Jabatan Pembangunan Kemahiran
Kementerian Sumber Manusia, Malaysia

NATIONAL OCCUPATIONAL SKILLS STANDARD
(STANDARD KEMAHIRAN PEKERJAAN KEBANGSAAN)

J620-004-3:2021

WEB AND MOBILE APPLICATION VISUAL DESIGN (USER INTERFACE AND USER EXPERIENCE)

REKABENTUK VISUAL WEB DAN APLIKASI MUDAH ALIH (USER INTERFACE DAN USER EXPERIENCE)

LEVEL 3

Department of Skills Development (DSD)
Federal Government Administrative Centre
62530 PUTRAJAYA, MALAYSIA

NATIONAL OCCUPATIONAL SKILLS STANDARD

WEB AND MOBILE APPLICATION VISUAL DESIGN (USER INTERFACE AND USER EXPERIENCE)

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LEVEL 3

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Preface

Standard Definition

The National Occupational Skills Standard (NOSS) is a Standard document that outlines the **minimum** competencies required by a skilled worker working in Malaysia for a particular area and level of occupational, also the path to achieve the competencies. The competencies are based on the needs of employment, according to the career structure for the occupational area and developed by industry experts and skilled workers.

The National Competency Standard (NCS) is a Standard document that outlines the competencies required by a skilled worker in Malaysia.

Description of Standard Components

The document is divided into three (3) components which includes: -

Component I **Standard Practice**
This component is about the information related to occupational area including introduction to the industry, Standard requirements, occupational structure, levelling of competency, authority and industry requirements as a whole.

Component II **Standard Content**
This component is a reference to industry employers in assessing and improving the competencies that is required for a skilled worker. The competencies are specific to the occupational area. The component is divided into two (2) section which are the chart (Competency Profile Chart, CPC) and details of the competencies (Competency Profile, CP).

Component III **Curriculum of Competency Unit**
This component is a reference for the training personnel to identify training requirements, design the curriculum, and develop assessment. The training hours that included in this component is based on the recommendations by the Standard Development Committee (SDC). If there are modifications to the training hours, the Department provides the medium for discussion and consideration for the matter.

Abbreviation

1	CP	Competency Profile
2	CPC	Competency Profile Chart
3	CU	Competency Unit
4	MSC	Malaysian Skills Certificate
5	MSIC	Malaysian Standard Industrial Classification
6	NCS	National Competency Standard
7	NOSS	National Occupational Skills Standard
8	OAS	Occupational Area Structure
9	OS	Occupational Structure
10	PIC	Person in Charge
11	UI	User Interface
12	UX	User Experience

Glossary

1	Android	Android is a mobile operating system based on a modified version of the Linux kernel and other open source software, designed primarily for touchscreen mobile devices such as smartphones and tablets.
2	App	Software application or a program that is specific to the solution of an application problem.
3	Assets	Things that a user sees or hears, e.g., bitmap, audio, and text.
4	High-fidelity wireframe	A high fidelity wireframe captures the look and feel of the product in the advanced stages of the design process. Hi-fi wireframes go beyond the placeholders and 'lorem ipsum' text of low-fidelity wireframes to include actual content, typefaces, colours, image dimensions, and branding elements.
5	Human Interface Guidelines	Human Interface Guidelines are software development documents which offer application developers a set of recommendations. The aim is to improve the experience for the users by making application interfaces more intuitive, learnable, and consistent.
6	Interaction design	The practice of designing interactive digital products, environments, systems, and services. Beyond the digital aspect, interaction design is also useful when creating physical products, exploring how a user might interact with it.
7	iOS	An operating system used for mobile devices manufactured by Apple Inc.
8	Low-fidelity wireframe	Low fidelity wireframes include the most basic content and visuals and are usually static (not interactive). They are often used to help map out the shell of the interface, its screens and basic information architecture
9	Mid-fidelity wireframe	In contrast to low-fidelity wireframes, software tools are used for medium-fidelity, and most of the time, instead of black and white, they are created in a monochrome palette, which usually appears visually in grayscale colours.
10	Mock-up	Structurally similar item presenting a simplified reproduction of a test object or its part intended for testing.
11	Native app	A native app, or native application, is a software application built in a specific programming language, for the specific device platform, either iOS or Android.
12	Prototype	Representation of all or part of an interactive system, that, although limited in some way, can be used for analysis, design, and evaluation.
13	Responsive web	Method for web page construction to detect the user’s screen size and orientation and dynamically change the layout accordingly.
14	Style guide	A style guide is a document that provides guidelines for the way your brand should be presented from both a graphic and language perspective.

		The purpose of a style guide is to make sure that multiple contributors create in a clear and cohesive way that reflects the corporate style and ensures brand consistency with everything from design to writing.
15	Style scape	A style scape is a design tool that expresses and steers the visual language for a project. Style scape include fonts, colours and images that are artfully and intentionally arranged.
16	UI design guidelines	UI design guidelines are sets of recommendations on how to apply design principles to provide a positive user experience. Designers use such guidelines to judge how to adopt principles such as intuitiveness, learnability, efficiency, and consistency so they can create compelling designs and meet and exceed user needs.
17	Usability	Extent to which a system, product or service can be used by specified users to achieve specified goals with effectiveness, efficiency, and satisfaction in a specified context of use.
18	User experience	User's perceptions and responses that result from the use and/or anticipated use of a system, product, or service.
19	User interface	All components of an interactive system (software or hardware) that provide information and controls for the user to accomplish specific tasks with the interactive system.
20	User navigation	User journey or user navigation is a simple narrative illustrating a user requirement from the perspective of a persona.
21	User Persona	Model of a user with defined characteristics, based on research.
22	Web	Network-accessible information and services publishing application of the Internet; collection of logically connected web pages managed as a single entity.
23	Widget	Self-contained entity, with extensive communication capabilities, within a rich media user interface, composed of a manifest and associated resources, including scene descriptions for the full and simplified representations and context information.
24	Wireframe	Geometric lines which represent shapes of an element or object by using a series of lines outlining its surface.

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Acknowledgement

Director General of Department of Skills Development (DSD) would like to extend his gratitude to the National Skills Development Council (MPKK), Standard Technical Committee (JTS), Standard Technical Evaluation Committee (JTPS), Standard Development Committee (JPS), and organisation and individuals who have been involved directly or indirectly for the contribution, persistence, and support in the development of this Standard until it is completed.

The Director General of DSD also would like to express his sincere thanks to Siti Maimunah binti Ahmad as documenter for the whole sessions.

STANDARD PRACTICE

NATIONAL OCCUPATIONAL SKILLS STANDARD (NOSS) FOR:

WEB AND MOBILE APPLICATION VISUAL DESIGN (USER INTERFACE AND USER EXPERIENCE)

LEVEL 3

1. Introduction

In the beginning of digital computer, user interfaces are merely text-based interfaces as to interact and to operate a system. The interaction paradigm shifts towards visual advancement to incorporate graphical elements for the user interface. Generally, the goal of the user interface interaction is to operate a machine or computer with ease, efficiency, user-friendly, and to meet the desired result (user satisfaction). User interface design is mainly concerned with the overall feel of a product; ensuring visually communicates through interaction to the user while experiencing the product.

Nowadays, users perform machine operations through mobile devices and personal computers as part of their digital activities. Daily routine digital activities interacting through web such as shopping online (via eCommerce), updating personal blogs, constructing informational directories, and many more. MDEC (2017) stated that Malaysia is the fastest growing consumer base for retail eCommerce sales amounted US$2.4 billion in 2017, that indicates active digital activities. Adequately creates more job opportunities to develop web and apps specifically focus design on user interface and user experience.[1]

User interface and user experience (UI/UX) design specialisation brings a design-centric approach to user interface and user experience design, and offers practical, skill-based instruction centred around a visual communications perspective, rather than on one focused on marketing or programming alone. At its core, UI/UX design fundamentally about creating a visual aesthetic with functional usability of a product, either web or application to satisfy user demand.

UI/UX design is a high-demand field that is applicable to a wide variety of careers, from marketing to web design to human-computer interaction. Benefits in the UI/UX design solution may enhance user satisfaction hence to improve ROI, understanding users, reduces development costs, and most important value to build a better brand. To conclude, UI/UX are designed to offer a convenient and better user-friendly experience product to sustain in the digital technology market.

1.1 Occupation Overview

Recent influx of technology driven industries focused on creating multiple interfaces for screens, especially for eCommerce, informational directory, and others. Immersion design-related roles coexist between graphic design, web and app development as to create niche roles and responsibilities for web and app design. User interface and user experience (UI/UX) designers combine creativity with technical know-how to design web and app interface that meet their clients' expectations. The UI/UX designers are primarily concerned with 'how the web and app aesthetically-pleasing and feels' as to ensure the web and app logically structure with visual consistency. UI/UX designer thinks about how the web and app experience makes the user feel, and how easy it is for the user to accomplish their desired tasks on a functional interface of a product. Key essentials for UI/UX to achieve balance between exemplary appealing interface and very usable website.

1 Malaysia Digital Economy Corporation (2017). National eCommerce Strategic Roadmap NESR Progress Report 2017. Retrieved: https://mdec.my/wp-content/uploads/NESR_PROGRESS_REPORT-2017.pdf

The UI/UX designer requires very specific skill sets such as the ability to research and empathise with the end-user, collaboration skills, the ability to visualise, wireframe and prototype design, the ability to communicate, and some knowledge of coding. Moreover, the UI/UX designer responsibilities include:

a) Gathering and evaluating user requirements;
b) Illustrating design sample page layouts including text size and colours;
c) Design UI elements such as graphics, animations;
d) Manipulate digital photographs; and
e) Conduct usability testing and reflect on the amendments.

1.2 Rationale of NOSS Development

This is a new NOSS namely Web and Mobile Application Visual Design (User Interface and User Experience). The process of developing the NOSS requires brainstorming session which is to gather information related to competencies relevant to the current industry needs.

As the demand for UI/UX designer continue to grow in Malaysia, there will be a need for new highly skilled and competent workforce. The development of highly skilled and competent workers in the industry is vital to ensure that the need of the sectors that the UI/UX designer supports is met. Future workforce must be trained and equipped with the necessary industry specific skills that can be achieved through competency training programmes.

Hence, the development of NOSS for Web and Mobile Application Visual Design (User Interface and User Experience) is very timely and even indispensable as the standard will provide a basis for formal and systematic training as well as for certifying experienced personnel.

1.3 Rationale of Occupational Structure and Occupational Area Structure

In view of the complexity of the process, technology advancement, and the industry practice, the NOSS development committee has come to a consensus that the NOSS is in Section (J) Information and Communication. The 3-digit code closely match for the NOSS is Group (620) Computer Programming, Consultancy and Related Activities. This NOSS covered the work of Web and Mobile Application Visual Design (User Interface and User Experience). The outcome from job analysis has shown that the job functions of Level 2 and Level 3 are complementing each other.

Therefore, the NOSS development committee members decided that Level 2 competencies should be embedded with Level 3 as to produce Competency Units that qualifies to be a complete work cycle. The occupational standard for Level 3 is also developed in consideration of higher degree of responsibility and job functions. The current Occupational Structure and Occupational Area Structure are depicted in Figure 1 and 2.

1.4 Regulatory/Statutory Body Requirements Related to Occupation

The occupation of UI/UX designer in Malaysia in general is subject to Malaysian Communications and Multimedia Commission (MCMC) through Communications and Multimedia Act 1998 [Act 588].

1.5 Occupational Prerequisite

The minimum requirements set forth by the industry and relevant statutory bodies for any interested individual to undertake the job or career in this area must be at the age of 18-year and above according to Employment Act 1955 [Act 265].

1.6 General Training Prerequisite for Malaysian Skills Certification System

The minimum requirements set forth before registering for this program are:

a) Able to read and write in Bahasa Malaysia and English; and
b) Computer literate.

2. Occupational Structure (OS)

Section	(J) Information and Communication
Group	(620) Computer programming, consultancy and related activities
Area	User Interface (UI) and User Experience (UX)
Level 5	User Interface (UI) and User Experience (UX) Design Manager
Level 4	User Interface (UI) and User Experience (UX) Lead Designer
Level 3	User Interface (UI) and User Experience (UX) Designer
Level 2	User Interface (UI) and User Experience (UX) Junior Designer
Level 1	No Level

Figure 1: Occupational Structure of User Interface (UI) and User Experience (UX).

3. Occupational Area Structure (OAS)

Section	(J) Information and Communication
Group	(620) Computer programming, consultancy and related activities
Area	User Interface (UI) and User Experience (UX)
Level 5	User Interface and User Experience Design Management
Level 4	User Interface and User Experience Visual Design Coordination
Level 3	Web and Mobile Application Visual Design (User Interface and User Experience)
Level 2	Embedded to Level 3
Level 1	No Level

Figure 2: Occupational Area Structure of User Interface (UI) and User Experience (UX).

4. Definition of Competency Levels

The NOSS is developed for various occupational areas. Below is a guideline of each NOSS Level as defined by the Department of Skills Development, Ministry of Human Resources, Malaysia.

Level 1: Competent in performing a range of varied work activities, most of which are routine and predictable.

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.

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.

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. Responsibility for the work of others and allocation of resources is often present.

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.

5. Award of Certificate

The Director General may award, to any person upon conforming to the Standards the following skills qualifications as stipulated under the National Skills Development Act 2006 (Act 652):

a) Malaysian Skills Certificate (MSC); or
b) Statements of Achievement.

6. Occupational Competencies

The Web and Mobile Application Visual Design (User Interface and User Experience) Level 3 personnel is competent in performing the following core competencies:

a) Preliminary User Interface and Experience Visual Design;
b) Web and Mobile Application Assets Design;
c) Web User Interface Production;
d) Native App User Interface Design;
e) Web and App Interaction Design and Usability Testing; and
f) User Interface Design Documentation.

7. Work Conditions

Generally, the UI/UX designer Level 3 may work individually or in a team under similar operating hours of the organisation/company or may work in shift and extended working hours. As with many careers in the industry, there are peak periods that will require the UI/UX designer to work overtime. The UI/UX designer will usually work at the indoor environment on a project. As with all careers in the web and app industry, quality and timeliness are the top priority. Ideally, they work on specific setup and configuration of hardware and software at the workplace.

8. Employment Prospects

Spending on technology products and services in Malaysia is forecast to reach USD $15.5 billion in 2019, an increase of 4.6 percent from 2018. While worldwide IT spending is projected to total USD $3.8 trillion in 2019, an increase of 3.2 percent from expected spending of USD $3.7 trillion in 2018. Malaysia is strategically situated with easy accessibility to other countries and has robust infrastructure, connectivity, and economic stability. ICT has been identified as the key growing sector in the country that grows at an Annual Average Growth Rate (AAGR) 9.0 percent over a period of 7 years. Malaysia has always been a popular destination for ICT companies for their global market expansion. Some of the significant companies that are well established in Malaysia are IBM, HP, Intel, Google, Amazon, CISCO and many others. Malaysia has a holistic digital ecosystem and a complete ICT support system for businesses.[2]

[2] https://www.privacyshield.gov/article?id=Malaysia-Information-Communications-Technology

9. Up Skilling Opportunities

There are ample upskilling opportunities for UI/UX designer. With more advanced training and experience in specific skill sets of preference, they can venture into different job roles at other IT companies and diversify into a management role to become a lead designer, developer, and manager.

The UI/UX designer normally trains on the job, working with more experienced colleagues to learn and develop new techniques and skills. For now, there are no other professional certificates available for this industry.

10. Organisation Reference for Sources of Additional Information

The following organisations can be referred as sources of additional information which can assist in defining the document's contents.

a) Malaysia Digital Economy Corporation (MDEC) Sdn. Bhd.
2360 Persiaran APEC,
63000, Cyberjaya, Selangor Darul Ehsan.
Telephone: 1-800-88-8338
Fax: +603-83153115
Website: www.mdec.my

b) Malaysian Communications and Multimedia Commission (MCMC)
MCMC Tower 1
Jalan Impact, Cyber 6
63000 Cyberjaya
Selangor Darul Ehsan
Tel: +603-8688 8000
Fax: +603-8688 1000
Website: www.mcmc.gov.my

c) Akademi Seni Budaya dan Warisan Kebangsaan (ASWARA)
464 Jalan Tun Ismail
50480 Kuala Lumpur
Tel: +603-2278 5999
Website: www.aswara.edu.my

d) Pertubuhan Pereka Grafik Kebangsaan (PERGRAKAN)
5-3F Setia Perdana BE
U13/BE Setia Alam
40170 Shah Alam
Selangor Darul Ehsan
Tel: +603-5892 4704
Website: www.pergrakan.org

e) Universiti Teknologi MARA (UiTM) Cawangan Melaka
Fakulti Komunikasi dan Pengajian Media
Kampus Alor Gajah
Km 26 Jalan Lendu
78000 Alor Gajah
Melaka
Tel: +606-558 2000
Fax: +606-558 2001
Website: www.melaka.uitm.edu.my

11. Standard Technical Evaluation Committee

NO	NAME	POSITION & ORGANISATION
CHAIRMAN		
1	Mahazrul bin Kamaruddin	Principal Assistant Director Department of Skills Development
EVALUATION PANEL		
1	Ts. Mohd Fadzley bin Abd Shukor	Art Director Istana Budaya
2	Mohd Hilmi bin Bakar	Senior Lecturer UiTM Melaka Kampus Alor Gajah
3	Mohd Fuad Mahadi bin Ya'akob	Managing Director/ Art Director Adi Karya Sdn. Bhd.
4	Khalil bin Zulkifflee	Director/ Multimedia Consultant CProfiles Sdn. Bhd.
5	Farizshah bin Gaskin	Manager Tracdisk Technogreen Sdn. Bhd.
6	Muhamad Fadlishah bin Rusli	Manager Akar Digital Sdn. Bhd.
SECRETARIAT		
1	Ts. Mohd Aidil Fitri bin Ab Razak	Senior Assistant Director Department of Skills Development

12. Standard Development Committee

WEB AND MOBILE APPLICATION VISUAL DESIGN (USER INTERFACE AND USER EXPERIENCE)

LEVEL 3

NO	NAME	POSITION & ORGANISATION
DEVELOPMENT PANEL		
1	Nor Faradila binti Kolan	IT Officer Department of Statistic Malaysia
2	Muhammad Firdaus bin Amairudin	Lecturer Faculty of Communication and Media Studies UiTM Melaka
3	Ts. Jazmi Izwan bin Jamal	Lecturer Faculty of Animation and Multimedia Akademi Seni Budaya dan Warisan Kebangsaan (ASWARA)
4	Ahmad Shahir bin Husin @ Mukti	Vocational Training Officer Institut Latihan Perindustrian Kuala Lumpur
5	Ts. Nik Shahrimin bin Wan Mohd Yusoff	Director CEKNEK PRODUCTION
6	Asrul Shamri bin Mohd Amin	Director Designville Studio
7	Wan Muzaffar bin Wan Hashim	Chief Executive Officer Anak2U Sdn Bhd
8	Mohamad Syafrizal bin Mohamad Sharif	Manager Brand Chapter
9	Haizal Izham bin Abd Rahman	Manager Colours Pro Resources
10	Azleen binti Ismail	Application Support Executive INSOFT (M) Sdn Bhd
11	Ahmad Ramdan bin M Yusof	Executive Malaysia Digital Economy Corporation Sdn Bhd (MDEC)
FACILITATOR		
1	Harris Iskandar Nordin	Readz Resources CIAST/PPL/FDS-0034/2012

STANDARD CONTENT

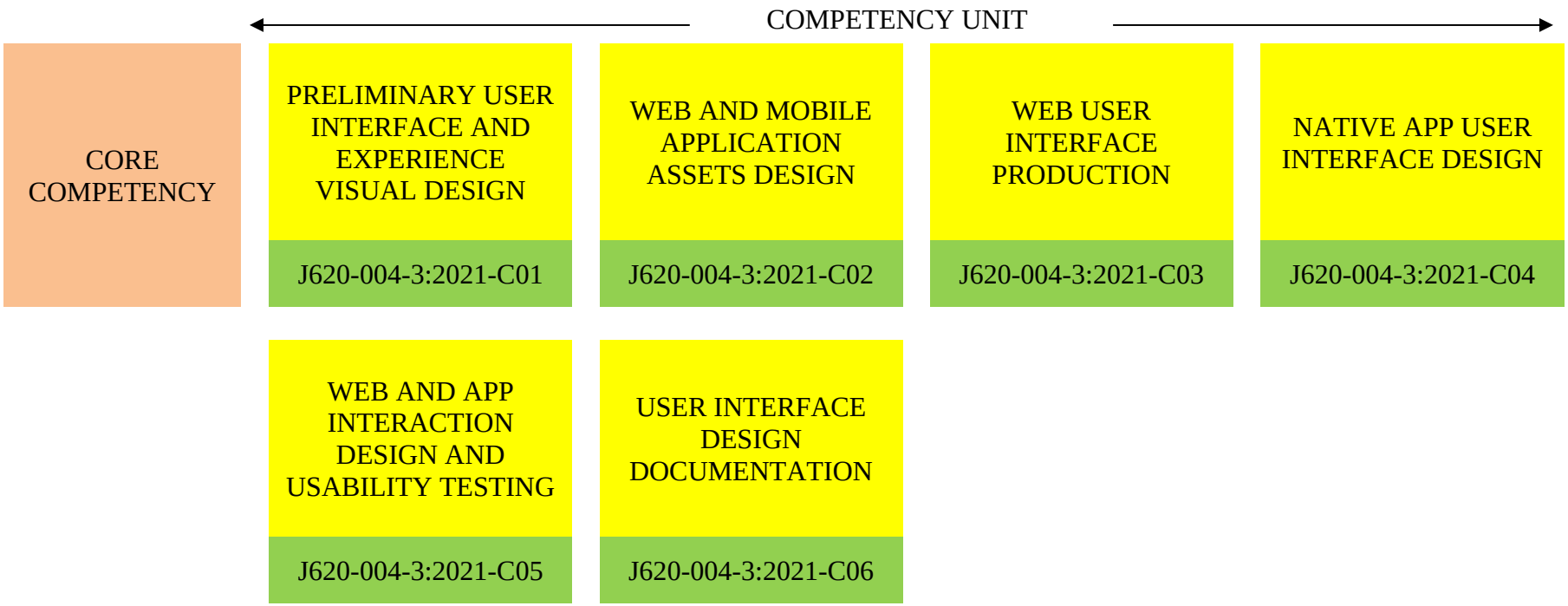
NATIONAL OCCUPATIONAL SKILLS STANDARD (NOSS) FOR:

WEB AND MOBILE APPLICATION VISUAL DESIGN (USER INTERFACE AND USER EXPERIENCE)

LEVEL 3

13. Competency Profile Chart (CPC)

SECTION	(J) INFORMATION AND COMMUNICATION		
GROUP	(620) COMPUTER PROGRAMMING, CONSULTANCY AND RELATED ACTIVITIES		
AREA	USER INTERFACE (UI) AND USER EXPERIENCE (UX)		
NOSS TITLE	WEB AND MOBILE APPLICATION VISUAL DESIGN (USER INTERFACE AND USER EXPERIENCE)		
NOSS LEVEL	THREE (3)	NOSS CODE	J620-004-3:2021



14. Competency Profile (CP)

SECTION	(J) Information and Communication		
GROUP	(620) Computer programming, consultancy and related activities		
AREA	User Interface (UI) and User Experience (UX)		
NOSS TITLE	Web and Mobile Application Visual Design (User Interface and User Experience)		
NOSS LEVEL	Three (3)	NOSS CODE	J620-004-3:2021

CU TITLE & CU CODE	CU DESCRIPTOR	WORK ACTIVITIES	PERFORMANCE CRITERIA
1 Preliminary User Interface and Experience Visual Design J620-004-3:2021-C01	Preliminary User Interface and Experience Visual Design describes the visual representation of user interface design according to client's requirements. The person who is competent in this CU should be able to interpret design requirements, review design idea, review user journey and prepare wireframe layout. The outcome of this CU is a wireframe visual structure that reflect client's requirements and user journey.	1. Interpret design requirements.	1.1 Client details such as company name, contact details and person in charge (PIC) interpreted from superior. 1.2 Project requirements such as project concept, tools to be used, target user and design direction/benchmark identified according to project brief. 1.3 Project scope, project objectives, work timeline, list of manpower and stakeholder identified according to project charter. 1.4 Media materials compiled according to project needs.
		2. Review design idea.	2.1 Design idea generation discussed to refine the design idea. 2.2 Competitor analysis carried out to determine the strengths and weaknesses of the competitors within the market.

CU TITLE & CU CODE	CU DESCRIPTOR	WORK ACTIVITIES	PERFORMANCE CRITERIA
			2.3 Design benchmark/stylescape compiled based on user persona.
		3. Review user journey.	3.1 Category of user role identified according to project scope. 3.2 User journey map translated according to project scope and types of user. 3.3 User touch point interaction identified according to user journey.
		4. Prepare wireframe layout.	4.1 Types of wireframes determined according to client's requirements. 4.2 UI wireframe components identified according to user journey. 4.3 Wireframe layout sketched according to user journey. 4.4 Visual concept design produced to reflect client's requirements and user journey. 4.5 Work progress updated according to job requirements.
2 Web and Mobile Application Assets Design J620-004-3:2021-C02	Web and Mobile Application Assets Design describes the competency to complete the size, shape, colour and details position of elements on the screen of page and how the appearances change with user interaction.	1. Create icon elements.	1.1 Icon concept determined according to visual concept. 1.2 Icon elements designed according to chosen concept in reference to wireframe sketches. 1.3 Icon elements optimised according to screen sizes.

CU TITLE & CU CODE	CU DESCRIPTOR	WORK ACTIVITIES	PERFORMANCE CRITERIA
	The person who is competent in this CU should be able to create icon elements, edit image elements, edit audio elements, edit video elements, create button elements, create motion elements, create text (typography) elements and prepare colour palettes. The outcome of this CU is assets that will be used across the project.		1.4 Icon elements exported to asset library (web and app). 1.5 Work progress updated according to job requirements.
		2. Edit image elements.	2.1 Image retrieved from media sources. 2.2 Image elements editing carried out according to design direction. 2.3 Image elements compressed according to wireframe layout. 2.4 Image elements exported to asset library (web and app). 2.5 Work progress updated according to job requirements.
		3. Edit audio elements.	3.1 Audio retrieved from media sources. 3.2 Audio elements editing carried out according to design direction. 3.3 Audio elements compressed according to project requirements. 3.4 Audio elements exported to asset library (web and app). 3.5 Work progress updated according to job requirements.
		4. Edit video elements.	4.1 Video retrieved from media sources. 4.2 Video elements editing carried out according to design direction. 4.3 Video elements compressed according to project requirements.

CU TITLE & CU CODE	CU DESCRIPTOR	WORK ACTIVITIES	PERFORMANCE CRITERIA
			4.4 Video elements exported to asset library (web and app). 4.5 Work progress updated according to job requirements.
		5. Create button elements.	5.1 Button concept determined according to visual concept. 5.2 Button elements designed according to chosen concept in reference to wireframe sketches. 5.3 Button elements optimised according to wireframe layout. 5.4 Button elements exported to asset library (web and app). 5.5 Work progress updated according to job requirements.
		6. Create motion elements.	6.1 Motion animation determined from chosen concept in reference to wireframe layout. 6.2 Motion keyframe developed according to design requirements. 6.3 Intermediate frames generated between keyframes (inbetweening) according to design requirements. 6.4 Motion elements exported to asset library (web and app). 6.5 Work progress updated according to job requirements.

CU TITLE & CU CODE	CU DESCRIPTOR	WORK ACTIVITIES	PERFORMANCE CRITERIA
		7. Create text (typography) elements.	7.1 Typography elements determined from visual concept. 7.2 Typography layout composed according to design requirements. 7.3 Typography sizing carried out according to design requirements. 7.4 Typography elements saved to asset library. 7.5 Work progress updated according to job requirements.
		8. Prepare colour palette.	8.1 Colour code identified according to design requirements. 8.2 Colour theme selected according to design requirements. 8.3 Colour palette documented to style guide. 8.4 Work progress updated according to job requirements.
3 Web User Interface Production J620-004-3:2021-C03	Web User Interface Production describes the competency to design UI for the multitude of devices available to user, ranging from tiny phones to huge desktop monitors. The person who is competent in this CU should be able to produce web UI for desktop, produce web	1. Produce web UI for desktop.	1.1 Job brief and requirements from superior. 1.2 UI design tools applied according to job brief. 1.3 Device screen resolution identified according to devices specifications. 1.4 Layout and grid designed according to wireframe layout. 1.5 Design assets arranged according to wireframe layout.

CU TITLE & CU CODE	CU DESCRIPTOR	WORK ACTIVITIES	PERFORMANCE CRITERIA
	UI for tablet and produce web UI for smartphone. The outcome of this CU is a web pages design mock-up that applicable across various screen sizes.		1.6 Web UI design exported into working folder. 1.7 Work progress updated according to job requirements.
		2. Produce web UI for tablet.	2.1 Job brief and requirements interpreted from superior. 2.2 UI design tools applied according to job brief. 2.3 Device screen resolution identified according to devices specifications. 2.4 Layout and grid designed according to wireframe layout. 2.5 Design assets arranged according to wireframe layout. 2.6 Web UI design exported into working folder. 2.7 Work progress updated according to job requirements.
		3. Produce web UI for smartphone.	3.1 Job brief and requirements obtained from superior. 3.2 UI design tools applied according to job brief. 3.3 Device screen resolution identified according to devices specifications. 3.4 Layout and grid designed according to wireframe layout. 3.5 Design assets arranged according to wireframe layout.

CU TITLE & CU CODE	CU DESCRIPTOR	WORK ACTIVITIES	PERFORMANCE CRITERIA
			3.6 Web UI design exported into working folder. 3.7 Work progress updated according to job requirements.
4 Native App User Interface Design J620-004-3:2021-C04	Native App User Interface Design describes the competency to design UI for tablet and phone while following vendor design guidelines. The person who is competent in this CU should be able to produce app UI design for iOS smartphone, produce app UI design for iOS tablet, produce app UI design for Android smartphone and produce app UI design for Android tablet. The outcome of this CU is a design files for iOS and Android for both smartphone and tablet on multiple screen resolution.	1. Produce app UI design for iOS smartphone.	1.1 Job brief and requirements obtained from superior. 1.2 UI design tools applied according to job brief. 1.3 Device screen resolution identified according to devices specifications. 1.4 Layout and grid designed according to wireframe layout and Human Interface Guidelines. 1.5 Design assets arranged according to wireframe layout and Human Interface Guidelines. 1.6 App UI design exported into working folder. 1.7 Work progress updated according to job requirements.
		2. Produce app UI design for iOS tablet.	2.1 Job brief and requirements obtained from superior. 2.2 UI design tools applied according to job brief. 2.3 Device screen resolution identified according to devices specifications.

CU TITLE & CU CODE	CU DESCRIPTOR	WORK ACTIVITIES	PERFORMANCE CRITERIA
			2.4 Layout and grid designed according to wireframe layout and Human Interface Guidelines. 2.5 Design assets arranged according to wireframe layout and Human Interface Guidelines. 2.6 App UI design exported into working folder. 2.7 Work progress updated according to job requirements.
		3. Produce app UI design for Android smartphone.	3.1 Job brief and requirements obtained from superior. 3.2 UI design tools applied according to job brief. 3.3 Device screen resolution identified according to devices specifications. 3.4 Layout and grid designed according to wireframe layout and UI design guidelines. 3.5 Design assets arranged according to wireframe layout and UI design guidelines. 3.6 App UI design exported into working folder. 3.7 Work progress updated according to job requirements.

CU TITLE & CU CODE	CU DESCRIPTOR	WORK ACTIVITIES	PERFORMANCE CRITERIA
		4. Produce app UI design for Android tablet.	4.1 Job brief and requirements obtained from superior. 4.2 UI design tools applied according to job brief. 4.3 Device screen resolution identified according to devices specifications. 4.4 Layout and grid designed according to wireframe layout and UI design guidelines. 4.5 Design assets arranged according to wireframe layout and UI design guidelines. 4.6 App UI design exported into working folder. 4.7 Work progress updated according to job requirements.
5 Web and App Interaction Design and Usability Testing J620-004-3:2021-C05	Web and App Interaction Design and Usability Testing describes the competency in creating interactive prototype mock-up of the web and app following interaction guidelines which will be tested for usability. The person who is competent in this CU should be able to produce web prototype, produce app prototype for iOS, produce app	1. Produce web prototype.	1.1 Job brief and requirements interpreted from superior. 1.2 UI/UX prototype design tools applied according to job brief. 1.3 Types of interaction identified according to design files. 1.4 Types of animation and transition identified according to usability requirements. 1.5 UI/UX design asset imported from asset library. 1.6 Interaction, animation and transition applied in UI/UX design tools.

CU TITLE & CU CODE	CU DESCRIPTOR	WORK ACTIVITIES	PERFORMANCE CRITERIA
	prototype for Android and conduct prototype usability testing. The outcome of this CU is an interactable web and app prototype that is tested by identified persona for usability.		1.7 Web prototype generated into file package. 1.8 Work progress updated according to job requirements.
		2. Produce app prototype for iOS.	2.1 Job brief and requirements interpreted from superior. 2.2 UI/UX prototype design tools applied according to job brief. 2.3 Types of interaction identified according to design files. 2.4 Types of animation and transition identified according to usability requirements. 2.5 UI/UX design asset imported from asset library. 2.6 Interaction, animation and transition applied in UI/UX design tools. 2.7 App prototype generated into file package. 2.8 Work progress updated according to job requirements.
		3. Produce app prototype for Android.	3.1 Job brief and requirements interpreted from superior. 3.2 UI/UX prototype design tools applied according to job brief. 3.3 Types of interaction identified according to design files.

CU TITLE & CU CODE	CU DESCRIPTOR	WORK ACTIVITIES	PERFORMANCE CRITERIA
			3.4 Types of animation and transition identified according to usability requirements. 3.5 UI/UX design asset imported from asset library. 3.6 Interaction, animation and transition applied in UI/UX design tools. 3.7 App prototype generated into file package. 3.8 Work progress updated according to job requirements.
		4. Conduct prototype design and usability testing.	4.1 Job brief and requirements interpreted from superior. 4.2 User who will be performing the test identified based on user persona. 4.3 Testing equipment and environment prepared according to testing specification. 4.4 User action observed during usability testing process. 4.5 User interviewed for feedback on design and usability. 4.6 User feedback analysis compiled for report. 4.7 Prototype design and usability improved based on user feedback. 4.8 Work progress updated according to job requirements.

CU TITLE & CU CODE	CU DESCRIPTOR	WORK ACTIVITIES	PERFORMANCE CRITERIA
6 User Interface Design Documentation J620-004-3:2021-C06	User Interface Design Documentation describes the process of preparing, collecting and arranging UI and UX documents and materials in good order to be shared to team members and stakeholders. The person who is competent in this CU should be able to update web and app design document versioning, perform UI/UX collaborative practices and deliver design handoff. The outcome of this CU is a well-organized document, style guide and assets to be shared to superior, clients or development team.	1. Update web and app design document versioning.	1.1 File naming and versioning convention identified according to stakeholder's requirements. 1.2 Version control tools identified according to stakeholder's requirements. 1.3 Web and app design document versioning performed according to stakeholder's requirements. 1.4 Changelog documents prepared according to task performed.
		2. Perform UI/UX collaborative practices.	2.1 Collaborative tools platform identified according to stakeholder's requirements. 2.2 Design document collaborated with team members to perform job requirements. 2.3 Design document collaborated for review with stakeholder.
		3. Deliver design handoff.	3.1 Finalised web and app mock-up prepared according to standard practice. 3.2 Finalised web and app interaction document prepared according to standard practice. 3.3 Finalised web and app label and content prepared according to stakeholder's requirements.

CU TITLE & CU CODE	CU DESCRIPTOR	WORK ACTIVITIES	PERFORMANCE CRITERIA
			3.4 Finalised web and app code design specification, style guide and assets prepared according to stakeholder's requirements. 3.5 Work progress updated according to job requirements. 3.6 Design document shared to stakeholders.

CURRICULUM OF COMPETENCY UNIT

NATIONAL OCCUPATIONAL SKILLS STANDARD (NOSS) FOR:

WEB AND MOBILE APPLICATION VISUAL DESIGN (USER INTERFACE AND USER EXPERIENCE)

LEVEL 3

15. Curriculum of Competency Unit

15.1. Preliminary User Interface and Experience Visual Design

SECTION	(J) Information and Communication		
GROUP	(620) Computer programming, consultancy and related activities		
AREA	User Interface (UI) and User Experience (UX)		
NOSS TITLE	Web and Mobile Application Visual Design (User Interface and User Experience)		
COMPETENCY UNIT TITLE	Preliminary User Interface and Experience Visual Design		
LEARNING OUTCOMES	The learning outcomes of this competency are to enable the trainees to produce a wireframe visual structure that reflect client's requirements and user journey. Upon completion of this competency unit, trainees should be able to: 1. Interpret design requirements. 2. Review design idea. 3. Review user journey. 4. Prepare wireframe layout.		
TRAINING PREREQUISITE (SPECIFIC)	Not Available.		
CU CODE	J620-004-3:2021-C01	NOSS LEVEL	Three (3)

WORK ACTIVITIES	RELATED KNOWLEDGE	RELATED SKILLS	ATTITUDE/ SAFETY/ ENVIRONMENT	ASSESSMENT CRITERIA
1. Interpret design requirements.	1.1 Introduction to web and app design: • User interface. • User experience.	1.1 Interpret client details. 1.2 Interpret project requirements. 1.3 Identify project charter.	<u>ATTITUDE</u> 1.1 Meticulous in identifying design requirements. 1.2 Adhere to SOP on data integrity.	1.1 Introduction to web and app design explained. 1.2 Client details explained. 1.3 Project requirements explained. 1.4 Project charter explained. 1.5 Media materials explained.

WORK ACTIVITIES	RELATED KNOWLEDGE	RELATED SKILLS	ATTITUDE/ SAFETY/ ENVIRONMENT	ASSESSMENT CRITERIA
	1.2 Client details: • Company name. • Contact details. • Person In Charge (PIC). 1.3 Project requirements: • Project concept. • Tools. • Target user. • Direction/ benchmark. 1.4 Project charter: • Scope. • Objectives. • Timeline. • Manpower. • Stakeholder. 1.5 Media materials: • Image. • Video. • Audio.	1.4 Compile media materials.	1.3 Adhere to work procedures. 1.4 Adhere to file management best practice. <u>SAFETY</u> Not Available. <u>ENVIRONMENT</u> 1.1 Apply 3R concept.	1.6 Data integrity guidelines explained. 1.7 Client details obtained from trainer. 1.8 Project requirements determined according to project brief. 1.9 Project scope, project objectives, work timeline, list of manpower and stakeholder determined according to project charter. 1.10 Media materials compiled according to project needs. 1.11 Meticulous in identifying design requirements. 1.12 Data integrity SOP are adhered to. 1.13 Work procedures are adhered to. 1.14 File management best practice are adhered to. 1.15 3R concept applied.

WORK ACTIVITIES	RELATED KNOWLEDGE	RELATED SKILLS	ATTITUDE/ SAFETY/ ENVIRONMENT	ASSESSMENT CRITERIA
	• Motion graphic. • Text. 1.6 Data integrity guidelines.			
2. Review design idea.	2.1 Conceptual design process. 2.2 Idea generation technique. 2.3 Types of web: • Ecommerce. • Personal blog. • Corporate web. • Informational directory. • Video site. • Portfolio. • Social media. • Forum/ discussion. 2.4 Types of app: • Ecommerce. • Utilities. • Games.	2.1 Discuss design idea generation. 2.2 Carry out competitor analysis. 2.3 Compile design benchmark/ stylescape.	<u>ATTITUDE</u> 2.1 Meticulous in reviewing design idea. 2.2 Adhere to SOP on data integrity. 2.3 Adhere to work procedures. 2.4 Adhere to file management best practice. <u>SAFETY</u> Not available. <u>ENVIRONMENT</u> 2.1 Apply 3R concept.	2.1 Conceptual design process explained. 2.2 Brainstorming technique explained. 2.3 Types of web explained. 2.4 Types of app explained. 2.5 Types of web pages explained. 2.6 Competitor analysis technique explained. 2.7 Design benchmark/ stylescape explained. 2.8 User persona explained. 2.9 Design idea generation discussed to refine the design idea. 2.10 Competitor analysis carried out within the market. 2.11 Design benchmark/stylescape compiled based on user persona. 2.12 Meticulous in reviewing design idea.

WORK ACTIVITIES	RELATED KNOWLEDGE	RELATED SKILLS	ATTITUDE/ SAFETY/ ENVIRONMENT	ASSESSMENT CRITERIA
	• Social media. • Productivity. • Reference news/ education. • Entertainment. • Aggregator. 2.5 Types of web pages: • Landing page. • Micro site. • Single page. • Blog. • Media/ gallery. • Registration page. • Product page. • Login page. 2.6 Competitor analysis technique.			2.13 Data integrity SOP are adhered to. 2.14 Work procedures are adhered to. 2.15 File management best practice are adhered to. 2.16 3R concept applied.

WORK ACTIVITIES	RELATED KNOWLEDGE	RELATED SKILLS	ATTITUDE/ SAFETY/ ENVIRONMENT	ASSESSMENT CRITERIA
	2.7 Design benchmark/ stylescape. 2.8 User persona.			
3. Review user journey.	3.1 Category of user role: • Admin. • End user. 3.2 User journey design thinking. 3.3 User journey map. 3.4 User touch point interaction: • Gesture. • Navigation. • Transition.	3.1 Identify category of user role. 3.2 Translate user journey map. 3.3 Identify user touch point interaction.	<u>ATTITUDE</u> 3.1 Meticulous in reviewing user journey. 3.2 Logical thinking in reviewing user journey. 3.3 Adhere to SOP on data integrity. 3.4 Adhere to work procedures. 3.5 Adhere to file management best practice. <u>SAFETY</u> Not available. <u>ENVIRONMENT</u> 3.1 Apply 3R concept.	3.1 Category of user role explained. 3.2 User journey design thinking explained. 3.3 User journey map explained. 3.4 User touch point interaction explained. 3.5 Category of user role identified according to project scope. 3.6 User journey map translated according to project scope and types of user. 3.7 User touch point interaction identified according to user journey. 3.8 Meticulous in reviewing user journey. 3.9 Logical thinking in reviewing user journey. 3.10 Data integrity SOP are adhered to. 3.11 Work procedures are adhered to.

WORK ACTIVITIES	RELATED KNOWLEDGE	RELATED SKILLS	ATTITUDE/ SAFETY/ ENVIRONMENT	ASSESSMENT CRITERIA
				3.12 File management best practice are adhered to. 3.13 3R concept applied.
4. Prepare wireframe layout.	4.1 Types of wireframes: • Low-fidelity. • Mid-fidelity. • High-fidelity. 4.2 UI wireframe components: • Button. • Drop down menu. • Text field. • Images. • Video. • Radio. • Toggle. 4.3 Human Interface Guidelines. 4.4 Android UI design guidelines.	4.1 Determine types of wireframes. 4.2 Identify UI wireframe components. 4.3 Sketch wireframe layout. 4.4 Produce visual concept design. 4.5 Update work progress.	<u>ATTITUDE</u> 4.1 Meticulous in preparing wireframe layout. 4.2 Logical thinking in preparing wireframe layout. 4.3 Adhere to SOP on data integrity. 4.4 Adhere to work procedures. 4.5 Adhere to file management best practice. <u>SAFETY</u> 4.1 Practice good ergonomic. 4.2 Practice eye strain safety. <u>ENVIRONMENT</u> 4.1 Apply 3R concept.	4.1 Types of wireframes explained. 4.2 UI wireframe components explained. 4.3 Human Interface Guidelines explained. 4.4 Android UI design guidelines explained. 4.5 Work checklist explained. 4.6 Types of wireframes determined according to project requirements. 4.7 UI wireframe components identified according to user journey. 4.8 Wireframe layout sketched according to user journey. 4.9 Visual concept design produced to reflect project requirements and user journey. 4.10 Work progress updated according to job requirements. 4.11 Meticulous in preparing wireframe layout.

WORK ACTIVITIES	RELATED KNOWLEDGE	RELATED SKILLS	ATTITUDE/ SAFETY/ ENVIRONMENT	ASSESSMENT CRITERIA
	4.5 Visual information hierarchy. 4.6 Work checklist.			4.12 Logical thinking in preparing wireframe layout. 4.13 Data integrity SOP are adhered to. 4.14 Work procedures are adhered to. 4.15 File management best practice are adhered to. 4.16 Good ergonomic practiced. 4.17 Eye strain safety practiced. 4.18 3R concept applied.

Employability Skills

Core Abilities

- Please refer NCS- Core Abilities latest edition.

Social Values & Social Skills

- Please refer Handbook on Social Skills and Social Values in Technical Education and Vocational Training.

References for Learning Material Development

1 Dave Wood, (2014) Basics Interactive Design: Interface Design: An Introduction to Visual Communication in UI Design, A&C Black, ISBN 2940411999, 9782940411993
2 Department of Skills Standard (DSD). 2015. Z-009-1:2015 NCS-Core Abilities. Putrajaya: Department of Skills Standard (DSD)
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4 Department of Skills Standard (DSD). 2015. Z-009-3:2015 NCS-Core Abilities. Putrajaya: Department of Skills Standard (DSD)
5 Department of Skills Standard (DSD). 2018. Handbook on Social Skills and Social Values in Technical Education and Vocational Training. Putrajaya: Department of Skills Standard (DSD)
6 Donna Lichaw, (2016), The User's Journey: Storymapping Products That People Love, Rosenfeld Media, ISBN 1933820365, 9781933820361
7 Jesmond J. Allen, James J. Chudley, (2012), Smashing UX Design: Foundations for Designing Online User Experiences John Wiley & Sons, ISBN 0470970626, 9780470970621
8 Richard Caddick, Steve Cable, (2011) Communicating the User Experience: A Practical Guide for Creating Useful UX Documentation, John Wiley & Sons, ISBN 1119971101, 9781119971108
9 https://developer.apple.com/design/human-interface-guidelines/ (30 September 2020: 10.00 am)
10 https://material.io/design/guidelines-overview (30 September 2020: 10.15am)
11 https://www.amazon.com/Lean-UX-Applying-Principles-Experience/dp/1449311652 (30 September 2020: 11.00 am)
12 https://www.amazon.com/Dont-Make-Think-Revisited-Usability/dp/0321965515 (30 September 2020: 11.30 am)

15.2. Web and Mobile Application Assets Design

SECTION	(J) Information and Communication		
GROUP	(620) Computer programming, consultancy and related activities		
AREA	User Interface (UI) and User Experience (UX)		
NOSS TITLE	Web and Mobile Application Visual Design (User Interface and User Experience)		
COMPETENCY UNIT TITLE	Web and Mobile Application Assets Design		
LEARNING OUTCOMES	The learning outcomes of this competency are to enable the trainees to produce assets that will be used across the project. Upon completion of this competency unit, trainees should be able to: 1. Create icon elements. 2. Edit image elements. 3. Edit audio elements. 4. Edit video elements. 5. Create button elements. 6. Create motion elements. 7. Create text (typography) elements. 8. Prepare colour palette.		
TRAINING PREREQUISITE (SPECIFIC)	Not Available.		
CU CODE	J620-004-3:2021-C02	NOSS LEVEL	Three (3)

WORK ACTIVITIES	RELATED KNOWLEDGE	RELATED SKILLS	ATTITUDE/ SAFETY/ ENVIRONMENT	ASSESSMENT CRITERIA
1. Create icon elements.	1.1 Elements and principle of design for: • Icon.	1.1 Determine icon concept. 1.2 Design icon elements.	<u>ATTITUDE</u> 1.1 Meticulous in creating icon elements.	1.1 Elements and principle of design explained. 1.2 Contextual icon design explained.

WORK ACTIVITIES	RELATED KNOWLEDGE	RELATED SKILLS	ATTITUDE/ SAFETY/ ENVIRONMENT	ASSESSMENT CRITERIA
	• Image. • Audio. • Video. • Button. • Motion. • Text (typography). • Colour palette. 1.2 File naming convention. 1.3 Folder structure. 1.4 Intellectual property. 1.5 Contextual icon design. 1.6 Types of icon: • 2D icon. • 3D icon. • Animated icon. 1.7 Icon creation using graphic editing tools. 1.8 Icon compression. 1.9 Responsive icon. 1.10 Work checklist.	1.3 Optimise icon elements. 1.4 Export icon elements to asset library (web and app). 1.5 Update work progress.	1.2 Logical thinking in creating icon elements. 1.3 Adhere to SOP on data integrity. 1.4 Adhere to work procedures. 1.5 Adhere to file management best practice. <u>SAFETY</u> 1.1 Practice good ergonomic. 1.2 Practice eye strain safety. <u>ENVIRONMENT</u> 1.1 Apply 3R concept.	1.3 File naming convention explained. 1.4 Folder structure explained. 1.5 Intellectual property explained. 1.6 Definition of icon explained. 1.7 Types of icon explained. 1.8 Graphic editing tools explained. 1.9 Icon compression explained. 1.10 Responsive icon explained. 1.11 Work checklist explained. 1.12 Icon concept determined according to visual concept. 1.13 Icon elements designed according to chosen concept in reference to wireframe sketches. 1.14 Icon elements optimised according to screen sizes. 1.15 Icon elements exported to asset library (web and app). 1.16 Work progress updated according to job requirements. 1.17 Meticulous in creating icon elements. 1.18 Logical thinking in creating icon elements.

WORK ACTIVITIES	RELATED KNOWLEDGE	RELATED SKILLS	ATTITUDE/ SAFETY/ ENVIRONMENT	ASSESSMENT CRITERIA
				1.19 Data integrity SOP are adhered to. 1.20 Work procedures are adhered to. 1.21 File management best practice are adhered to. 1.22 Good ergonomic practiced. 1.23 Eye strain safety practiced. 1.24 3R concept applied.
2. Edit image elements.	2.1 Media sources: • Stock image. • Photo shooting. 2.2 Image editing tools. 2.3 Image editing technique: • Crop. • Resize. • Rotate. • Adjustment (level, colour H/S/L, brightness and contrast). • Compositing.	2.1 Retrieve image from media sources. 2.2 Carry out image elements editing. 2.3 Compress image elements. 2.4 Export image elements to asset library (web and app). 2.5 Update work progress.	<u>ATTITUDE</u> 2.1 Meticulous in editing image elements. 2.2 Logical thinking in editing image elements. 2.3 Adhere to SOP on data integrity. 2.4 Adhere to work procedures. 2.5 Adhere to file management best practice. <u>SAFETY</u> 2.1 Practice good ergonomic. 2.2 Practice eye strain safety.	2.1 Media sources explained. 2.2 Image editing tools explained. 2.3 Image editing technique explained. 2.4 Image compression explained. 2.5 Responsive images explained. 2.6 Image retrieved from media sources. 2.7 Image elements editing carried out according to design direction. 2.8 Image elements compressed according to wireframe layout. 2.9 Image elements exported to asset library (web and app). 2.10 Work progress updated according to job requirements. 2.11 Meticulous in editing image elements.

WORK ACTIVITIES	RELATED KNOWLEDGE	RELATED SKILLS	ATTITUDE/ SAFETY/ ENVIRONMENT	ASSESSMENT CRITERIA
	2.4 Image compression. 2.5 Responsive images.		ENVIRONMENT 2.1 Apply 3R concept.	2.12 Logical thinking in editing image elements. 2.13 Data integrity SOP are adhered to. 2.14 Work procedures are adhered to. 2.15 File management best practice are adhered to. 2.16 Good ergonomic practiced. 2.17 Eye strain safety practiced. 2.18 3R concept applied.
3. Edit audio elements.	3.1 Media sources: • Audio stock. • Audio recording. 3.2 Audio editing tools. 3.3 Audio editing technique: • Trim. • Cut. • Adjust. • Mix. • Compose. 3.4 Audio encoding.	3.1 Retrieve audio from media sources. 3.2 Carry out audio elements editing. 3.3 Compress audio elements. 3.4 Export audio elements to asset library (web and app). 3.5 Update work progress.	ATTITUDE 3.1 Meticulous in editing audio elements. 3.2 Logical thinking in editing audio elements. 3.3 Adhere to SOP on data integrity. 3.4 Adhere to work procedures. 3.5 Adhere to file management best practice. SAFETY 3.1 Practice good ergonomic.	3.1 Media sources explained. 3.2 Audio editing tools explained. 3.3 Audio editing technique explained. 3.4 Audio encoding explained. 3.5 Audio retrieved from media sources. 3.6 Audio elements editing carried out according to design direction. 3.7 Audio elements compressed according to project requirements. 3.8 Audio elements exported to asset library (web and app). 3.9 Work progress updated according to job requirements.

WORK ACTIVITIES	RELATED KNOWLEDGE	RELATED SKILLS	ATTITUDE/ SAFETY/ ENVIRONMENT	ASSESSMENT CRITERIA
			3.2 Practice eye strain safety. <u>ENVIRONMENT</u> 3.1 Apply 3R concept.	3.10 Meticulous in editing audio elements. 3.11 Logical thinking in editing audio elements. 3.12 Data integrity SOP are adhered to. 3.13 Work procedures are adhered to. 3.14 File management best practice are adhered to. 3.15 Good ergonomic practiced. 3.16 Eye strain safety practiced. 3.17 3R concept applied.
4. Edit video elements.	4.1 Media sources: • Video stock. • Video shooting. 4.2 Video editing tools. 4.3 Video editing technique: • Trim. • Cut. • Adjust. • Compose. • Transition.	4.1 Retrieve video from media sources. 4.2 Carry out video elements editing. 4.3 Compress video elements. 4.4 Export video elements to asset library (web and app). 4.5 Update work progress.	<u>ATTITUDE</u> 4.1 Meticulous in editing video elements. 4.2 Logical thinking in editing video elements. 4.3 Adhere to SOP on data integrity. 4.4 Adhere to work procedures. 4.5 Adhere to file management best practice.	4.1 Media sources explained. 4.2 Video editing tools explained. 4.3 Video editing technique explained. 4.4 Video encoding explained. 4.5 Video retrieved from media sources. 4.6 Video elements editing carried out according to design direction. 4.7 Video elements compressed according to project requirements. 4.8 Video elements exported to asset library (web and app).

WORK ACTIVITIES	RELATED KNOWLEDGE	RELATED SKILLS	ATTITUDE/ SAFETY/ ENVIRONMENT	ASSESSMENT CRITERIA
	• Colour correction. 4.4 Video encoding.		SAFETY 4.1 Practice good ergonomic. 4.2 Practice eye strain safety. ENVIRONMENT 4.1 Apply 3R concept.	4.9 Work progress updated according to job requirements. 4.10 Meticulous in editing video elements. 4.11 Logical thinking in editing video elements. 4.12 Data integrity SOP are adhered to. 4.13 Work procedures are adhered to. 4.14 File management best practice are adhered to. 4.15 Good ergonomic practiced. 4.16 Eye strain safety practiced. 4.17 3R concept applied.
5. Create button elements.	5.1 Definition of button. 5.2 Types of button: • 2D button. • 3D button. • Animated button. • Radio button. • Toggle button. 5.3 Button states: • Default.	5.1 Determine button concept. 5.2 Design button elements. 5.3 Optimise button elements. 5.4 Export button elements to asset library (web and app). 5.5 Update work progress.	ATTITUDE 5.1 Meticulous in creating button elements. 5.2 Logical thinking in creating button elements. 5.3 Adhere to SOP on data integrity. 5.4 Adhere to work procedures.	5.1 Definition of button explained. 5.2 Creating button using HTML/CSS explained. 5.3 Types of button explained. 5.4 Button compression explained. 5.5 Button concept determined according to visual concept. 5.6 Button elements designed according to chosen concept in reference to wireframe sketches. 5.7 Button elements optimised according to wireframe layout.

WORK ACTIVITIES	RELATED KNOWLEDGE	RELATED SKILLS	ATTITUDE/ SAFETY/ ENVIRONMENT	ASSESSMENT CRITERIA
	• Active. • Disable. • Hover. • Loading. 5.4 Button creation using graphic editing tools. 5.5 Creating button using HTML/CSS. 5.6 Button compression.		5.5 Adhere to file management best practice. <u>SAFETY</u> 5.1 Practice good ergonomic. 5.2 Practice eye strain safety. <u>ENVIRONMENT</u> 5.1 Apply 3R concept.	5.8 Button elements exported to asset library (web and app). 5.9 Work progress updated according to job requirements. 5.10 Meticulous in creating button elements. 5.11 Logical thinking in creating button elements. 5.12 Data integrity SOP are adhered to. 5.13 Work procedures are adhered to. 5.14 File management best practice are adhered to. 5.15 Good ergonomic practiced. 5.16 Eye strain safety practiced. 5.17 3R concept applied.
6. Create motion elements.	6.1 Motion editing tools. 6.2 Storyboard. 6.3 Motion editing technique: • Create vector. • Convert vector to raster. • Inbetweening.	6.1 Determine motion animation from chosen concept. 6.2 Develop motion keyframe. 6.3 Generate intermediate frames between keyframes (inbetweening). 6.4 Export motion elements to asset	<u>ATTITUDE</u> 6.1 Meticulous in creating motion elements. 6.2 Logical thinking in creating motion elements. 6.3 Adhere to SOP on data integrity. 6.4 Adhere to work procedures.	6.1 Motion editing tools explained. 6.2 Motion editing technique explained. 6.3 Motion animation determined from chosen concept in reference to wireframe layout. 6.4 Motion keyframe developed according to design requirements.

WORK ACTIVITIES	RELATED KNOWLEDGE	RELATED SKILLS	ATTITUDE/ SAFETY/ ENVIRONMENT	ASSESSMENT CRITERIA
	• Cut. • Transition. • Loop. • Compose. • Export to gif.	library (web and app). 6.5 Update work progress.	6.5 Adhere to file management best practice. <u>SAFETY</u> 6.1 Practice good ergonomic. 6.2 Practice eye strain safety. <u>ENVIRONMENT</u> 6.1 Apply 3R concept.	6.5 Intermediate frames generated between keyframes (inbetweening) according to design requirements. 6.6 Motion elements exported to asset library (web and app). 6.7 Work progress updated according to job requirements. 6.8 Meticulous in creating motion elements. 6.9 Logical thinking in creating motion elements. 6.10 Data integrity SOP are adhered to. 6.11 Work procedures are adhered to. 6.12 File management best practice are adhered to. 6.13 Good ergonomic practiced. 6.14 Eye strain safety practiced. 6.15 3R concept applied.
7. Create text (typography) elements.	7.1 Fonts: • Sources. • Types. • Usage legibility. • Size unit.	7.1 Determine typography elements from visual concept. 7.2 Compose typography layout. 7.3 Carry out typography sizing.	<u>ATTITUDE</u> 7.1 Meticulous in creating text (typographic) elements. 7.2 Logical thinking in creating text	7.1 Typography principles explained. 7.2 Font explained. 7.3 Typeface explained. 7.4 Typesetting explained. 7.5 Text alignment explained.

WORK ACTIVITIES	RELATED KNOWLEDGE	RELATED SKILLS	ATTITUDE/ SAFETY/ ENVIRONMENT	ASSESSMENT CRITERIA
	7.2 Typography principles: • Kerning. • Tracking. • Leading. 7.3 Typeface. 7.4 Typesetting. 7.5 Text alignment.	7.4 Save typography elements to asset library. 7.5 Update work progress.	(typographic) elements. 7.3 Adhere to SOP on data integrity. 7.4 Adhere to work procedures. 7.5 Adhere to file management best practice. <u>SAFETY</u> 7.1 Practice good ergonomic. 7.2 Practice eye strain safety. <u>ENVIRONMENT</u> 7.1 Apply 3R concept.	7.6 Typography elements determined from visual concept. 7.7 Typography layout composed according to design requirements. 7.8 Typography sizing carried out according to design requirements. 7.9 Typography elements saved to asset library. 7.10 Work progress updated according to job requirements. 7.11 Meticulous in creating text (typographic) elements. 7.12 Logical thinking in creating text (typographic) elements. 7.13 Data integrity SOP are adhered to. 7.14 Work procedures are adhered to. 7.15 File management best practice are adhered to. 7.16 Good ergonomic practiced. 7.17 Eye strain safety practiced. 7.18 3R concept applied.

WORK ACTIVITIES	RELATED KNOWLEDGE	RELATED SKILLS	ATTITUDE/ SAFETY/ ENVIRONMENT	ASSESSMENT CRITERIA
8. Prepare colour palette.	8.1 Colour theory. 8.2 Colour hex code. 8.3 Style guide. 8.4 Light and dark mode interface.	8.1 Identify colour code. 8.2 Select colour theme. 8.3 Document colour palette to style guide. 8.4 Update work progress.	<u>ATTITUDE</u> 8.1 Meticulous in preparing colour palette. 8.2 Logical thinking in preparing colour palette. 8.3 Adhere to SOP on data integrity. 8.4 Adhere to work procedures. 8.5 Adhere to file management best practice. <u>SAFETY</u> 8.1 Practice good ergonomic. 8.2 Practice eye strain safety. <u>ENVIRONMENT</u> 8.1 Apply 3R concept.	8.1 Colour theory explained. 8.2 Colour hex code explained. 8.3 Style guide explained. 8.4 Light and dark mode interface explained. 8.5 Colour code identified according to design requirements. 8.6 Colour theme selected according to design requirements. 8.7 Colour palette documented to style guide. 8.8 Work progress updated according to job requirements. 8.9 Meticulous in preparing colour palette. 8.10 Logical thinking in preparing colour palette. 8.11 Data integrity SOP are adhered to. 8.12 Work procedures are adhered to. 8.13 File management best practice are adhered to. 8.14 Good ergonomic practiced. 8.15 Eye strain safety practiced. 8.16 3R concept applied.

Employability Skills

Core Abilities

- Please refer NCS- Core Abilities latest edition.

Social Values & Social Skills

- Please refer Handbook on Social Skills and Social Values in Technical Education and Vocational Training.

References for Learning Material Development

1	Dave Wood, (2014) Basics Interactive Design: Interface Design: An Introduction to Visual Communication in UI Design, A&C Black, ISBN 2940411999, 9782940411993
2	Department of Skills Standard (DSD). 2015. Z-009-1:2015 NCS-Core Abilities. Putrajaya: Department of Skills Standard (DSD)
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5	Department of Skills Standard (DSD). 2018. Handbook on Social Skills and Social Values in Technical Education and Vocational Training. Putrajaya: Department of Skills Standard (DSD)
6	Donna Lichaw, (2016), The User's Journey: Storymapping Products That People Love, Rosenfeld Media, ISBN 1933820365, 9781933820361
7	Jesmond J. Allen, James J. Chudley, (2012), Smashing UX Design: Foundations for Designing Online User Experiences John Wiley & Sons, ISBN 0470970626, 9780470970621
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9	https://developer.apple.com/design/human-interface-guidelines/ (30 September 2020: 10.00 am)
10	https://material.io/design/guidelines-overview (30 September 2020: 10.15am)
11	https://www.amazon.com/Lean-UX-Applying-Principles-Experience/dp/1449311652 (30 September 2020: 11.00 am)
12	https://www.amazon.com/Dont-Make-Think-Revisited-Usability/dp/0321965515 (30 September 2020: 11.30 am)

15.3. Web User Interface Production

SECTION	(J) Information and Communication		
GROUP	(620) Computer programming, consultancy and related activities		
AREA	User Interface (UI) and User Experience (UX)		
NOSS TITLE	Web and Mobile Application Visual Design (User Interface and User Experience)		
COMPETENCY UNIT TITLE	Web User Interface Production		
LEARNING OUTCOMES	The learning outcomes of this competency are to enable the trainees to produce a web pages design mock-up that applicable across various screen sizes. Upon completion of this competency unit, trainees should be able to: 1. Produce web UI for desktop. 2. Produce web UI for tablet. 3. Produce web UI for smartphone.		
TRAINING PREREQUISITE (SPECIFIC)	Not Available.		
CU CODE	J620-004-3:2021-C03	NOSS LEVEL	Three (3)

WORK ACTIVITIES	RELATED KNOWLEDGE	RELATED SKILLS	ATTITUDE/ SAFETY/ ENVIRONMENT	ASSESSMENT CRITERIA
1. Produce web UI for desktop.	1.1 UI design tools. 1.2 Web screen resolution for desktop: • Aspect ratio. • Orientation. • Break point. 1.3 Desktop UI asset	1.1 Interpret job brief and requirements. 1.2 Apply UI design tools. 1.3 Identify device screen resolution. 1.4 Design layout and grid.	<u>ATTITUDE</u> 1.1 Meticulous in producing web UI for desktop. 1.2 Logical thinking in producing web UI for desktop. 1.3 Adhere to SOP on data integrity.	1.1 UI design tools explained. 1.2 Web screen resolution for desktop explained. 1.3 Desktop UI asset arrangement guidelines explained. 1.4 Web pages architecture explained. 1.5 Layout grid explained.

WORK ACTIVITIES	RELATED KNOWLEDGE	RELATED SKILLS	ATTITUDE/ SAFETY/ ENVIRONMENT	ASSESSMENT CRITERIA
	arrangement guidelines. 1.4 Web pages architecture. 1.5 Layout grid. 1.6 Desktop web mock-up. 1.7 Components for web desktop. 1.8 File naming convention. 1.9 Folder structure.	1.5 Arrange design assets. 1.6 Export web UI design into working folder. 1.7 Update work progress.	1.4 Adhere to work procedures. 1.5 Adhere to file management best practice. <u>SAFETY</u> 1.1 Practice good ergonomic. 1.2 Practice eye strain safety. <u>ENVIRONMENT</u> 1.1 Apply 3R concept.	1.6 Desktop web mock-up explained. 1.7 Components for desktop explained. 1.8 File naming convention explained. 1.9 Folder structure explained. 1.10 Job brief and requirements obtained. 1.11 UI design tools applied according to job brief. 1.12 Device screen resolution identified according to devices specifications. 1.13 Layout and grid designed according to wireframe layout. 1.14 Design assets arranged according to wireframe layout. 1.15 Web UI design exported into working folder. 1.16 Work progress updated according to job requirements. 1.17 Meticulous in producing web UI for desktop. 1.18 Logical thinking in producing web UI for desktop. 1.19 Data integrity SOP are adhered to.

WORK ACTIVITIES	RELATED KNOWLEDGE	RELATED SKILLS	ATTITUDE/ SAFETY/ ENVIRONMENT	ASSESSMENT CRITERIA
				1.20 Work procedures are adhered to. 1.21 File management best practice are adhered to. 1.22 Good ergonomic practiced. 1.23 Eye strain safety practiced. 1.24 3R concept applied.
2. Produce web UI for tablet.	2.1 Web screen resolution for tablet: • Aspect ratio. • Orientation. • Break point. 2.2 Tablet UI asset arrangement guidelines. 2.3 Tablet web mock-up. 2.4 Components for web tablet.	2.1 Interpret job brief and requirements. 2.2 Apply UI design tools. 2.3 Identify device screen resolution. 2.4 Design layout and grid. 2.5 Arrange design assets. 2.6 Export web UI design into working folder. 2.7 Update work progress.	<u>ATTITUDE</u> 2.1 Meticulous in producing web UI for tablet. 2.2 Logical thinking in producing web UI for tablet. 2.3 Adhere to SOP on data integrity. 2.4 Adhere to work procedures. 2.5 Adhere to file management best practice. <u>SAFETY</u> 2.1 Practice good ergonomic. 2.2 Practice eye strain safety.	2.1 Web screen resolution for tablet explained. 2.2 Tablet UI asset arrangement guidelines explained. 2.3 Tablet web mock-up explained. 2.4 Components for tablet explained. 2.5 Job brief and requirements obtained. 2.6 UI design tools applied according to job brief. 2.7 Device screen resolution identified according to devices specifications. 2.8 Layout and grid designed according to wireframe layout. 2.9 Design assets arranged according to wireframe layout. 2.10 Web UI design exported into working folder.

WORK ACTIVITIES	RELATED KNOWLEDGE	RELATED SKILLS	ATTITUDE/ SAFETY/ ENVIRONMENT	ASSESSMENT CRITERIA
			ENVIRONMENT 2.1 Apply 3R concept.	2.11 Work progress updated according to job requirements. 2.12 Meticulous in producing web UI for tablet. 2.13 Logical thinking in producing web UI for tablet. 2.14 Data integrity SOP are adhered to. 2.15 Work procedures are adhered to. 2.16 File management best practice are adhered to. 2.17 Good ergonomic practiced. 2.18 Eye strain safety practiced. 2.19 3R concept applied.
3. Produce web UI for smartphone.	3.1 Web screen resolution for smartphone: • Aspect ratio. • Orientation. • Break point. 3.2 Smartphone UI asset arrangement guidelines. 3.3 Smartphone web mock-up.	3.1 Interpret job brief and requirements. 3.2 Apply UI design tools. 3.3 Identify device screen resolution. 3.4 Design layout and grid. 3.5 Arrange design assets. 3.6 Export web UI design into working folder.	ATTITUDE 3.1 Meticulous in producing web UI for smartphone. 3.2 Logical thinking in producing web UI for smartphone. 3.3 Adhere to SOP on data integrity. 3.4 Adhere to work procedures.	3.1 Web screen resolution for smartphone explained. 3.2 Smartphone UI asset arrangement guidelines explained. 3.3 Smartphone web mock-up explained. 3.4 Components for smartphone explained. 3.5 Job brief and requirements obtained. 3.6 UI design tools applied according to job brief.

WORK ACTIVITIES	RELATED KNOWLEDGE	RELATED SKILLS	ATTITUDE/ SAFETY/ ENVIRONMENT	ASSESSMENT CRITERIA
	3.4 Components for web smartphone.	3.7 Update work progress.	3.5 Adhere to file management best practice. <u>SAFETY</u> 3.1 Practice good ergonomic. 3.2 Practice eye strain safety. <u>ENVIRONMENT</u> 3.1 Apply 3R concept.	3.7 Device screen resolution identified according to devices specifications. 3.8 Layout and grid designed according to wireframe layout. 3.9 Design assets arranged according to wireframe layout. 3.10 Web UI design exported into working folder. 3.11 Work progress updated according to job requirements. 3.12 Meticulous in producing web UI for smartphone. 3.13 Logical thinking in producing web UI for smartphone. 3.14 Data integrity SOP are adhered to. 3.15 Work procedures are adhered to. 3.16 File management best practice are adhered to. 3.17 Good ergonomic practiced. 3.18 Eye strain safety practiced. 3.19 3R concept applied.

Employability Skills

Core Abilities

- Please refer NCS- Core Abilities latest edition.

Social Values & Social Skills

- Please refer Handbook on Social Skills and Social Values in Technical Education and Vocational Training.

References for Learning Material Development

1	Dave Wood, (2014) Basics Interactive Design: Interface Design: An Introduction to Visual Communication in UI Design, A&C Black, ISBN 2940411999, 9782940411993
2	Department of Skills Standard (DSD). 2015. Z-009-1:2015 NCS-Core Abilities. Putrajaya: Department of Skills Standard (DSD)
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4	Department of Skills Standard (DSD). 2015. Z-009-3:2015 NCS-Core Abilities. Putrajaya: Department of Skills Standard (DSD)
5	Department of Skills Standard (DSD). 2018. Handbook on Social Skills and Social Values in Technical Education and Vocational Training. Putrajaya: Department of Skills Standard (DSD)
6	Donna Lichaw, (2016), The User's Journey: Storymapping Products That People Love, Rosenfeld Media, ISBN 1933820365, 9781933820361
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8	Richard Caddick, Steve Cable, (2011) Communicating the User Experience: A Practical Guide for Creating Useful UX Documentation, John Wiley & Sons, ISBN 1119971101, 9781119971108
9	https://developer.apple.com/design/human-interface-guidelines/ (30 September 2020: 10.00 am)
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11	https://www.amazon.com/Lean-UX-Applying-Principles-Experience/dp/1449311652 (30 September 2020: 11.00 am)
12	https://www.amazon.com/Dont-Make-Think-Revisited-Usability/dp/0321965515 (30 September 2020: 11.30 am)

15.4. Native App User Interface Design

SECTION	(J) Information and Communication		
GROUP	(620) Computer programming, consultancy and related activities		
AREA	User Interface (UI) and User Experience (UX)		
NOSS TITLE	Web and Mobile Application Visual Design (User Interface and User Experience)		
COMPETENCY UNIT TITLE	Native App User Interface Design		
LEARNING OUTCOMES	The learning outcomes of this competency are to enable the trainees to produce a design files for iOS and Android for both smartphone and tablet on multiple screen resolution. Upon completion of this competency unit, trainees should be able to: 1. Produce app UI design for iOS smartphone. 2. Produce app UI design for iOS tablet. 3. Produce app UI design for Android smartphone. 4. Produce app UI design for Android tablet.		
TRAINING PREREQUISITE (SPECIFIC)	Not Available.		
CU CODE	J620-004-3:2021-C04	NOSS LEVEL	Three (3)

WORK ACTIVITIES	RELATED KNOWLEDGE	RELATED SKILLS	ATTITUDE/ SAFETY/ ENVIRONMENT	ASSESSMENT CRITERIA
1. Produce app UI design for iOS smartphone.	1.1 UI design tools. 1.2 Human Interface Guidelines. 1.3 Smartphone screen resolution for iOS:	1.1 Interpret job brief and requirements. 1.2 Apply UI design tools. 1.3 Identify device screen resolution. 1.4 Design layout and grid.	<u>ATTITUDE</u> 1.1 Meticulous in producing app UI design for iOS smartphone. 1.2 Logical thinking in producing app UI	1.1 UI design tools explained. 1.2 Human Interface Guidelines explained. 1.3 Smartphone screen resolution for iOS explained. 1.4 iOS app architecture explained.

WORK ACTIVITIES	RELATED KNOWLEDGE	RELATED SKILLS	ATTITUDE/ SAFETY/ ENVIRONMENT	ASSESSMENT CRITERIA
	• Orientation. • Device size classes. 1.4 iOS app architecture: • Onboarding. • Loading. • Modality. • Offline states. 1.5 Smartphone UI components for iOS: • Bars. • Views. • Controls. 1.6 App icon. 1.7 Splash screen design. 1.8 Smartphone app mock-up. 1.9 File naming convention. 1.10 Folder structure.	1.5 Arrange design assets. 1.6 Export app UI design into file working folder. 1.7 Update work progress.	design for iOS smartphone. 1.3 Adhere to SOP on data integrity. 1.4 Adhere to work procedures. 1.5 Adhere to file management best practice. <u>SAFETY</u> 1.1 Practice good ergonomic. 1.2 Practice eye strain safety. <u>ENVIRONMENT</u> 1.1 Apply 3R concept.	1.5 Smartphone UI components for iOS explained. 1.6 App icon explained. 1.7 Splash screen design explained. 1.8 Smartphone app mock-up explained. 1.9 File naming convention explained. 1.10 Folder structure explained. 1.11 Job brief and requirements obtained. 1.12 UI design tools applied according to job brief. 1.13 Device screen resolution identified according to devices specifications. 1.14 Layout and grid designed according to wireframe layout and Human Interface Guidelines. 1.15 Design assets arranged according to wireframe layout and Human Interface Guidelines. 1.16 App UI design exported into working folder. 1.17 Work progress updated according to job requirements.

WORK ACTIVITIES	RELATED KNOWLEDGE	RELATED SKILLS	ATTITUDE/ SAFETY/ ENVIRONMENT	ASSESSMENT CRITERIA
				1.18 Meticulous in producing app UI design for iOS smartphone. 1.19 Logical thinking in producing app UI design for iOS smartphone. 1.20 Data integrity SOP are adhered to. 1.21 Work procedures are adhered to. 1.22 File management best practice are adhered to. 1.23 Good ergonomic practiced. 1.24 Eye strain safety practiced. 1.25 3R concept applied.
2. Produce app UI design for iOS tablet.	2.1 Tablet screen resolution for iOS: • Orientation. • Device size classes. 2.2 Tablet UI components for iOS: • Bars. • Views. • Controls.	2.1 Interpret job brief and requirements. 2.2 Apply UI design tools. 2.3 Identify device screen resolution. 2.4 Design layout and grid. 2.5 Arrange design assets. 2.6 Export app UI design into file working folder.	<u>ATTITUDE</u> 2.1 Meticulous in producing app UI design for iOS tablet. 2.2 Logical thinking in producing app UI design for iOS tablet. 2.3 Adhere to SOP on data integrity. 2.4 Adhere to work procedures. 2.5 Adhere to file management best practice.	2.1 Tablet screen resolution for iOS explained. 2.2 Tablet UI components for iOS explained. 2.3 Tablet app mock-up explained. 2.4 Job brief and requirements obtained. 2.5 UI design tools applied according to job brief. 2.6 Device screen resolution identified according to devices specifications. 2.7 Layout and grid designed according to wireframe layout

WORK ACTIVITIES	RELATED KNOWLEDGE	RELATED SKILLS	ATTITUDE/ SAFETY/ ENVIRONMENT	ASSESSMENT CRITERIA
	2.3 Tablet app mock-up.	2.7 Update work progress.	<u>SAFETY</u> 2.1 Practice good ergonomic. 2.2 Practice eye strain safety. <u>ENVIRONMENT</u> 2.1 Apply 3R concept.	and Human Interface Guidelines. 2.8 Design assets arranged according to wireframe layout and Human Interface Guidelines. 2.9 App UI design exported into working folder. 2.10 Work progress updated according to job requirements. 2.11 Meticulous in producing app UI design for iOS tablet. 2.12 Logical thinking in producing app UI design for iOS tablet. 2.13 Data integrity SOP are adhered to. 2.14 Work procedures are adhered to. 2.15 File management best practice are adhered to. 2.16 Good ergonomic practiced. 2.17 Eye strain safety practiced. 2.18 3R concept applied.
3. Produce app UI design for Android	3.1 Android UI design guidelines. 3.2 Smartphone screen	3.1 Interpret job brief and requirements. 3.2 Apply UI design tools.	<u>ATTITUDE</u> 3.1 Meticulous in producing app UI design for Android smartphone.	3.1 Android UI design guidelines explained. 3.2 Smartphone screen resolution for Android explained.

WORK ACTIVITIES	RELATED KNOWLEDGE	RELATED SKILLS	ATTITUDE/ SAFETY/ ENVIRONMENT	ASSESSMENT CRITERIA
smartphone.	resolution for Android: • Orientation. • Device metrics. 3.3 App communication structure: • Onboarding. • Confirmation and acknowledgement. • Offline states. 3.4 Smartphone UI components for Android.	3.3 Identify device screen resolution. 3.4 Design layout and grid. 3.5 Arrange design assets. 3.6 Export app UI design into working folder. 3.7 Update work progress.	3.2 Logical thinking in producing app UI design for Android smartphone. 3.3 Adhere to SOP on data integrity. 3.4 Adhere to work procedures. 3.5 Adhere to file management best practice. <u>SAFETY</u> 3.1 Practice good ergonomic. 3.2 Practice eye strain safety. <u>ENVIRONMENT</u> 3.1 Apply 3R concept.	3.3 App communication structure explained. 3.4 Smartphone UI components for Android explained. 3.5 Job brief and requirements obtained. 3.6 UI design tools applied according to job brief. 3.7 Device screen resolution identified according to devices specifications. 3.8 Layout and grid designed according to wireframe layout and UI design guidelines. 3.9 Design assets arranged according to wireframe layout and UI design guidelines. 3.10 App UI design exported into working folder. 3.11 Work progress updated according to job requirements. 3.12 Meticulous in producing app UI design for Android smartphone. 3.13 Logical thinking in producing app UI design for Android smartphone. 3.14 Data integrity SOP are adhered to.

WORK ACTIVITIES	RELATED KNOWLEDGE	RELATED SKILLS	ATTITUDE/ SAFETY/ ENVIRONMENT	ASSESSMENT CRITERIA
				3.15 Work procedures are adhered to. 3.16 File management best practice are adhered to. 3.17 Good ergonomic practiced. 3.18 Eye strain safety practiced. 3.19 3R concept applied.
4. Produce app UI design for Android tablet.	4.1 Tablet screen resolution for Android: • Orientation. • Device metrics. 4.2 Tablet UI components for Android.	4.1 Interpret job brief and requirements. 4.2 Apply UI design tools. 4.3 Identify device screen resolution. 4.4 Design layout and grid. 4.5 Arrange design assets. 4.6 Export app UI design into working folder. 4.7 Update work progress.	<u>ATTITUDE</u> 4.1 Meticulous in producing app UI design for Android tablet. 4.2 Logical thinking in producing app UI design for Android tablet. 4.3 Adhere to SOP on data integrity. 4.4 Adhere to work procedures. 4.5 Adhere to file management best practice. <u>SAFETY</u> 4.1 Practice good ergonomic.	4.1 Tablet screen resolution for Android explained. 4.2 Tablet UI components for Android explained. 4.3 Job brief and requirements obtained. 4.4 UI design tools applied according to job brief. 4.5 Device screen resolution identified according to devices specifications. 4.6 Layout and grid designed according to wireframe layout and UI design guidelines. 4.7 Design assets arranged according to wireframe layout and UI design guidelines. 4.8 App UI design exported into working folder. 4.9 Work progress updated according to job requirements.

WORK ACTIVITIES	RELATED KNOWLEDGE	RELATED SKILLS	ATTITUDE/ SAFETY/ ENVIRONMENT	ASSESSMENT CRITERIA
			4.2 Practice eye strain safety. <u>ENVIRONMENT</u> 4.1 Apply 3R concept.	4.10 Meticulous in producing app UI design for Android tablet. 4.11 Logical thinking in producing app UI design for Android tablet. 4.12 Data integrity SOP are adhered to. 4.13 Work procedures are adhered to. 4.14 File management best practice are adhered to. 4.15 Good ergonomic practiced. 4.16 Eye strain safety practiced. 4.17 3R concept applied.

Employability Skills

Core Abilities

- Please refer NCS- Core Abilities latest edition.

Social Values & Social Skills

- Please refer Handbook on Social Skills and Social Values in Technical Education and Vocational Training.

References for Learning Material Development

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2 Department of Skills Standard (DSD). 2015. Z-009-1:2015 NCS-Core Abilities. Putrajaya: Department of Skills Standard (DSD)
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4 Department of Skills Standard (DSD). 2015. Z-009-3:2015 NCS-Core Abilities. Putrajaya: Department of Skills Standard (DSD)
5 Department of Skills Standard (DSD). 2018. Handbook on Social Skills and Social Values in Technical Education and Vocational Training. Putrajaya: Department of Skills Standard (DSD)
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15.5. Web and App Interaction Design and Usability Testing

SECTION	(J) Information and Communication		
GROUP	(620) Computer programming, consultancy and related activities		
AREA	User Interface (UI) and User Experience (UX)		
NOSS TITLE	Web and Mobile Application Visual Design (User Interface and User Experience)		
COMPETENCY UNIT TITLE	Web and App Interaction Design and Usability Testing		
LEARNING OUTCOMES	The learning outcomes of this competency are to enable the trainees to produce an interactable web and app prototype that is tested by identified persona for usability. Upon completion of this competency unit, trainees should be able to: 1. Produce web prototype. 2. Produce app prototype for iOS. 3. Produce app prototype for Android. 4. Conduct prototype design and usability testing.		
TRAINING PREREQUISITE (SPECIFIC)	Not Available.		
CU CODE	J620-004-3:2021-C05	NOSS LEVEL	Three (3)

WORK ACTIVITIES	RELATED KNOWLEDGE	RELATED SKILLS	ATTITUDE/ SAFETY/ ENVIRONMENT	ASSESSMENT CRITERIA
1. Produce web prototype.	1.1 Web UI/UX design tools. 1.2 Types of web interaction design. 1.3 Web navigation flow. 1.4 Web transition.	1.1 Interpret job brief and requirements. 1.2 Apply UI/UX prototype design tools. 1.3 Identify types of interaction.	<u>ATTITUDE</u> 1.1 Meticulous in producing web prototype. 1.2 Logical thinking in producing web prototype.	1.1 Web UI/UX design tools explained. 1.2 Types of web interaction design explained. 1.3 Web navigation flow explained. 1.4 Web transition explained. 1.5 Web animation explained.

WORK ACTIVITIES	RELATED KNOWLEDGE	RELATED SKILLS	ATTITUDE/ SAFETY/ ENVIRONMENT	ASSESSMENT CRITERIA
	1.5 Web animation. 1.6 Web UX feedback.	1.4 Identify types of animation and transition. 1.5 Import UI/UX design asset from asset library. 1.6 Apply interaction, animation and transition in UI/UX design tools. 1.7 Generate web prototype into file package. 1.8 Update work progress.	1.3 Adhere to SOP on data integrity. 1.4 Adhere to work procedures. 1.5 Adhere to file management best practice. <u>SAFETY</u> 1.1 Practice good ergonomic. 1.2 Practice eye strain safety. <u>ENVIRONMENT</u> 1.1 Apply 3R concept.	1.6 Web UX feedback explained. 1.7 Job brief and requirements obtained. 1.8 UI/UX prototype design tools applied according to job brief. 1.9 Types of interaction identified according to design files. 1.10 Types of animation and transition identified according to usability requirements. 1.11 UI/UX design asset imported from asset library. 1.12 Interaction, animation, and transition applied in UI/UX design tools. 1.13 Web prototype generated into file package. 1.14 Work progress updated according to job requirements. 1.15 Meticulous in producing web prototype. 1.16 Logical thinking in producing web prototype. 1.17 Data integrity SOP are adhered to. 1.18 Work procedures are adhered to. 1.19 File management best practice are adhered to.

WORK ACTIVITIES	RELATED KNOWLEDGE	RELATED SKILLS	ATTITUDE/ SAFETY/ ENVIRONMENT	ASSESSMENT CRITERIA
				1.20 Good ergonomic practiced. 1.21 Eye strain safety practiced. 1.22 3R concept applied.
2. Produce app prototype for iOS.	2.1 Human Interface Guidelines. 2.2 App UI/UX design tools. 2.3 Types of iOS app interaction design. 2.4 iOS app navigation flow. 2.5 App transition. 2.6 App animation. 2.7 iOS gesture. 2.8 App UX feedback.	2.1 Interpret job brief and requirements. 2.2 Apply UI/UX prototype design tools. 2.3 Identify types of interaction. 2.4 Identify types of animation and transition. 2.5 Import UI/UX design asset from asset library. 2.6 Apply interaction, animation and transition in UI/UX design tools. 2.7 Generate app prototype into file package. 2.8 Update work progress.	<u>ATTITUDE</u> 2.1 Meticulous in producing app prototype for iOS. 2.2 Logical thinking in producing app prototype for iOS. 2.3 Adhere to SOP on data integrity. 2.4 Adhere to work procedures. 2.5 Adhere to file management best practice. <u>SAFETY</u> 2.1 Practice good ergonomic. 2.2 Practice eye strain safety. <u>ENVIRONMENT</u> 2.1 Apply 3R concept.	2.1 Human Interface Guidelines explained. 2.2 App UI/UX design tools explained. 2.3 Types of iOS app interaction design explained. 2.4 iOS app navigation flow explained. 2.5 App transition explained. 2.6 App animation explained. 2.7 iOS gesture explained. 2.8 App UX feedback explained. 2.9 Job brief and requirements obtained. 2.10 UI/UX prototype design tools applied according to job brief. 2.11 Types of interaction identified according to design files. 2.12 Types of animation and transition identified according to usability requirements. 2.13 UI/UX design asset imported from asset library.

WORK ACTIVITIES	RELATED KNOWLEDGE	RELATED SKILLS	ATTITUDE/ SAFETY/ ENVIRONMENT	ASSESSMENT CRITERIA
				2.14 Interaction, animation and transition applied in UI/UX design tools. 2.15 App prototype generated into file package. 2.16 Work progress updated according to job requirements. 2.17 Meticulous in producing app prototype for iOS. 2.18 Logical thinking in producing app prototype for iOS. 2.19 Data integrity SOP are adhered to. 2.20 Work procedures are adhered to. 2.21 File management best practice are adhered to. 2.22 Good ergonomic practiced. 2.23 Eye strain safety practiced. 2.24 3R concept applied.
3. Produce app prototype for Android.	3.1 Android UI design guidelines. 3.2 Types of Android app interaction design.	3.1 Interpret job brief and requirements. 3.2 Apply UI/UX prototype design tools. 3.3 Identify types of interaction.	<u>ATTITUDE</u> 3.1 Meticulous in producing app prototype for Android. 3.2 Logical thinking in producing app	3.1 Android UI design guidelines explained. 3.2 Types of Android app interaction design explained. 3.3 Android app navigation flow explained. 3.4 Android gesture explained.

WORK ACTIVITIES	RELATED KNOWLEDGE	RELATED SKILLS	ATTITUDE/ SAFETY/ ENVIRONMENT	ASSESSMENT CRITERIA
	3.3 Android app navigation flow. 3.4 Android gesture.	3.4 Identify types of animation and transition. 3.5 Import UI/UX design asset from asset library. 3.6 Apply interaction, animation and transition in UI/UX design tools. 3.7 Generate app prototype into file package. 3.8 Update work progress.	prototype for Android. 3.3 Adhere to SOP on data integrity. 3.4 Adhere to work procedures. 3.5 Adhere to file management best practice. SAFETY 3.1 Practice good ergonomic. 3.2 Practice eye strain safety. ENVIRONMENT 3.1 Apply 3R concept.	3.5 Job brief and requirements obtained. 3.6 UI/UX prototype design tools applied according to job brief. 3.7 Types of interaction identified according to design files. 3.8 Types of animation and transition identified according to usability requirements. 3.9 UI/UX design asset imported from asset library. 3.10 Interaction, animation, and transition applied in UI/UX design tools. 3.11 App prototype generated into file package. 3.12 Work progress updated according to job requirements. 3.13 Meticulous in producing app prototype for Android. 3.14 Logical thinking in producing app prototype for Android. 3.15 Data integrity SOP are adhered to. 3.16 Work procedures are adhered to. 3.17 File management best practice are adhered to. 3.18 Good ergonomic practiced.

WORK ACTIVITIES	RELATED KNOWLEDGE	RELATED SKILLS	ATTITUDE/ SAFETY/ ENVIRONMENT	ASSESSMENT CRITERIA
				3.19 Eye strain safety practiced. 3.20 3R concept applied.
4. Conduct prototype design and usability testing.	4.1 Introduction to usability test. 4.2 Usability testing method: • Lab usability testing. • Remote usability testing. 4.3 Usability test user recruitment. 4.4 Testing equipment and environment preparation. 4.5 Data collection method: • Observation. • Interview. • Survey.	4.1 Interpret job brief and requirements. 4.2 Identify user who will be performing the test. 4.3 Prepare testing equipment and environment. 4.4 Observe user action during usability testing process. 4.5 Interview user for feedback on design and usability. 4.6 Compile user feedback analysis for report. 4.7 Improve prototype design and usability. 4.8 Update work progress.	<u>ATTITUDE</u> 4.1 Meticulous in conducting prototype design and usability testing. 4.2 Logical thinking in conducting prototype design and usability testing. 4.3 Adhere to SOP on data integrity. 4.4 Adhere to work procedures. 4.5 Adhere to file management best practice. <u>SAFETY</u> 4.1 Practice good ergonomic. 4.2 Practice eye strain safety. <u>ENVIRONMENT</u> 4.1 Apply 3R concept.	4.1 Introduction to usability test explained. 4.2 Usability testing method explained. 4.3 Usability test user recruitment explained. 4.4 Testing equipment and environment preparation explained. 4.5 Data collection method explained. 4.6 Job brief and requirements obtained. 4.7 User who will be performing the test identified based on user persona. 4.8 Testing equipment and environment prepared according to testing specification. 4.9 User action observed during usability testing process. 4.10 User interviewed for feedback on design and usability. 4.11 User feedback analysis compiled for report.

WORK ACTIVITIES	RELATED KNOWLEDGE	RELATED SKILLS	ATTITUDE/ SAFETY/ ENVIRONMENT	ASSESSMENT CRITERIA
				4.12 Prototype design and usability improved based on user feedback. 4.13 Work progress updated according to job requirements. 4.14 Meticulous in conducting prototype design and usability testing. 4.15 Logical thinking in conducting prototype design and usability testing. 4.16 Data integrity SOP are adhered to. 4.17 Work procedures are adhered to. 4.18 File management best practice are adhered to. 4.19 Good ergonomic practiced. 4.20 Eye strain safety practiced. 4.21 3R concept applied.

Employability Skills

Core Abilities

- Please refer NCS- Core Abilities latest edition.

Social Values & Social Skills

- Please refer Handbook on Social Skills and Social Values in Technical Education and Vocational Training.

References for Learning Material Development

1	Dave Wood, (2014) Basics Interactive Design: Interface Design: An Introduction to Visual Communication in UI Design, A&C Black, ISBN 2940411999, 9782940411993
2	Department of Skills Standard (DSD). 2015. Z-009-1:2015 NCS-Core Abilities. Putrajaya: Department of Skills Standard (DSD)
3	Department of Skills Standard (DSD). 2015. Z-009-2:2015 NCS-Core Abilities. Putrajaya: Department of Skills Standard (DSD)
4	Department of Skills Standard (DSD). 2015. Z-009-3:2015 NCS-Core Abilities. Putrajaya: Department of Skills Standard (DSD)
5	Department of Skills Standard (DSD). 2018. Handbook on Social Skills and Social Values in Technical Education and Vocational Training. Putrajaya: Department of Skills Standard (DSD)
6	Donna Lichaw, (2016), The User's Journey: Storymapping Products That People Love, Rosenfeld Media, ISBN 1933820365, 9781933820361
7	Jesmond J. Allen, James J. Chudley, (2012), Smashing UX Design: Foundations for Designing Online User Experiences John Wiley & Sons, ISBN 0470970626, 9780470970621
8	Richard Caddick, Steve Cable, (2011) Communicating the User Experience: A Practical Guide for Creating Useful UX Documentation, John Wiley & Sons, ISBN 1119971101, 9781119971108
9	https://developer.apple.com/design/human-interface-guidelines/ (30 September 2020: 10.00 am)
10	https://material.io/design/guidelines-overview (30 September 2020: 10.15am)
11	https://www.amazon.com/Lean-UX-Applying-Principles-Experience/dp/1449311652 (30 September 2020: 11.00 am)
12	https://www.amazon.com/Dont-Make-Think-Revisited-Usability/dp/0321965515 (30 September 2020: 11.30 am)

15.6. User Interface Design Documentation

SECTION	(J) Information and Communication		
GROUP	(620) Computer programming, consultancy and related activities		
AREA	User Interface (UI) and User Experience (UX)		
NOSS TITLE	Web and Mobile Application Visual Design (User Interface and User Experience)		
COMPETENCY UNIT TITLE	User Interface Design Documentation		
LEARNING OUTCOMES	The learning outcomes of this competency are to enable the trainees to produce well-organized document, style guide and assets. Upon completion of this competency unit, trainees should be able to: 1. Update web and app design document versioning. 2. Perform UI/UX collaborative practices. 3. Deliver design handoff.		
TRAINING PREREQUISITE (SPECIFIC)	Not available.		
CU CODE	J620-004-3:2021-C06	NOSS LEVEL	Three (3)

WORK ACTIVITIES	RELATED KNOWLEDGE	RELATED SKILLS	ATTITUDE/ SAFETY/ ENVIRONMENT	ASSESSMENT CRITERIA
1. Update web and app design document versioning.	1.1 File naming convention. 1.2 Versioning convention. 1.3 Version control tools. 1.4 Changelog documents.	1.1 Identify file naming and versioning convention. 1.2 Identify version control tools. 1.3 Perform web and app design document versioning.	<u>ATTITUDE</u> 1.1 Meticulous in updating web and app design document versioning. 1.2 Adhere to SOP on data integrity. 1.3 Adhere to work procedures.	1.1 File naming convention explained. 1.2 Versioning convention explained. 1.3 Version control tools explained. 1.4 Changelog documents explained.

WORK ACTIVITIES	RELATED KNOWLEDGE	RELATED SKILLS	ATTITUDE/ SAFETY/ ENVIRONMENT	ASSESSMENT CRITERIA
		1.4 Prepare changelog documents.	1.4 Adhere to file management best practice. <u>SAFETY</u> 1.1 Practice good ergonomic. 1.2 Practice eye strain safety. <u>ENVIRONMENT</u> 1.1 Apply 3R concept.	1.5 File naming and versioning convention identified according to stakeholder's requirements. 1.6 Version control tools identified according to stakeholder's requirements. 1.7 Web and app design document versioning performed according to stakeholder's requirements. 1.8 Changelog documents prepared according to task performed. 1.9 Meticulous in updating web and app design document versioning. 1.10 Data integrity SOP are adhered to. 1.11 Work procedures are adhered to. 1.12 File management best practice are adhered to. 1.13 Good ergonomic practiced. 1.14 Eye strain safety practiced. 1.15 3R concept applied.

WORK ACTIVITIES	RELATED KNOWLEDGE	RELATED SKILLS	ATTITUDE/ SAFETY/ ENVIRONMENT	ASSESSMENT CRITERIA
2. Perform UI/UX collaborative practices.	2.1 Design collaborative tools. 2.2 Design document package: • Prototype. • Style guide. • Asset library. 2.3 Digital collaborative communication. 2.4 Digital wellbeing.	2.1 Identify collaborative tools platform. 2.2 Collaborate design document with team members. 2.3 Collaborate design document for review with stakeholder.	<u>ATTITUDE</u> 2.1 Meticulous in performing UI/UX collaborative practices. 2.2 Adhere to SOP on data integrity. 2.3 Adhere to work procedures. 2.4 Adhere to file management best practice. 2.5 Practice healthy and balanced use of technology. <u>SAFETY</u> 2.1 Practice good ergonomic. 2.2 Practice eye strain safety. <u>ENVIRONMENT</u> 2.1 Apply 3R concept.	2.1 Design collaborative tools explained. 2.2 Design document package explained. 2.3 Digital collaborative communication explained. 2.4 Digital wellbeing explained. 2.5 Collaborative tools platform identified according to stakeholder's requirements. 2.6 Design document collaborated with team members to perform job requirements. 2.7 Design document collaborated for review with stakeholder. 2.8 Meticulous in performing UI/UX collaborative practices. 2.9 Data integrity SOP are adhered to. 2.10 Work procedures are adhered to. 2.11 File management best practice are adhered to. 2.12 Healthy and balanced use of technology practiced. 2.13 Good ergonomic practiced. 2.14 Eye strain safety practiced. 2.15 3R concept applied.

WORK ACTIVITIES	RELATED KNOWLEDGE	RELATED SKILLS	ATTITUDE/ SAFETY/ ENVIRONMENT	ASSESSMENT CRITERIA
3. Deliver design handoff.	3.1 Design handoff tools. 3.2 Introduction to interface coding: • HTML. • CSS. • Mobile app. 3.3 Portfolio creation.	3.1 Prepare finalised web and app mock-up. 3.2 Prepare finalised web and app interaction document. 3.3 Prepare finalised web and app label and content. 3.4 Prepare finalised web and app code design specification, style guide and assets. 3.5 Update work progress. 3.6 Share design document to stakeholders.	<u>ATTITUDE</u> 3.1 Meticulous in designing design hand-off. 3.2 Adhere to SOP on data integrity. 3.3 Adhere to work procedures. 3.4 Adhere to file management best practice. <u>SAFETY</u> 3.1 Practice good ergonomic. 3.2 Practice eye strain safety. <u>ENVIRONMENT</u> 3.1 Apply 3R concept.	3.1 Design handoff tools explained. 3.2 Introduction to interface coding explained. 3.3 Finalised web and app mock-up prepared according to standard practice. 3.4 Finalised web and app interaction document prepared according to standard practice. 3.5 Finalised web and app label and content prepared according to stakeholder's requirements. 3.6 Finalised web and app code design specification, style guide and assets prepared according to stakeholder's requirements. 3.7 Work progress updated according to job requirements. 3.8 Design document shared to stakeholders. 3.9 Meticulous in performing UI/UX collaborative practices. 3.10 Data integrity SOP are adhered to. 3.11 Work procedures are adhered to.

WORK ACTIVITIES	RELATED KNOWLEDGE	RELATED SKILLS	ATTITUDE/ SAFETY/ ENVIRONMENT	ASSESSMENT CRITERIA
				3.12 File management best practice are adhered to. 3.13 Good ergonomic practiced. 3.14 Eye strain safety practiced. 3.15 3R concept applied.

Employability Skills

Core Abilities

- Please refer NCS- Core Abilities latest edition.

Social Values & Social Skills

- Please refer Handbook on Social Skills and Social Values in Technical Education and Vocational Training.

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3 Department of Skills Standard (DSD). 2015. Z-009-2:2015 NCS-Core Abilities. Putrajaya: Department of Skills Standard (DSD)
4 Department of Skills Standard (DSD). 2015. Z-009-3:2015 NCS-Core Abilities. Putrajaya: Department of Skills Standard (DSD)
5 Department of Skills Standard (DSD). 2018. Handbook on Social Skills and Social Values in Technical Education and Vocational Training. Putrajaya: Department of Skills Standard (DSD)
6 Donna Lichaw, (2016), The User's Journey: Storymapping Products That People Love, Rosenfeld Media, ISBN 1933820365, 9781933820361
7 Jesmond J. Allen, James J. Chudley, (2012), Smashing UX Design: Foundations for Designing Online User Experiences John Wiley & Sons, ISBN 0470970626, 9780470970621
8 Richard Caddick, Steve Cable, (2011) Communicating the User Experience: A Practical Guide for Creating Useful UX Documentation, John Wiley & Sons, ISBN 1119971101, 9781119971108
9 https://developer.apple.com/design/human-interface-guidelines/ (30 September 2020: 10.00 am)
10 https://material.io/design/guidelines-overview (30 September 2020: 10.15am)
11 https://www.amazon.com/Lean-UX-Applying-Principles-Experience/dp/1449311652 (30 September 2020: 11.00 am)
12 https://www.amazon.com/Dont-Make-Think-Revisited-Usability/dp/0321965515 (30 September 2020: 11.30 am)

16. Delivery Mode

The following are the **recommended** training delivery modes: -

KNOWLEDGE	SKILL
• Lecture • Group discussion • E-learning, self-paced • E-learning, facilitate • Case study or Problem based learning (PBL) • Self-paced learning, non-electronic • One-on-one tutorial • Shop talk • Seminar	• Demonstration • Simulation • Project • Scenario based training (SBT) • Role play • Coaching • Observation • Mentoring

Skills training and skills assessment of trainees should be implemented in accordance with TEM requirements and actual situation.

17. Tools, Equipment and Materials (TEM)

WEB AND MOBILE APPLICATION VISUAL DESIGN (USER INTERFACE AND USER EXPERIENCE)

LEVEL 3

CU	CU CODE	COMPETENCY UNIT TITLE
C01	J620-004-3:2021-C01	Preliminary User Interface and Experience Visual Design
C02	J620-004-3:2021-C02	Web and Mobile Application Assets Design
C03	J620-004-3:2021-C03	Web User Interface Production
C04	J620-004-3:2021-C04	Native App User Interface Design
C05	J620-004-3:2021-C05	Web and App Interaction Design and Usability Testing
C06	J620-004-3:2021-C06	User Interface Design Documentation

***** Items listed refer to TEM's **minimum requirement** for skills delivery only.

NO.	ITEM*	RATIO (TEM : Trainees or AR = As Required)					
		C01	C02	C03	C04	C05	C06
A. Tools							
1	Graphic editing software	1:1	1:1	1:1	1:1		
2	Media production software		1:1	1:1	1:1		
3	UI/UX prototype tools	1:1		1:1	1:1	1:1	1:1
4	Office application software	1:1	1:1	1:1	1:1	1:1	1:1
5	Digital external storage	AR	AR	AR	AR	AR	AR
B. Equipment							
1	Computer (desktop/laptop)/multimedia workstation with internet connectivity	1:1	1:1	1:1	1:1	1:1	1:1
2	Android tablet with internet connectivity			1:15	1:15	1:15	
3	iOS tablet with internet connectivity			1:15	1:15	1:15	
4	Android smartphone with internet connectivity			1:15	1:15	1:15	
5	iOS smartphone with internet connectivity			1:15	1:15	1:15	

6	Printer	1:25	1:25	1:25	1:25	1:25	1:25
7	Scanner	1:25	1:25	1:25	1:25	1:25	1:25
8	Video camera set					1:25	
C. Materials							
1	Stationaries (white A3 & A4 paper, pencil, pen, eraser, ruler, stapler, puncher)	AR	AR	AR	AR	AR	AR

18. Competency Weightage

The following table shows the percentage of training priorities based on consensus made by the Standard Development Committee (SDC).

WEB AND MOBILE APPLICATION VISUAL DESIGN (USER INTERFACE AND USER EXPERIENCE)

LEVEL 3

CU CODE	COMPETENCY UNIT TITLE	COMPETENCY UNIT WEIGHTAGE	WORK ACTIVITIES	WORK ACTIVITIES WEIGHTAGE
J620-004-3:2021-C01	Preliminary User Interface and Experience Visual Design	10%	1. Interpret design requirements.	20%
			2. Review design idea.	20%
			3. Review user journey.	20%
			4. Prepare wireframe layout.	40%
J620-004-3:2021-C02	Web and Mobile Application Assets Design	25%	1. Create icon elements.	15%
			2. Edit image elements.	15%
			3. Edit audio elements.	10%
			4. Edit video elements.	10%
			5. Create button elements.	15%
			6. Create motion elements.	10%
			7. Create text (typography) elements.	15%
			8. Prepare colour palette.	10%
J620-004-3:2021-C03	Web User Interface Production	20%	1. Produce web UI for desktop.	40%
			2. Produce web UI for tablet.	30%
			3. Produce web UI for smartphone.	30%
J620-004-3:2021-C04	Native App User Interface Design	20%	1. Produce app UI design for iOS smartphone.	25%
			2. Produce app UI design for iOS tablet.	25%

			3. Produce app UI design for Android smartphone.	25%
			4. Produce app UI design for Android tablet.	25%
J620-004-3:2021-C05	Web and App Interaction Design and Usability Testing	15%	1. Produce web prototype.	30%
			2. Produce app prototype for iOS.	20%
			3. Produce app prototype for Android.	20%
			4. Conduct prototype design and usability testing.	30%
J620-004-3:2021-C06	User Interface Design Documentation	10%	1. Update web and app design document versioning.	20%
			2. Perform UI/UX collaborative practices.	20%
			3. Deliver design handoff.	60%
TOTAL PERCENTAGE (CORE COMPETENCY)		100%		