION
LEVEL 2	SIGNAGE PRODUCTION AND INSTALLATION
LEVEL 1	-NIL-

Figure 1.2 Occupational Area Structure for Signage Production And Installation

4. 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: (Operation and Production Level)	Competent in performing a range of varied work activities, most of which are routine and predictable.
Malaysia Skills Certificate Level 2: (Operation and Production Level)	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: (Supervisory Level)	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: (Executive Level)	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. Responsibility for the work of others and allocation of resources is often present.
Malaysia Skills Advanced Diploma Level 5: (Managerial Level)	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.

5. MALAYSIAN SKILL CERTIFICATION

Candidates after being assessed verified and fulfilled Malaysian Skill Certification requirements shall be awarded with Sijil Kemahiran Malaysia (SKM) for Level 1, 2 and 3 as for Level 4 and 5 shall be awarded with Diploma Kemahiran Malaysia and Diploma Lanjutan Kemahiran Malaysia respectively.

6. JOB COMPETENCIES

A Signage Production and Installation Level 2 are competent in performing:

- Signage Production
- Signage Installation

Optionally Signage Production and Installation Level 2 are competent in performing the following Elective competencies:-

- Electrical & Electronic Signage Production

7. WORKING CONDITIONS

Generally, signage personnel work is according to the work schedule and responsible to meet production and client's requirements. The personnel are also responsible to adhere to workplace standard operating procedure and organization work activities, either in workshops and studios or field works. This covers such matters as creativity, skills, training, communication, presentations, meetings, travel and work-life balance. They may work individually or in an industry with supervision by superior.

Personnel also have the opportunity to develop their career path in other related field in terms of technology innovation in sign making industry and enhance their personal and public relation skills.

8. EMPLOYMENT PROSPECTS

The signage personnel have 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 architectural and building industry. This in turn increases the demand for skilled personnel in this field to be employed locally or internationally.

Other related occupations with respect to employment opportunities are:

- Advertising Agency
- Signage Factory
- Media Agency
- Interior Design

Other related industries with respect to employment opportunities are:

- Education
- Training Centres
- Lecturers
- Facilitators

9. SOURCES OF ADDITIONAL INFORMATION

1. Road Engineering Association of Malaysia

No 46A, Jalan Bola Tampar 13/14,
Section 13,
40100 Shah Alam,
Selangor.

Tel : 03 – 5513 6521/6522
Fax : 03 – 5513 6523
Email : ream@po.jaring.my
Laman Web : <http://www.ream.org.my>

2. Malaysian Digital Signage Association

No 97-2A, Jalan TKS 1,
Taman Kajang Sentral,
43000 Kajang, Selangor.

Tel : 03 – 8739 9510
Fax : 03 – 2178 4646
Email : info@digitalsignageassociation.org.my
Laman Web : <http://www.digitalsignageassociation.org.my>

3. Lembaga Piawai Pengiklanan Malaysia

Unit 706, Blok B,
Pusat Dagangan Phileo Damansara 1,
9, Jalan 16/11, Off Jalan Damansara,
46350 Petaling Jaya, Selangor.

Tel : 03 – 7660 8535
Fax : 03 – 7660 8532
Email : asa@macomm.com.my
Laman Web : <http://www.asa.org.my>

10. APPROVAL DATE

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

11. 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.

**12. COMMITTEE MEMBERS FOR PHASE 1 NOSS SIGNAGE PRODUCTION AND
INSTALLATION LEVEL 2**

PANEL		
1.	En Mohd Shamsudin bin Mohd Nordin	Pengarah Tempinas Sdn Bhd
2.	Mr Chew Choon Yau	Director YPE Signcraft Cdn Bhd
3.	Ms Ong Hooi Phaik	Admin Executive YPE Signcraft Cdn Bhd
4.	Pn Faizah binti Wahid	QA/QC Executive Zelan Construction Sdn Bhd
5.	Pn. Noriha binti Derin	Director Lembaga Lebuhraya Malaysia
6.	Dr Masria Mustafa	Lecturer Universiti Teknologi MARA
7.	En Md Ahir bin Abu Hasan	Managing Director Suria Insan Sdn Bhd
8.	Mr Yong Wai Lek	Project Executive Media Signs Sdn Bhd
9.	En Ismail Md Isa	Managing Director S&I Urban Designers Sdn Bhd
10.	Pn. Zurina binti Aris	Project Consulting Manager S&I Urban Designers Sdn Bhd
11.	En Ahmad Kamal bin Abudin	Engineer Projek Lebuhraya Usahasama Berhad
12.	En Mohd Ismadi Nasri bin Mhamat Nasudin	Technical Executive Projek Lebuhraya Usahasama Berhad
13.	En Zaharin bin Ibrahim	Senior Technical Executive Projek Lebuhraya Usahasama Berhad
14.	En Mohd Sukhairul Azrai bin Sukiman	Designer AZ Ideal Inspiration Sdn Bhd
FACILITATOR		
15.	Pn. Siti Rohanah Binti Ahmad	CIDB

**13. COMMITTEE MEMBERS FOR PHASE 2 NOSS SIGNAGE PRODUCTION AND
INSTALLATION LEVEL 2**

PANEL		
1.	En Mohd Shamsudin bin Mohd Nordin	Pengarah Tempinas Sdn Bhd
2.	Mr Chew Choon Yau	Director YPE Signcraft Cdn Bhd
3.	Ms Ong Hooi Phaik	Admin Executive YPE Signcraft Cdn Bhd
4.	Pn Faizah binti Wahid	QA/QC Executive Zelan Construction Sdn Bhd
5.	Pn. Noriha binti Derin	Director Lembaga Lebuhraya Malaysia
6.	Dr Masria Mustafa	Lecturer Universiti Teknologi MARA
7.	En Md Ahir bin Abu Hasan	Managing Director Suria Insan Sdn Bhd
8.	Mr Yong Wai Lek	Project Executive Media Signs Sdn Bhd
9.	En Ismail Md Isa	Managing Director S&I Urban Designers Sdn Bhd
10.	Pn. Zurina binti Aris	Project Consulting Manager S&I Urban Designers Sdn Bhd
11.	En Ahmad Kamal bin Abudin	Engineer Projek Lebuhraya Usahasama Berhad
12.	En Mohd Ismadi Nasri bin Mhamat Nasudin	Technical Executive Projek Lebuhraya Usahasama Berhad
13.	En Zaharin bin Ibrahim	Senior Technical Executive Projek Lebuhraya Usahasama Berhad
14.	En Mohd Sukhairul Azrai bin Sukiman	Designer AZ Ideal Inspiration Sdn Bhd
FACILITATOR		
15.	Pn. Siti Rohanah Binti Ahmad	CIDB

**14. COMMITTEE MEMBERS FOR PHASE 3 NOSS SIGNAGE PRODUCTION AND
INSTALLATION LEVEL 2**

PANEL		
1.	En Mohd Shamsudin bin Mohd Nordin	Pengarah Tempinas Sdn Bhd
2.	Mr Chew Choon Yau	Director YPE Signcraft Cdn Bhd
3.	Ms Ong Hooi Phaik	Admin Executive YPE Signcraft Cdn Bhd
4.	Pn Faizah binti Wahid	QA/QC Executive Zelan Construction Sdn Bhd
5.	Pn. Noriha binti Derin	Director Lembaga Lebuhraya Malaysia
6.	Dr Masria Mustafa	Lecturer Universiti Teknologi MARA
7.	En Md Ahir bin Abu Hasan	Managing Director Suria Insan Sdn Bhd
8.	Mr Yong Wai Lek	Project Executive Media Signs Sdn Bhd
9.	En Ismail Md Isa	Managing Director S&I Urban Designers Sdn Bhd
10.	Pn. Zurina binti Aris	Project Consulting Manager S&I Urban Designers Sdn Bhd
11.	En Ahmad Kamal bin Abudin	Engineer Projek Lebuhraya Usahasama Berhad
12.	En Mohd Ismadi Nasri bin Mhamat Nasudin	Technical Executive Projek Lebuhraya Usahasama Berhad
13.	En Zaharin bin Ibrahim	Senior Technical Executive Projek Lebuhraya Usahasama Berhad
14.	En Mohd Sukhairul Azrai bin Sukiman	Designer AZ Ideal Inspiration Sdn Bhd
FACILITATOR		
15.	Pn. Siti Rohanah Binti Ahmad	CIDB

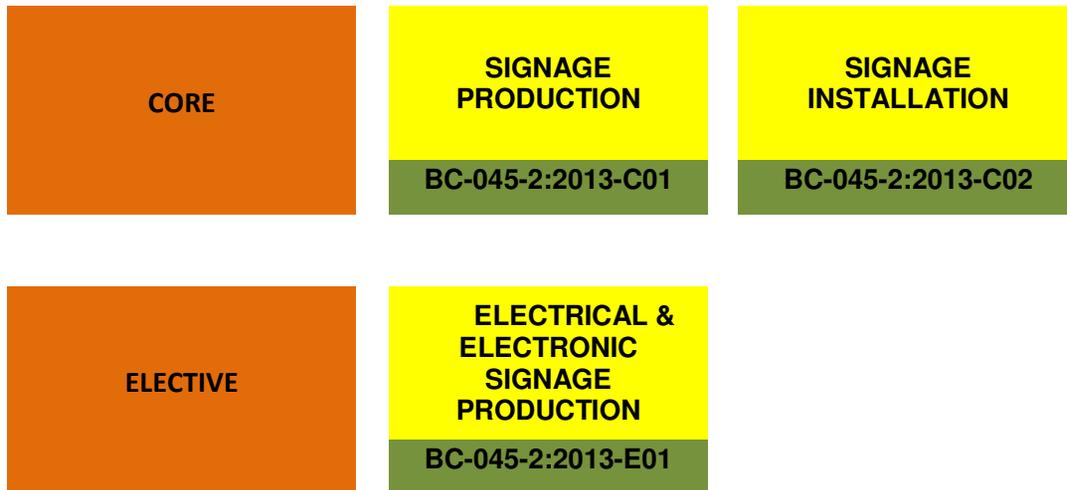
**15. COMMITTEE MEMBERS FOR PHASE 4 NOSS SIGNAGE PRODUCTION AND
INSTALLATION LEVEL 2**

PANEL		
1.	En Mohd Shamsudin bin Mohd Nordin	Pengarah Tempinas Sdn Bhd
2.	Mr Chew Choon Yau	Director YPE Signcraft Cdn Bhd
3.	Ms Ong Hooi Phaik	Admin Executive YPE Signcraft Cdn Bhd
4.	Pn Faizah binti Wahid	QA/QC Executive Zelan Construction Sdn Bhd
5.	Pn. Noriha binti Derin	Director Lembaga Lebuhraya Malaysia
6.	Dr Masria Mustafa	Lecturer Universiti Teknologi MARA
7.	En Md Ahir bin Abu Hasan	Managing Director Suria Insan Sdn Bhd
8.	Mr Yong Wai Lek	Project Executive Media Signs Sdn Bhd
9.	En Ismail Md Isa	Managing Director S&I Urban Designers Sdn Bhd
10.	Pn. Zurina binti Aris	Project Consulting Manager S&I Urban Designers Sdn Bhd
11.	En Ahmad Kamal bin Abudin	Engineer Projek Lebuhraya Usahasama Berhad
12.	En Mohd Ismadi Nasri bin Mhamat Nasudin	Technical Executive Projek Lebuhraya Usahasama Berhad
13.	En Zaharin bin Ibrahim	Senior Technical Executive Projek Lebuhraya Usahasama Berhad
14.	En Mohd Sukhairul Azrai bin Sukiman	Designer AZ Ideal Inspiration Sdn Bhd
FACILITATOR		
15.	Pn. Siti Rohanah Binti Ahmad	CIDB

JOB PROFILE CHART (JPC)

SECTOR	BUILDING AND CONSTRUCTION		
SUB SECTOR	ARCHITECTURAL AND BUILDING		
JOB AREA	SIGNAGE PRODUCTION AND INSTALLATION		
NOSS TITLE	SIGNAGE PRODUCTION AND INSTALLATION		
JOB LEVEL	LEVEL 2	JOB AREA CODE	BC-045-2:2013

← **COMPETENCY** → ←————— **COMPETENCY UNIT** —————→



COMPETENCY PROFILE (CP)

Sub Sector	ARCHITECTURAL AND BUILDING
Job Area	SIGNAGE PRODUCTION AND INSTALLATION
NOSS Title	SIGNAGE PRODUCTION AND INSTALLATION
Level	TWO (2)
Code	BC-045-2-2013

CU Title	CU Code	CU Descriptor	CU Work Activities	Performance Criteria
1. Signage Production	BC-045-2-2013-C01	<p>This competency unit describes the skills, knowledge and attitude for signage production.</p> <p>Technical process requirements in general signage production works consist of signage fabrication and installation. This is to ensure the signage production is within the range of cost and quality.</p> <p>The person who is competent in signage production shall be able to Prepare signage requirements, Fabricate signage components inclusive metal frame, acrylic, electrical and electronic, Assemble</p>	<p>1. Prepare signage requirements</p> <p>2. Fabricate signage components</p>	<p>1.1 Work order obtained</p> <p>1.2 Material & equipment analysed</p> <p>1.3 Manpower, material & equipment selected</p> <p>1.4 Signage manpower requirement arranged in accordance with signage requirement</p> <p>2.1 Signage work order obtained</p> <p>2.2 Fabrication tools and equipment prepared in accordance to work function</p> <p>2.3 Quantity of fabrication materials measured</p> <p>2.4 Size, shape and type of signage material cut.</p>

CU Title	CU Code	CU Descriptor	CU Work Activities	Performance Criteria
		signage components, Perform quality checking and Perform signage packaging and labelling in accordance with client's requirements.	3. Assemble signage components	2.5 Signage material segregated in accordance with: <ul style="list-style-type: none"> • Size, • shape, • colour 2.6 Signage materials and components arranged, joined, formed and glued in accordance to method requirement. 3.1 Signage component prepared in accordance to assemble method 3.2 Assemble tools and equipment selected 3.3 Signage components quantity and quality checked. 3.4 Signage components part installed in accordance to specification

CU Title	CU Code	CU Descriptor	CU Work Activities	Performance Criteria
2. Signage Installation	BC-045-2-2013-C02	<p>This competency unit describes the skills, knowledge and attitude in signage installation to ensure the quality, smoothness and efficient overall operation. The responsible include the skill signage installer and general worker to execute signage installation work as per client requirement.</p> <p>The person who is competent in signage Installation shall be able to:- Prepare signage installation work information, carry out site preparation, carry out signage installation work, carry out signage installation maintenance in accordance with signage installation specification.</p>	<p>1. Acquire signage Installation Work Information</p> <p>2. Carry Out Site Preparation.</p>	<p>1.1 Documents and requirements from supervisor obtained</p> <p>1.2 Instruction on signage installations from supervisor is received.</p> <p>1.3 Type of signage installation method and techniques determined in accordance to specifications and requirement.</p> <p>2.1 Manpower skill in signage installation at site is identified.</p> <p>2.2 Requirement tools, equipment & machinery identified in accordance to the job studied</p> <p>2.3 Tools, equipment & machineries is selected in accordance to the job requirement</p>

CU Title	CU Code	CU Descriptor	CU Work Activities	Performance Criteria
			3. Carry out signage Installation works	3.1 Tool box talk prepared are delivered & specified PPE supplied to the target group 3.2 Specified signage site are cleared from waste, working area marked and ensured free from obstacle completely. 3.3 Signage structure installed in accordance to safety requirement and job specification. 3.4 Signage installation performed in accordance to the dimensions and sizes from the checklist. 3.5 Final inspection of signage installation work carried out in accordance to client requirement. 3.6 Completed signage installation works are documented in accordance to work schedule.

CU Title	CU Code	CU Descriptor	CU Work Activities	Performance Criteria
			4. Carry Out Signage Maintenance Work	<p>4.1 Schedule for routine signage maintenance work obtained.</p> <p>4.2 Maintenance personnel selected in accordance to maintenance work schedule.</p> <p>4.3 Tools, equipment & machineries is selected, identified and allocated in accordance to the job requirement.</p> <p>4.4 Signage maintenance work executed as per work schedule</p> <p>4.5 Completed signage maintenance works are documented in accordance to work schedule.</p>

CU Title	CU Code	CU Descriptor	CU Work Activities	Performance Criteria
3. Electrical And Electronic Signage Production	BC-045-2-2013-E01	<p>This competency unit describes the skills, knowledge and attitude in electrical & electronic signage production.</p> <p>The person who is competent in electrical & electronic signage production shall be able to:- Study electrical & electronic production information, prepare electrical & electronic signage production requirements, assemble signage components, assemble signage components, assemble signage components, check electrical & electronic circuit and wiring</p>	<ol style="list-style-type: none"> 1. Study electrical and electronic production information. 2. Prepare electrical and electronic signage production requirements. 	<ol style="list-style-type: none"> 1.1 Electrical & electronic signage Work order from the supervisor obtained 1.2 Electrical & electronic signage diagram and drawing reviewed 1.3 Requirement for related skill for manpower, components and parts studied 1.4 Manpower, components and parts selected 1.5 Electrical & electronic signage requirements arranged 2.1 Electrical & electronic signage Components and parts selected in accordance to work function 2.2 Types of Electrical & electronic signage components and parts usage determined in accordance to signage requirement 2.3 Quantity of Electrical & electronic signage components and parts measured 2.4 Electrical & electronic signage Components and parts prepared in accordance to electrical & electronic diagram

CU Title	CU Code	CU Descriptor	CU Work Activities	Performance Criteria
			<p>3. Assemble signage components</p> <p>4. Check electrical and electronic circuit and wiring</p>	<p>and drawing</p> <p>3.1 Electrical & electronic signage components and parts identified in accordance to method of assemble</p> <p>3.2 Signage Electrical & electronic signage components and parts selected</p> <p>3.3 Electrical & electronic signage components quantity and quality checked.</p> <p>3.4 Electrical & electronic signage components part assembled in accordance to work specification</p> <p>4.1 Wiring connections checked in accordance to work diagram</p> <p>4.2 Electrical & electronic signage function checked in accordance to work requirement inclusive of the following</p> <p>a. Crack & Damage</p> <ul style="list-style-type: none"> • No visible damage (broken, dented, rusty)

CU Title	CU Code	CU Descriptor	CU Work Activities	Performance Criteria
			5. Conduct electrical and electronic circuit and wiring test	<ul style="list-style-type: none"> b. Visibility <ul style="list-style-type: none"> • Message/Symbol is clearly seen c. Finishing <ul style="list-style-type: none"> • Paint/reflective border is clean/not peeling • Wiring is hidden & covered 5.1 Electrical & electronic signage function tested inclusive of the following <ul style="list-style-type: none"> • All bulb & LED is lighted • Push button is functional When pressed • No blackspot and zebra effect

CURRICULUM of COMPETENCY UNIT (CoCU)

Sub Sector	ARCHITECTURAL AND BUILDING						
Job Area	SIGNAGE PRODUCTION AND INSTALLATION						
NOSS Title	SIGNAGE PRODUCTION AND INSTALLATION						
Competency Unit Title	SIGNAGE PRODUCTION						
Learning Outcome	<p>The person who is competent in this CU shall be able to describes the skills, knowledge and attitude for signage production. Upon completion of this competency unit, trainees will be able to: -</p> <ul style="list-style-type: none"> • Prepare signage requirements • Fabricate signage components • Assemble signage components • Perform quality check • Perform signage packaging and labelling 						
Competency Unit ID	BC-045-2:2013-C01	Level	2	Training Duration	180 Hours	Credit Hours	18
Work Activities	Related Knowledge	Related Skills	Attitude/Safety/ Environmental	Training Hours	Delivery Mode	Assessment Criteria	
1. Prepare signage requirements	i. Methods of communication <ul style="list-style-type: none"> • Verbal • Written ii. Signage materials <ul style="list-style-type: none"> • Type • Function • Size • Colour • Shape • Specifications • Cost iii. Signage equipment <ul style="list-style-type: none"> • Type • Function iv. Signage specification requirements			8	Lecture	i. Work order list acquired ii. Work requirements interpreted iii. Signage requirements described iv. Signage requirements categorised	
			10				

Work Activities	Related Knowledge	Related Skills	Attitude/Safety/ Environmental	Training Hours	Delivery Mode	Assessment Criteria
		<ul style="list-style-type: none"> i. Obtain signage work order ii. Analyse signage work requirements iii. Select signage requirements iv. Arrange signage requirements 	<p><u>Attitude:</u></p> <ul style="list-style-type: none"> i. Competent in interpersonal communication skills ii. Well organised in handling work order iii. Analytical in selecting appropriate signage requirements iv. Creative and innovative in ensuring the signage work requirements comply with the specifications <p><u>Safety</u></p> <ul style="list-style-type: none"> i. Systematic in operating Standard Operating Procedure (SOP) 	19	Demonstration, training time, assignment and assessment	

Work Activities	Related Knowledge	Related Skills	Attitude/Safety/Environmental	Training Hours	Delivery Mode	Assessment Criteria
2. Fabricate signage components	i. Methods of communication <ul style="list-style-type: none"> • Verbal • Written ii. Contents of work order iii. Tools and equipment operation iv. Types of signage material measurement <ul style="list-style-type: none"> • Metal • Acrylic • Aluminium v. Cutting tools and equipment operation <ul style="list-style-type: none"> • Laser cutting machine • Router machine vi. Signage component assembly operation			16	Lecture	i. Work order interpreted ii. Fabrication tools, equipment and raw materials selected iii. Signage materials measurement executed iv. Cutting selected materials executed v. Cut signage materials sorted vi. Signage components combined
		i. Obtain work order ii. Prepare fabrication tools, equipment and raw materials iii. Measure signage materials iv. Cut selected materials v. Segregate cut materials vi. Join signage components	<u>Attitude</u> <ul style="list-style-type: none"> i. Adhere to signage materials handling procedures ii. Ensure safety at 	38	Demonstration, training time, assignment, assessment	

Work Activities	Related Knowledge	Related Skills	Attitude/Safety/ Environmental	Training Hours	Delivery Mode	Assessment Criteria
			<p>the working area</p> <p>iii. Precise in handling the materials</p> <p>iv. Tactful and systematic in selecting suitable fabrication tools, equipment and raw materials</p> <p><u>Safety</u></p> <p>i. Systematic in operating Standard Operating Procedure (SOP)</p> <p>ii. Detailed in strategy/focus</p>			
3. Assemble signage components	<p>i. Method of assembly</p> <p>ii. Tools and equipment assembly operation</p> <p>iii. Component specifications and size</p>			17	Lecture	<p>i. Signage components collected</p> <p>ii. Assembling tools and equipment classified</p>
		<p>i. Prepare signage components</p> <p>ii. Select assembling tools and equipment</p> <p>iii. Check signage components 'quantity and quality</p> <p>iv. Install signage components</p>	<p><u>Attitude</u></p> <p>i. Accurate in</p>	28	Demonstration , training time, assignment, assessment	<p>iii. Signage component quality and quantity inspected</p> <p>iv. Signage components identified</p>

Work Activities	Related Knowledge	Related Skills	Attitude/Safety/ Environmental	Training Hours	Delivery Mode	Assessment Criteria
			selecting signage components ii. Precise in handling components iii. Tactful and systematic in selecting appropriate assembling tools and equipment <u>Safety</u> i. Adhere to all signage assembling safety rules and regulations ii. Systematic in operating Standard Operating Procedure (SOP)			
4. Perform quality check	i. Signage specifications and size ii. Drawing attachment			8	Lecture	i. Signage quantity and quality examined ii. Lettering and Graphic inspected iii. Signage surface and joining gap inspected iv. Signage and
		i. Check signage quantity and quality ii. Check lettering and graphic iii. Check surface finishing and joining gap iv. Verify completed signage and artwork		19	Demonstration , training time, assignment, assessment	

Work Activities	Related Knowledge	Related Skills	Attitude/Safety/ Environmental	Training Hours	Delivery Mode	Assessment Criteria
			<u>Attitude</u> i. Tactful and systematic in preparing checklist ii. Ensure quality and quantity are filled thoroughly iii. Particular in performing checking task <u>Safety</u> i. Efficient in operating Standard Operating Procedure (SOP)			artwork evaluated
5. Perform signage packaging and labelling	i. Packaging and labelling methods • Box • Wrap ii. Packaging tools and equipment operation			8	Lecture	i. Packaging and labelling type classified ii. Packaging and labelling method classified
		i. Select packaging and labelling specifications ii. Select packaging tools, equipment and materials iii. Pack signage iv. Label signage	<u>Attitude</u> i. Careful in handling signage ii. Systematic in	19	Demonstration, training time, assignment, assessment	iii. Packaging tools, equipment and materials picked iv. Signage packed v. Signage labelled

Work Activities	Related Knowledge	Related Skills	Attitude/Safety/ Environmental	Training Hours	Delivery Mode	Assessment Criteria
			signage packaging and labelling iii. Aware of types of signage <u>Safety</u> i. Efficient in operating Standard Operating Procedure (SOP)			

Employability Skills

Core Abilities	Social Skills
<p>01.01 Utilise database applications to locate and process information</p> <p>01.02 Apply thinking skills and creativity</p> <p>02.01 Prepare flowcharts</p> <p>02.02 Follow telephone/telecommunication procedures</p> <p>02.03 Communicate clearly</p> <p>02.05 Read/interpret flowcharts and pictorial information</p> <p>03.01 Apply cultural requirements to the workplace</p> <p>03.02 Demonstrate integrity and apply ethical practices</p> <p>03.03 Accept responsibility for own work and work area</p> <p>03.04 Seek and act constructively upon feedback about performance</p> <p>03.17 Demonstrate safety skills</p> <p>03.06 Respond appropriately to people and situations</p> <p>05.01 Resolve interpersonal conflicts</p> <p>05.02 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>	<ol style="list-style-type: none"> 1. Communication skills 2. Conceptual skills 3. Interpersonal skills 4. Learning skills 5. Leadership skills 6. Multitasking and prioritising 7. Self-discipline 8. Teamwork

Tools, Equipment and Materials (TEM)

ITEMS	RATIO (TEM : Trainees)
1. Laser Cutter	1:5
2. Computer Cutting	1:5
3. Injection Machine	As per required
4. Blower	1:1
5. Welding Machine	As per required
6. Compressor	1:1
7. Generator	1:5
8. Hand Drill	As per required
9. Power Tool	As per required
10. Toolbox	As per required
11. Electrical Component Parts	1:20
12. Aluminum Ladder	As per required
13. Scaffolding /Skylift /Crane	As per required
14. Metal Structure	As per required
15. Personal Protective Equipment (Safety Harness, Shoe, Helmet, Jacket, Signs, etc.	As per required

References

REFERENCES
1. JKR/SPJ/1988 –Standard Specification for Road Works
2. LLM/PLUS Specifications
3. Arahan Teknik (Jalan) 2D/85, Manual on Traffic Control Devices: Road Marking And Delineation, Public Works Department Malaysia
4. Arahan Teknik (Jalan) 2B/85, Manual on Traffic Control Device: Traffic Sign Application
5. Highway Capacity Manual. Transportation Research Board. Washington, DC. 2000

CURRICULUM of COMPETENCY UNIT (CoCU)

Sub Sector		ARCHITECTURAL AND BUILDING						
Job Area		SIGNAGE PRODUCTION AND INSTALLATION						
NOSS Title		SIGNAGE PRODUCTION AND INSTALLATION						
Competency Unit Title		SIGNAGE INSTALLATION						
Learning Outcome		<p>The person who is competent in this CU shall be able to describe the skills, knowledge and attitude in signage installation to ensure the quality, smoothness and efficient overall operation. Upon completion of this competency unit, trainees will be able to: -</p> <ul style="list-style-type: none"> • Acquire signage installation work information • Carry out site preparation • Carry out signage installation works • Carry out signage maintenance work 						
Competency Unit ID		BC-045-2:2013-C02	Level	2	Training Duration	180 Hours	Credit Hours	18
Work Activities	Related Knowledge	Related Skills	Attitude/Safety/Environmental	Training Hours	Delivery Mode	Assessment Criteria		
1. Acquire signage installation work information	i. Details of signage installation work order and instruction such as:- <ul style="list-style-type: none"> • Location • Date and time • Specifications • Equipment • Tools • Machinery • Manpower • Drawing 			7	Lecture	i. Signage installation work order and instruction defined ii. Signage installation method and technique determined iii. Signage installation data documented		
		i. Obtain signage installation work order and instruction ii. Identify signage installation method and technique		14	Demonstration and observation			
				19				

Work Activities	Related Knowledge	Related Skills	Attitude/Safety/ Environmental	Training Hours	Delivery Mode	Assessment Criteria
		iii. Compile signage installation data	<u>Attitude:</u> i. Precise in gathering information ii. Competent in interpersonal communication skills iii. Systematic in determining type of information			
2. Carry out site preparation	i. Ability to work out activities such as:- <ul style="list-style-type: none"> • Method <ul style="list-style-type: none"> - Size/ Measurement - Site requirements - Tools - Machinery - Equipment - Work schedule • Manpower <ul style="list-style-type: none"> - Team - Specific skills ii. Knowledge in safety requirements:- <ul style="list-style-type: none"> • PPE • Work environment • Safety standard practice iii. Knowledge in site clearance activity			10	Lecture	i. Signage installation method and manpower organised ii. Tool box talk and PPE applied iii. Three (3) signage site clearance executed

Work Activities	Related Knowledge	Related Skills	Attitude/Safety/ Environmental	Training Hours	Delivery Mode	Assessment Criteria
		i. Arrange signage installation method and manpower ii. Deliver tool box talk and supply PPE iii. Conduct signage site clearance	<u>Attitude</u> i. Detailed in strategy/focus ii. Efficient in time management iii. Precise in installation technique iv. Responsible in preparing activities <u>Safety</u> i. Adhere to safety rules and regulation	22	Demonstration and observation	
3. Carry out signage installation works	i. Knowledgeable in signage technique installation and structure requirements:- <ul style="list-style-type: none"> • Structure <ul style="list-style-type: none"> - Location - Position - Erection - Angle 			24	Lecture	i. Signage installation technique and structure operated ii. Signage installation finishing inspected iii. Signage

Work Activities	Related Knowledge	Related Skills	Attitude/Safety/ Environmental	Training Hours	Delivery Mode	Assessment Criteria
	<ul style="list-style-type: none"> - Dimension - Spacing and size - Distance - Surface - Levelling • Installation <ul style="list-style-type: none"> Type of tools and equipment needed:- <ul style="list-style-type: none"> - Drilling pattern - Brackets pattern - Washers pattern - Heavy duty screws pattern - Hook pattern - Sealant pattern - Ladder - Measuring tape - Painting - Electric and electronic tools - Welding set Types of machineries used during signage installation activities:- <ul style="list-style-type: none"> - Crane - Skylift - Boaring - Concrete mixer - Backhoe 					installation work completion document reviewed iv. Signage installation work completion document compiled

Work Activities	Related Knowledge	Related Skills	Attitude/Safety/ Environmental	Training Hours	Delivery Mode	Assessment Criteria
	<ul style="list-style-type: none"> - Lorry - Generator set ii. Complete installation document details:- <ul style="list-style-type: none"> • Progress report • Description and location report • Start and complete date report • Cost estimate report • Risk analysis report • Person in-charge contact number 					
		i. Implement signage technique installation and structure ii. Coordinate signage installation finishing iii. Prepare signage installation work completion document iv. Submit signage installation work completion document	<u>Attitude</u> i. Meticulous in following installation technique ii. Utilise teamwork for task completion Strictly follow work	56	Demonstration and observation	

Work Activities	Related Knowledge	Related Skills	Attitude/Safety/ Environmental	Training Hours	Delivery Mode	Assessment Criteria
			schedule iii. Meticulous in report writing <u>Safety</u> i. Adhere to safety regulation act			
4. Carry out signage maintenance work	i. Details of signage maintenance work schedule and instruction requirements:- <ul style="list-style-type: none"> • Location • Date and time • Specification • Equipment • Tool • Machinery • Manpower • Drawing ii. Details in signage maintenance work to determine manpower, tools, equipment and machinery:- <ul style="list-style-type: none"> • Electric and electronic maintenance iii. Compile complete maintenance document details:- <ul style="list-style-type: none"> • Progress report • Description and location report 			14	Lecture	i. Signage maintenance work schedule and instruction defined ii. Signage maintenance manpower identified iii. Signage tools, equipment and machinery selected iv. Signage maintenance work operated v. Signage maintenance work completion document reviewed vi. Signage maintenance work completion document

Work Activities	Related Knowledge	Related Skills	Attitude/Safety/ Environmental	Training Hours	Delivery Mode	Assessment Criteria
	<ul style="list-style-type: none"> • Start and complete date report • Cost estimate report • Person in-charge contact number • Risk analysis report 					compiled
		<ul style="list-style-type: none"> i. Obtain signage maintenance work schedule and instruction ii. Determine signage maintenance tools, equipment and machinery iii. Organise signage maintenance manpower iv. Implement signage maintenance work v. Prepare signage maintenance work completion document vi. Submit signage maintenance work completion document 	<u>Attitude</u> <ul style="list-style-type: none"> i. Dedicated in doing maintenance ii. Skilled in interpersonal communication iii. Attentive to work 	33	Demonstration and observation	

Work Activities	Related Knowledge	Related Skills	Attitude/Safety/ Environmental	Training Hours	Delivery Mode	Assessment Criteria
			schedule details iv. Dedicated in handling damage v. Meticulous in report writing <u>Safety</u> i. Adhere to safety regulation act			

Employability Skills

Core Abilities	Social Skills
01.01 Identify and gather information 01.02 Document information, procedures or processes 01.04 Analyse information 02.03 Communicate clearly 02.04 Prepare brief reports and checklists using standard forms 03.01 Apply cultural requirements to the workplace 03.02 Demonstrate integrity and apply ethical practices 03.03 Accept responsibility for own work and work area 03.04 Seek and act constructively upon feedback about performance 03.05 Demonstrate safety skills 03.06 Respond appropriately to people and situations 03.08 Develop and maintain a cooperation within work group 04.01 Organise own work activities 04.02 Set and revise own objectives and goals 04.03 Organise and maintain own workplace 04.04 Apply problem solving strategies 04.05 Demonstrate initiative and flexibility 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 prioritising 7. Self-discipline 8. Teamwork

Tools, Equipment and Materials (TEM)

ITEMS	RATIO (TEM : Trainees)
1. Drilling Pattern	1:2
2. Brackets Pattern	1:1
3. Washers Pat	1:1
4. Heavy Duty Screws Pattern	1:1
5. Hook Pattern	1:1
6. Sealant Pattern	1:1
7. Ladder	1:4
8. Measuring Tape	1:2
9. Painting	1:4
10. Electric and Electronic Tools	1:1
11. Brush	1:1
12. Levelling	1:2
13. Welding Set	1:4
14. Generator Set	1:5

References

REFERENCES
1. JKR, Arahan Teknik (Jalan) 4/85 (Pind.1997) Application for the Installation of Public Utilities Services within the Road Reserve
2. Book Title:- What's Your Signage?;-930386-03-Code6;Website:wwwISBN.thesignagefoundation1.org/www.nyssbdc.org
3. Under 333 Act, the Malaysian Road Transportation Act 1987, Chapter –Traffic Signs
4. Book Title:- Malaysian Standard, Code of Practice on Access for Disabled Persons to Public Buildings (First Revision); MS 1184 : 2002; Chapter 28, page 38
5. Akta Keselamatan dan Kesihatan Pekerjaan 514, 1994 (AKKP,1994) di dalam Seksyen 30 dan 31 AKKP,1994
6. Standard Industri Pembinaan; CIS 19:2011; CIDB

CURRICULUM of COMPETENCY UNIT (CoCU)

Sub Sector	ARCHITECTURAL AND BUILDING						
Job Area	SIGNAGE PRODUCTION AND INSTALLATION						
NOSS Title	SIGNAGE PRODUCTION AND INSTALLATION						
Competency Unit Title	ELECTRICAL AND ELECTRONIC SIGNAGE PRODUCTION						
Learning Outcome	<p>The person who is competent in this CU shall be able to describe the skills, knowledge and attitude in electrical and electronic signage production. Upon completion of this competency unit, trainees will be able to: -</p> <ul style="list-style-type: none"> • Study electrical and electronic production information • Prepare electrical and electronic signage production requirements • Assemble signage components • Check electrical and electronic circuits and wiring • Conduct electrical and electronic circuit and wiring test 						
Competency Unit ID	BC-045-2:2013-E01	Level	2	Training Duration	50 Hours	Credit Hours	5
Work Activities	Related Knowledge	Related Skills	Attitude/Safety/Environmental	Training Hours	Delivery Mode	Assessment Criteria	
1. Study electrical and electronic production information	i. Methods of communication <ul style="list-style-type: none"> • Verbal • Written ii. Electrical and electronic components and parts <ul style="list-style-type: none"> • Type • Function • Size • Colour • Shape • Specification • Cost iii. Electrical and electronic specification, function and technical data			2	Lecture	i. Electric and electronic signage work order interpreted ii. Electrical and electronic diagram and drawing identified iii. Requirements for manpower, components and parts prepared iv. Manpower, components and parts	

Work Activities	Related Knowledge	Related Skills	Attitude/Safety/ Environmental	Training Hours	Delivery Mode	Assessment Criteria
		<ul style="list-style-type: none"> i. Obtain electrical and electronic signage work order ii. Review electrical and electronic diagram and drawing iii. Study requirements for related manpower skills, components and parts iv. Select manpower, components and parts v. Arrange electrical and electronic signage requirements 	<p><u>Attitude:</u></p> <ul style="list-style-type: none"> i. Competent in interpersonal communication skills ii. Well organised in handling work order <p><u>Safety</u></p> <ul style="list-style-type: none"> i. Adhere to safety rules and regulations ii. Systematic in operating Standard Operating Procedure (SOP) 	6	Demonstration , training time, assignment and assessment	<ul style="list-style-type: none"> v. Electrical and electronic signage requirements categorised

Work Activities	Related Knowledge	Related Skills	Attitude/Safety/Environmental	Training Hours	Delivery Mode	Assessment Criteria
2. Prepare electrical and electronic signage production requirements	i. Components and parts <ul style="list-style-type: none"> • Transformer • LED or RGB • Controller ii. Tools and equipment operation iii. Contents of work order			5	Lecture	i. Component and part requirements classified ii. Type of components and parts selected
		i. Select electrical and electronic components and parts ii. Determine types of electrical and electronic components and parts iii. Measure quantity of electrical and electronic components and parts iv. Prepare electrical and electronic components and parts	<u>Attitude:</u> i. Competent in interpersonal communication skills ii. Well organised in handling work order iii. Analytical in selecting appropriate signage requirements iv. Creative and	11	Demonstration, training time, assignment and assessment	iii. Quantity of components and parts documented iv. Components and parts selected

Work Activities	Related Knowledge	Related Skills	Attitude/Safety/ Environmental	Training Hours	Delivery Mode	Assessment Criteria
			innovative in ensuring the signage work requirements comply with the specifications <u>Safety</u> i. Systematic in operating Standard Operating Procedure (SOP)			
3. Assemble signage components	i. Tools and equipment assembly operation ii. Electrical and electronic signage specifications and size iii. Methods of assembly			4	Lecture	i. Electrical and electronic signage components organised ii. Signage components and parts prepared iii. Signage components' quality and quantity verified iv. Electrical and electronic components and parts tested
		i. Identify electrical and electronic signage components and parts ii. Select electrical and electronic signage components and parts iii. Check signage components' quantity and quality iv. Assemble electrical and electronic components and parts	<u>Attitude</u> i. Accurate in selecting signage components	8	Demonstration , training time, assignment and assessment	

Work Activities	Related Knowledge	Related Skills	Attitude/Safety/ Environmental	Training Hours	Delivery Mode	Assessment Criteria
			ii. Precise in handling components iii. Tactful and systematic in selecting appropriate assembling tools and equipment <u>Safety</u> i. Adhere to all signage assembling safety rules and regulations ii. Systematic in operating Standard Operating Procedure (SOP)			
4. Check electrical and electronic circuits and wiring	i. Specifications of wiring ii. Specifications of electrical and electronic signage			2	Lecture	i. Wiring connections tested ii. Electrical and electronic function tested
		i. Check wiring connections ii. Check electrical and electronic signage function	<u>Attitude</u> i. Tactful and systematic in preparing checklist	5	Demonstration , training time, assignment and assessment	

Work Activities	Related Knowledge	Related Skills	Attitude/Safety/ Environmental	Training Hours	Delivery Mode	Assessment Criteria
			ii. Ensure quality and quantity are filled thoroughly iii. Particular in performing checking task <u>Safety</u> i. Efficient in operating Standard Operating Procedure (SOP)			
5. Conduct electrical and electronic circuit and wiring test	i. Specifications of signage electrical and electronic function			2	Lecture	i. Electrical and electronic function tested in accordance with specifications
		i. Test signage electrical and electronic function		5	Demonstration, training time, assignment and assessment	

Employability Skills

Core Abilities	Social Skills
01.07 Utilise database applications to locate and process information 01.11 Apply thinking skills and creativity 02.09 Prepare flowcharts 02.10 Prepare reports and instructions 02.11 Convey information and ideas to people 03.09 Manage and improve performance of individuals 03.10 Provide consultation and counselling 03.12 Provide coaching/on-the job training 03.15 Liaise to achieve identified outcomes 03.16 Identify and assess client/customer needs 03.17 Identify staff training needs and facilitate access to training 04.06 Allocate work 05.01 Implement project/work plans 06.02 Inspect and monitor work done and/or in progress	1. Communication skills 2. Conceptual skills 3. Interpersonal skills 4. Learning skills 5. Leadership skills 6. Multitasking and prioritising 7. Self-discipline 8. Teamwork

Tools, Equipment and Materials (TEM)

ITEMS	RATIO (TEM : Trainees)
1. Aluminium Ladder 2. Tool Components 3. Electrical Components 4. Casing 5. Transformer 6. Scarf Folding/Crane/Sky lift 7. Trolley 8. AMP Meter 9. Stationery (Cutter, Scissors, Test Pens, Toolbox) 10. Personal Protective Equipment (Safety Harness, Shoe, Helmet, Jacket, Signs, etc)	As per required As per required As per required As per required 1:1 As per required 1:1 1:2 1:1 1:1

References

REFERENCES

1. Title :- Standard Industri Pembinaan; Cis 19:2011; CIDB
2. Title:- Guidelines For The Classification Of Used Electrical And Electronic Equipment In Malaysia; Copyright:- Department Of Environment, Second Edition 2010
3. Akta Keselamatan Dan Kesihatan Pekerjaan 514, 1994 (AKKP 1994) di dalam Seksyen 30 dan 31 AKKP, 1994
4. Title:- What's Your Signage?;-930386-03-Code6;Website::wwwISBN.thesignagefoundation1.org / www.nyssbdc.org
5. www.rfcafe.com/reference/electrical.htm
6. DOE Handbook 'Electrical Safety'

SUMMARY OF TRAINING DURATION FOR SIGNAGE PRODUCTION AND INSTALLATION (LEVEL 2)

NO. ID	COMPETENCY UNIT TITLE	WORK ACTIVITIES	RELATED KNOWLEDGE (A)	RELATED SKILLS (B)	HOURS (A) + (B)	TOTAL (HRS)
1	SIGNAGE PRODUCTION (Core)	Prepare signage requirements	8	19	27	180
		Fabricate signage components	16	38	54	
		Assemble signage components	17	28	45	
		Perform quality checking	8	19	27	
		Perform signage packaging and labelling	8	19	27	
2	SIGNAGE INSTALLATION (Core)	Acquire signage Installation Work Information	7	14	21	180
		Carry Out Site Preparation.	10	22	32	
		Carry out signage Installation works	24	56	80	
		Carry Out Signage Maintenance Work	14	33	47	
TOTAL HOURS (Core Competencies)			112	248	360	360
3	ELECTRICAL AND ELECTRONIC SIGNAGE PRODUCTION (Elective)	Study electrical and electronic production information.	2	6	8	50
		Prepare electrical and electronic signage production requirements.	5	11	16	
		Assemble signage components	4	8	12	
		Check electrical and electronic circuit and wiring	2	5	7	
		Conduct electrical and electronic circuit and wiring test	2	5	7	
TOTAL HOURS (+ Elective Competency)			127	283	410	410