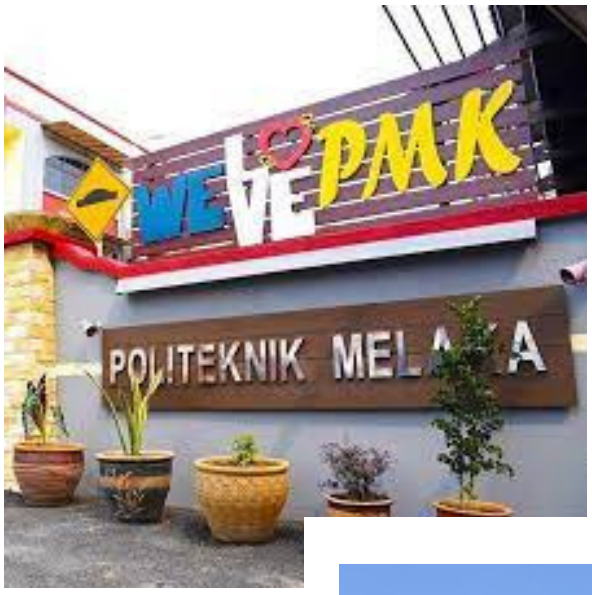
KEMENTERIAN PENGAJIAN TINGGI
JABATAN PENDIDIKAN POLITEKNIK DAN KOLEJ KOMUNITI

POLITEKNIK MALAYSIA
MELAKA

JKA
JABATAN KEJURUTERAAN AWAM
POLITEKNIK MELAKA

STUDENT HANDBOOK

CIVIL ENGINEERING



DIPLOMA IN CIVIL ENGINEERING (DCE)

CIVIL ENGINEERING DEPARTMENT
POLITEKNIK MELAKA,

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12 th. June 2023

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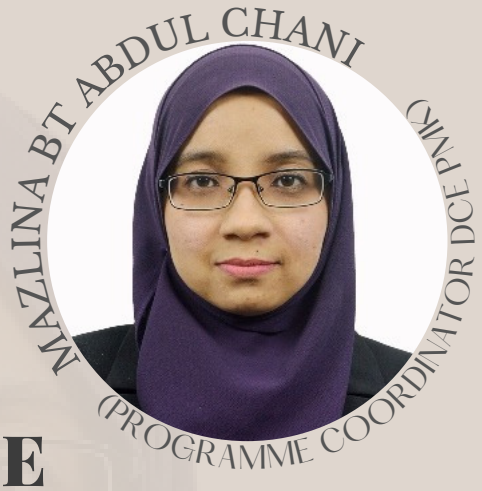
Student Handbook DCE

2023

FOREWORD

Civil Engineering Department of Politeknik Melaka is dedicated in fulfilling our objective to supply our nation with wholesome semi-skilled builders. Towards that, our programmes are tailored to fill the educational need of our stakeholders in civil engineering. The programmes offered in department of Civil Engineering emphasize on broad exposure of knowledge with industrial practices and observation. This practice will prepare student to be competent, effective and ethical in their future endeavors. These are reflected by the attainment and assessment made through OBE measurement. For a start, this handbook will be a good entry for our students to learn of our department better, so as to prepare them in their journey towards better future.

Anuar Ismail



PREFACE

The objective of this handbook is as a start up for students to learn about civil engineering department of Politeknik Melaka. This handbook consists of information on civil engineering programmes currently offered in this institution. Particulars such as staff members, programme structures, curriculum and course synopsis are included in this handbook and will be updated from time to time in editions to come so our student can benefit from it and be well informed beforehand. We are looking forward to be part of your journey for a brighter tomorrow!!

Mazlina Abdul Ghani

ABOUT CED

civil eng. dept.

The Department of Civil Engineering is one of the main departments in the Polytechnic of Malacca (PMK) that plays a key role in providing engineering knowledge to produce skilled and competitive professional graduates. The teaching and learning process is carried out in the form of theory and practicality to ensure that students are exposed to the world and the challenges of the real world.

The Department of Civil Engineering (CED) was led by Mr Anuar bin Ismail as the Head of Department and assisted by 29 staff members of academic staff and technicians. Staff in the Department of Civil Engineering (CED) also consist of professionals who are recognized, trained and knowledgeable in line with the goal of producing more quality graduates in meeting the needs of the public and private sectors in Malaysia.

DCE's continued efforts have been made by CED in making this department one of the COT (Center of Technology) which was formally declared in 2021, the Center of Building Technology (COBTech) and obtained '1 Star Rating'
that focused on IBS (Industrialized Building System).

Students are trained and exposed to daily activities in the construction industry such as supervision of construction sites, survey work, laboratory testing, structural analysis and design, water supply, environmental management and other related.

Super Team 2023

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4 CED QUALITY OBJECTIVES
OBJEKTIF KUALITI JKA

1

RESEARCH
KAJIAN PENYELIDIKAN

To publish at least ONE (1) national level research per year
Menerbitkan sekurang-kurangnya SATU (1) hasil penyelidikan peringkat kebangsaan dalam setahun.

INNOVATION COMPETITION
PERTANDINGAN INOVASI

1

To join at least ONE (1) national level innovation competition per year
Menyertai sekurang-kurangnya satu (1) pertandingan inovasi peringkat kebangsaan dalam setahun

30%

CGPA 3.0 AND ABOVE
HPNM 3.0 KE ATAS

To achieve at least 30% of students passed completely with CGPA 3.0 and above
Mencapai sekurang-kurangnya 30% pelajar lulus penuh dengan HPNM 3.0 dan ke atas

SOFT SKILLS PROGRAMMES
PROGRAM KEMAHIRAN INSANIAH

5

To organize at least FIVE (5) soft skills programmes in a year
Menganjurkan sekurang-kurangnya lima (5) program kemahiran insaniah dalam setahun

CLIENT CHARTER

(PIAGAM PELANGGAN)

1. T & L process is implemented systematically planned and effectively according to ISO 9001:2015 requirements

1. Proses P&P dilaksanakan secara sistematik, terancang dan berkesan mengikut keperluan ISO 9001:2015

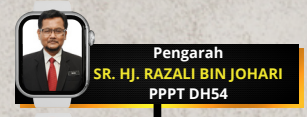
2. Programme offered received MQA/ETAC accreditation

2. Program yang ditawarkan mendapat akreditasi MQA/ETAC

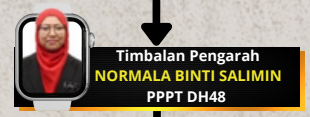
3. Provide competent academic staff

3. Menyediakan staf akademik yang kompeten

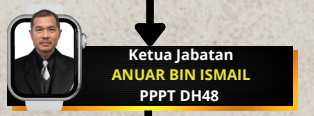
ORGANIZATION CHART CED



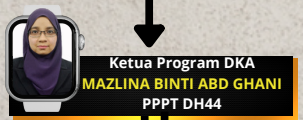
Pengarah
SR. HJ. RAZALI BIN JOHARI
PPPT DH54



Timbalan Pengarah
NORMALA BINTI SALIMIN
PPPT DH48



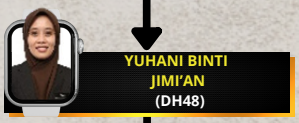
Ketua Jabatan
ANUAR BIN ISMAIL
PPPT DH48



Ketua Program DKA
MAZLINA BINTI ABD GHANI
PPPT DH44

JKA
JABATAN KEJURUTERAAN AWAM
POLITEKNIK MELAKA

SINATU SADIAH BINTI SHAPIE
(DH52)



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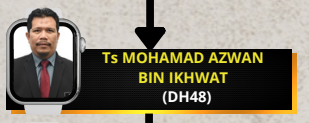
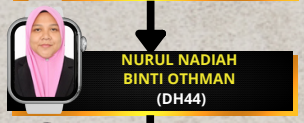


Ts MOHAMAD AZWAN BIN IKHWAT
(DH48)

NOOR HAZALINA BT ABDULLAH
(DH48)

NORHAFIZAN BIN MAJID
(DH48)



NURUL NADIAH BINTI OTHMAN
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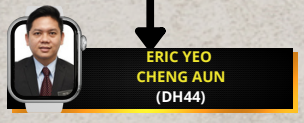
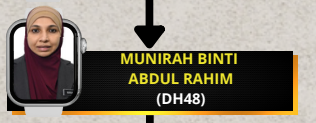


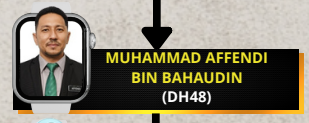
ERIC YEO CHENG AUN
(DH44)

Ts Dr ERITA MAZWIN BINTI MAZLAN
(DH48)



MUNIRAH BINTI ABDUL RAHIM
(DH48)

SITI HARNI BINTI ZAINAL
(DH48)

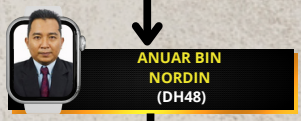


MUHAMMAD AFFENDI BIN BAHAUDIN
(DH48)

NORZAINARIAH BINTI ABU HASSAN
(DH44)

KHAIRUL ZAMIL BIN MD NAZIMUDDIN
(DH44)

NAZLEENA BINTI DAUD
(DH44)



ANUAR BIN NORDIN
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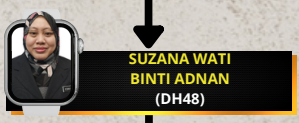

SUZANA WATI BINTI ADNAN
(DH48)

FARA HASZILLAH BINTI HASIM
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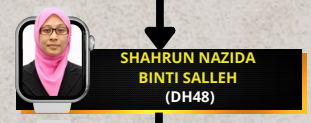

SHAHRUN NAZIDA BINTI SALLEH
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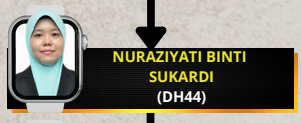

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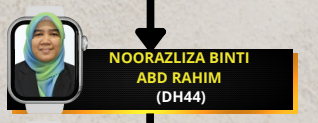

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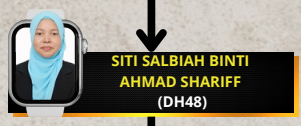

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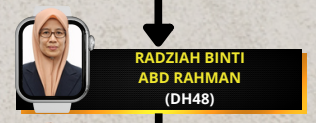

RADZIAH BINTI ABD RAHMAN
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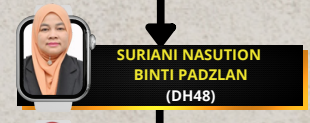

SURIANI NASUTION BINTI PADZLAN
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SITI NUR FARHANA BINTI ABDUL AZIZ
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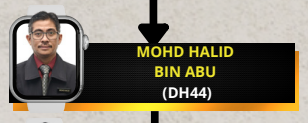
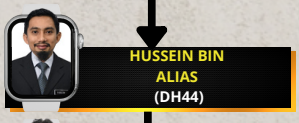


MOHD HALID BIN ABU
(DH44)



HUSSEIN BIN ALIAS
(DH44)

SHAHRIZAL BIN KHAMIS
(JA29)

ABOUT DIPLOMA IN CIVIL ENG.

About DCE

Diploma in Civil Engineering (DCE) provides knowledge, skills and attitude to adapt to new technology in civil engineering with the ability to demonstrate professionalism and work ethics in fulfilling responsibilities towards the creator, client and society. This programme provides theory as well as carries out practical work. This programme also offers courses in Civil Engineering area such as Engineering Graphics, Water & Water Resources Engineering, Environment, Strength & Structural Design, Road & Transportation, Engineering Management and Geotechnics.

This programme is specially designed with hands-on training in addition to the theoretical learning in civil engineering. They are required to complete the industrial training to prepare graduates for employment in different sectors of the industry because the skills and knowledge acquired are used throughout modern industry. They will be able to use appropriate communication and interpersonal skills to perform tasks in various situations. Graduates will demonstrate desired behavioural traits like integrity, team work, problem solving and passion in performing the tasks related to their area of specialization. They will possess entrepreneurial skills to contribute to the economic growth for the nation's development in the construction industries. With these additional skills, they will be more competitive in the present job market.

SYNOPSIS

This programme is designed to equip students with sound knowledge, skills, attitude and understanding of the environment, construction industries, construction designs and infrastructural development of civil engineering.

The knowledge and skills acquired will be useful for success in future or current employment.

2022/2023

JOB PROSPECT

- Technical Assistant
- Site Supervisor
- Inspector of Work
- Assistant Engineer
- Contractor
- Health and Safety Officer
- Research Assistant
- Quality Control Assistant Engineer
- Material Coordinator
- Entrepreneur


"Don't forget, beautiful sunset need cloudy skies."
Paulo Coelho

HIGHER ACADEMIC PATHWAY

CAREER PATHWAYS FOR POLYTECHNIC STUDENTS

Graduates of polytechnics in general are able to advance their studies through these academic career pathways;

INSTITUTION OF HIGHER LEARNING (PUBLIC/PRIVATE)

This pathway allows polytechnic students to advance their studies in other public universities, as well as other private learning institutions.

PROGRAMME

- **Bachelor of Civil Engineering Technology (Hons.)**

Politeknik Ungku Omar,
Jalan Raja Musa Mahadi
31400 Ipoh, Perak.
Tel : (6)05 - 545 7622/7656
Fax : (6)05 - 547 1162
www.puo.edu.my

UTM
UNIVERSITI TEKNOLOGI MALAYSIA

Universiti Teknologi Malaysia,
81310 Skudai, Johor,Malaysia
Tel.: (6)07 - 553 3333
Fax : (6)07 - 5561722
www.utm.my

PROGRAMME

- **Bachelor of Civil Engineering**
- **Bachelor of Civil Engineering (Environment)**
- **Bachelor of Civil Engineering (Project Management)**

PROGRAMME

- **Bachelor of Civil Engineering (Hons)**

UPM
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BERILMU BERBAKTI

Universiti Putra Malaysia,
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Fax : -
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UNIVERSITI KEBANGSAAN MALAYSIA
The National University of Malaysia

Universiti Kebangsaan Malaysia,
43600, Bangi, Selangor
Tel : (6)03-8921 4902
Fax : (6)03-89213552
www.ukm.my

PROGRAMME

- **Bachelor of Engineering (Hons) (Civil and (Environment)**
- **Bachelor of Engineering (Hons) (Civil and (Structural)**

PROGRAMME

- **Bachelor of Civil Engineering (Hons)**
- **Bachelor of Engineering Material (Hons)**

USM UNIVERSITI SAINS MALAYSIA

Universiti Sains Malaysia,
Kampus Kejuruteraan
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UNIVERSITY OF MALAYA

Universiti Malaya,
Lembah Pantai, 50603
Kuala Lumpur, Malaysia
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Fax : (6)03-7967 3562
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PROGRAMME

- **Bachelor of Civil Engineering (ENV.)**
- **Bachelor of Engineering Material (Hons)**

PROGRAMME

- **Bachelor of Civil Engineering (Hons.)**

SWINBURNE UNIVERSITY OF TECHNOLOGY

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PROGRAMME

- **Bachelor of Civil Engineering (Hons.)**

PROGRAMME

- **Bachelor of Civil Engineering with Hons.**

UTHM
Universiti Tun Hussein Onn Malaysia

Universiti Tun Hussein Onn Malaysia, Beg Berkunci 101, 86400 Parit Raja, Batu Pahat, Johor, Malaysia
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www.uthm.edu.my

UNIVERSITI TEKNOLOGI MARA

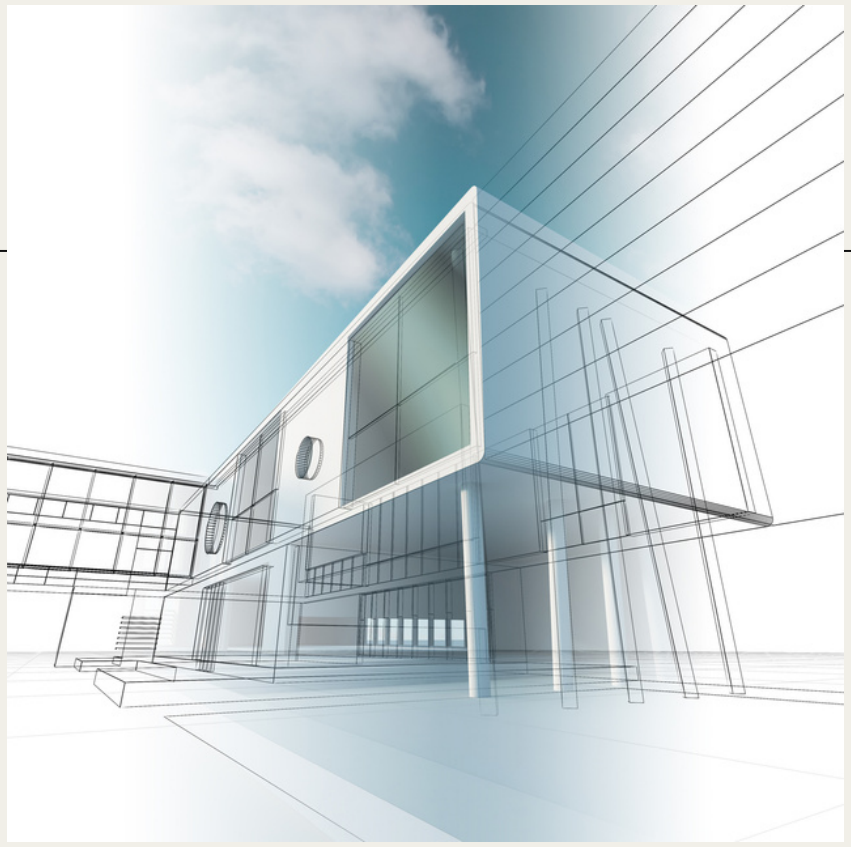
Universiti Teknologi MARA,
40450 Shah Alam,
Selangor Darul Ehsan, Malaysia
Tel : (6)03-5522 2650
Fax : (6)03-55442668
www.uitm.edu.my

PROGRAMME

- **Bachelor of Civil Engineering (Hons.)**

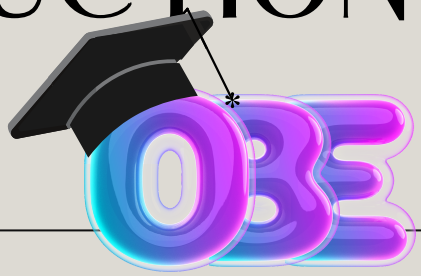
OBE OUTCOME-BASED EDUCATION

WHAT IS OUTCOME-BASED EDUCATION?



Outcome-based education focuses on results rather than learning processes.
Students are given clear objectives and regular evaluations of progress, and they receive personalized feedback on how well they have achieved those goals.

INTRODUCTION



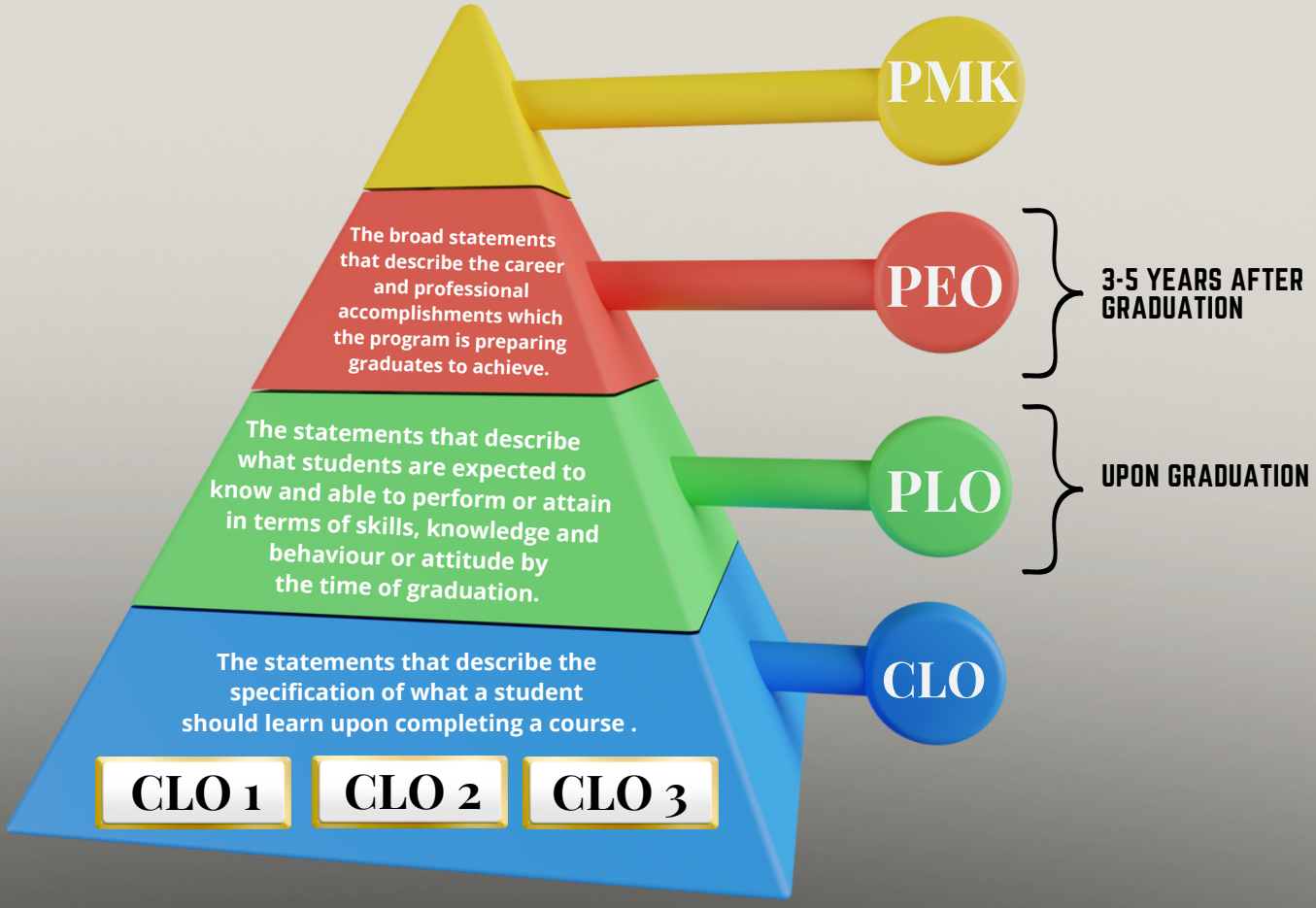
- A model of education where by students demonstrate what they know and are able to do whatever the required outcomes are. The outcomes are specified in terms of individual student learning.

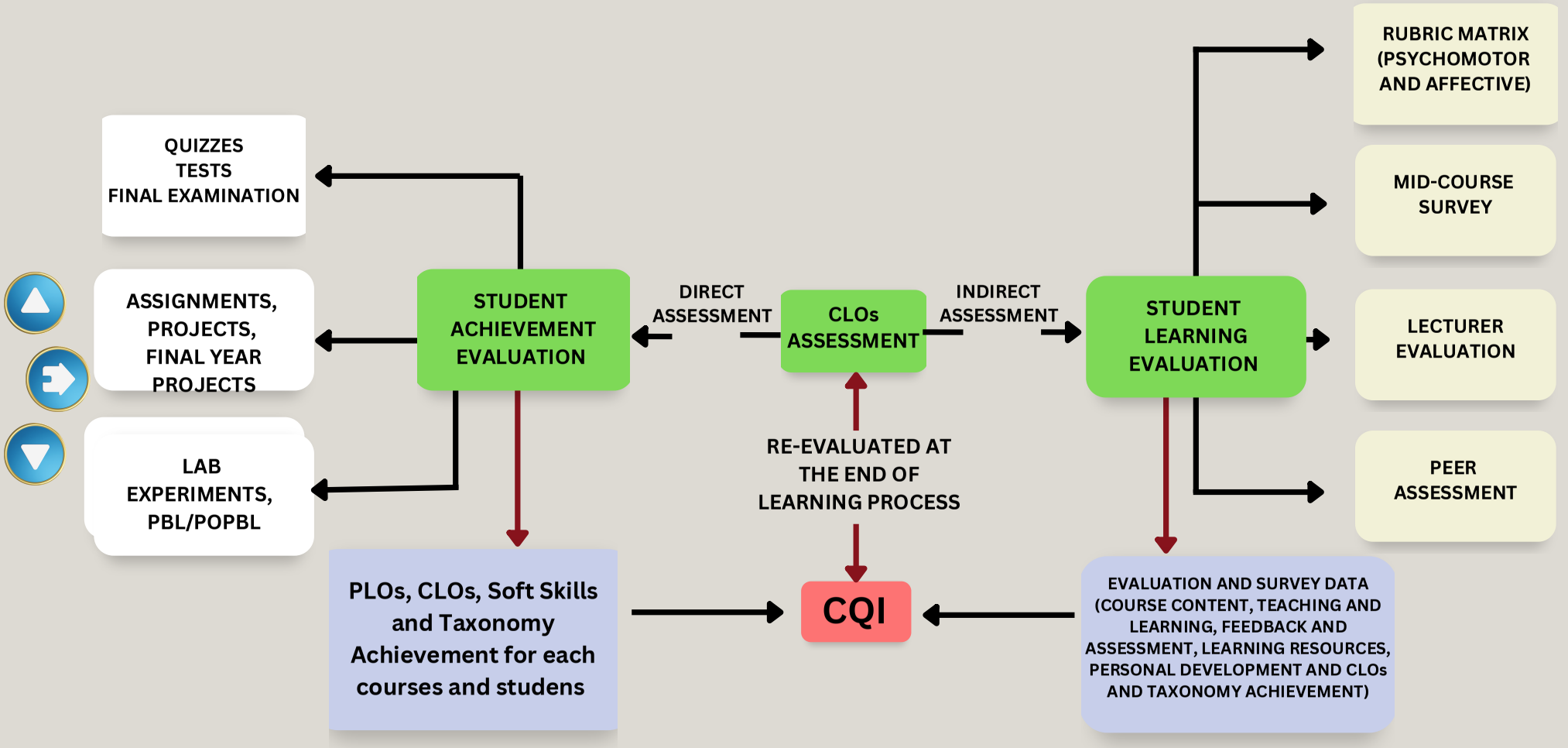
- OBE emphasizes setting clear standards for observable, measurable outcomes through which students performances can be measured.

- An approach that focuses on students' learning rather than teaching.

- OBE is concerned with how students demonstrate their learning (called outcomes).

FRAMEWORK IN OBE




QUIZZES
TESTS
FINAL EXAMINATION
ASSIGNMENTS, PROJECTS, FINAL YEAR PROJECTS
LAB EXPERIMENTS, PBL/POPBL
STUDENT ACHIEVEMENT EVALUATION
DIRECT ASSESSMENT
CLOs ASSESSMENT
INDIRECT ASSESSMENT
STUDENT LEARNING EVALUATION
RUBRIC MATRIX (PSYCHOMOTOR AND AFFECTIVE)
MID-COURSE SURVEY
LECTURER EVALUATION
PEER ASSESSMENT
RE-EVALUATED AT THE END OF LEARNING PROCESS
PLOs, CLOs, Soft Skills and Taxonomy Achievement for each courses and studens
CQI
EVALUATION AND SURVEY DATA (COURSE CONTENT, TEACHING AND LEARNING, FEEDBACK AND ASSESSMENT, LEARNING RESOURCES, PERSONAL DEVELOPMENT AND CLOs AND TAXONOMY ACHIEVEMENT)

TEACHER CENTERED VS STUDENT CENTERED

TEACHER

- *Course Objective is the Learning Target.*
- *No mapping of learning outcomes*
- *Student Independent Learning Not Calculated*
- *Contact hours reflect credit*

STUDENT

- *Learning Outcomes is the Learning Target.*
- *Mapping of learning outcomes*
- *Student Independent Learning Time Calculated*
- *Total SLT Reflects Credit Value*

THE ROLES OF STUDENTS

- Takes responsibility for learning;
- Seeks knowledge actively;
- Constructs knowledge by interacting with his/her lecturer and also information gathered from various sources to be used in problem solving.

THE RESPONSIBILITIES OF STUDENTS

- The students must be responsible for their own learning process as much as the lecturers are responsible for their teaching.

- In OBE, the emphasis is on students' responsibility in their own learning by clearly defining the Student Learning Time (SLT): face to face and non face-on-face.

PROGRAMME EDUCATIONAL OBJECTIVES (PEO)

The Diploma in Civil Engineering programme shall produced semi professionals who are:

1. WORKING IN THE FIELD OF CIVIL ENGINEERING
2. LEAD OR A TEAM MEMBER TO SUPPORT THEIR ROLE IN INDUSTRIES
3. ASSESS EXISTING BUILDINGS, ROADS, WATER FEATURES & UTILITIES
4. EVALUATE THE PROJECT'S IMPACT ON THE NATURAL ENVIRONMENT & LOCAL WILDLIFE

PROGRAMME LEARNING OUTCOMES (PLO)

PLO1

Apply knowledge of applied mathematics, applied science, engineering fundamentals and an engineering specialisation as specified in DK1 to DK4 respectively to wide practical procedures and practices

PLO2

Identify and analyse well-defined engineering problems reaching substantiated conclusions using codified methods of analysis specific to their field of activity (DK1 to DK4)

PLO3

Design solutions for well-defined technical problems and assist with the design of systems, components or processes to meet specified needs with appropriate consideration for public health and safety, cultural, societal, and environmental considerations (DK5);

PLO4

Conduct investigations of well-defined problems; locate and search relevant codes and catalogues, conduct standard tests and measurements;

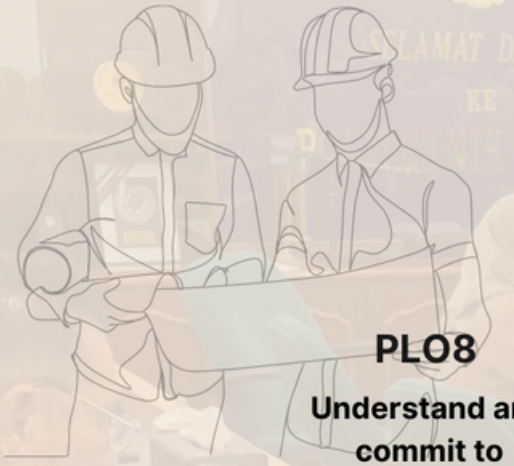
PLO5

Apply appropriate techniques, resources, and modern engineering and IT tools to well-defined engineering problems, with an awareness of the limitations (DK6);

PLO6

Demonstrate knowledge of the societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to engineering technician practice and solutions to well-defined engineering problems (DK7);

PROGRAMME LEARNING OUTCOMES (PLO)



PLO7

Understand and evaluate the sustainability and impact of engineering technician work in the solution of well-defined engineering problems in societal and environmental contexts (DK7)

PLO8

Understand and commit to professional ethics and responsibilities and norms of technician practice;

PLO9

Function effectively as an individual, and as a member in diverse technical teams;

PLO10

Communicate effectively on well-defined engineering activities with the engineering community and with society at large, by being able to comprehend the work of others, document their own work, and give and receive clear instructions;

PLO11

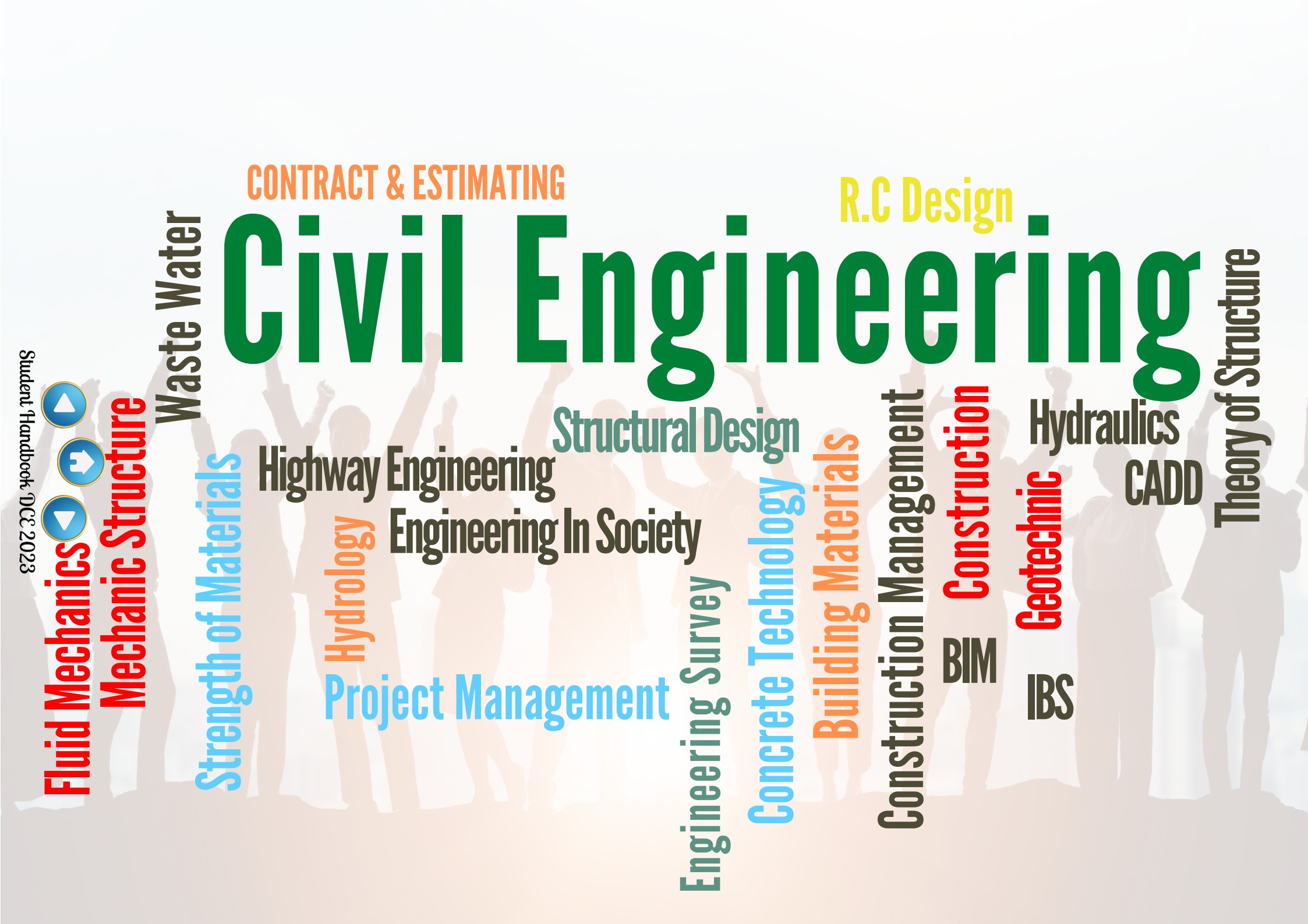
Demonstrate knowledge and understanding of engineering management principles and apply these to one's own work, as a member or leader in a technical team and to manage projects in multidisciplinary environments

PLO12

Recognise the need for, and have the ability to engage in independent updating in the context of specialised technical knowledge


"We shape our buildings, thereafter they shape us"
WINSTON CHURCHILL

PROGRAMME STRUCTURE


CONTRACT & ESTIMATING
R.C Design
Civil Engineering
Waste Water
Theory of Structure
Hydraulics
CADD
Structural Design
Highway Engineering
Engineering In Society
Strength of Materials
Hydrology
Project Management
Engineering Survey
Concrete Technology
Building Materials
Construction Management
Construction
BIM
Geotechnic
IBS
Fluid Mechanics
Mechanic Structure
Student Handbook DCE 2023

PROGRAMME STRUCTURE

CLASSIFICATION	COURSE CODE	COURSE	CONTACT HOUR	CREDIT
SEMESTER 1				
COMPULSORY	MPU21032	PENGHAYATAN ETIKA DAN PERADABAN	3	2
	DUE10012	COMMUNICATIVE ENGLISH 1	3	2
	MPU24XX1	SUKAN***	2	1
	MPU24XX1	UNIT BERUNIFORM***		
COMMON CORE	DUW10022	OSH FOR ENGINEERING	2	2
	DBS10012	ENGINEERING SCIENCE	3	2
	DBM10013	ENGINEERING MATHEMATHICS 1	4	3
DISCIPLINE CORE	DCC10012	ENG. DRAWING & CADD	4	2
	DCC10022	BRICKWORKS & CONCRETE LABORATORY	3	2
	DCC10032	CIVIL ENGINEERING MATERIAL	2	2
		TOTAL	26	18

PROGRAMME STRUCTURE

CLASSIFICATION	COURSE CODE	COURSE	CONTACT HOUR	CREDIT
SEMESTER 2				
COMPULSORY	MPU23052	SAINS, TEKNOLOGI & KEJURUTERAAN DALAM ISLAM*	3	2
	MPU23042	NILAI MASYARAKAT MALAYSIA**		
	MPU24XX1	KELAB/PERSATUAN	2	1
	MPU24XX1	UNIT BERUNIFORM 2		
COMMON CORE	DBM20023	ENGINEERING MATHEMATHICS 2	4	3
DISCIPLINE CORE	DCC20042	PLUMBING & CARPENTRY WORKSHOP	3	2
	DCC20053	MECHANICS OF CIVIL ENG. STRUCTURES	4	3
	DCC20063	ENGINEERING SURVEY	5	3
	DCC20073	CONTRACT & ESTIMATING	4	3
		TOTAL	25	17

PROGRAMME STRUCTURE

CLASSIFICATION	COURSE CODE	COURSE	CONTACT HOUR	CREDIT
SEMESTER 3				
COMPULSORY	DUE30022	COMMUNICATIVE ENGLISH 2	3	2
	MPU22012	ENTREPRENEURSHIP	3	2
DISCIPLINE CORE	DCC30082	IBS IN SUSTAINABLE CONSTRUCTION	4	2
	DCC30093	GEOTECHNICAL ENGINEERING	4	3
	DCC30103	HIGHWAY & TRAFFIC ENGINEERING	4	3
	DCC30112	GEOTECHNICAL & HIGHWAY ENG LAB	3	2
	DCC30122	FLUID MECHANICS	3	2
		TOTAL	24	16

PROGRAMME STRUCTURE

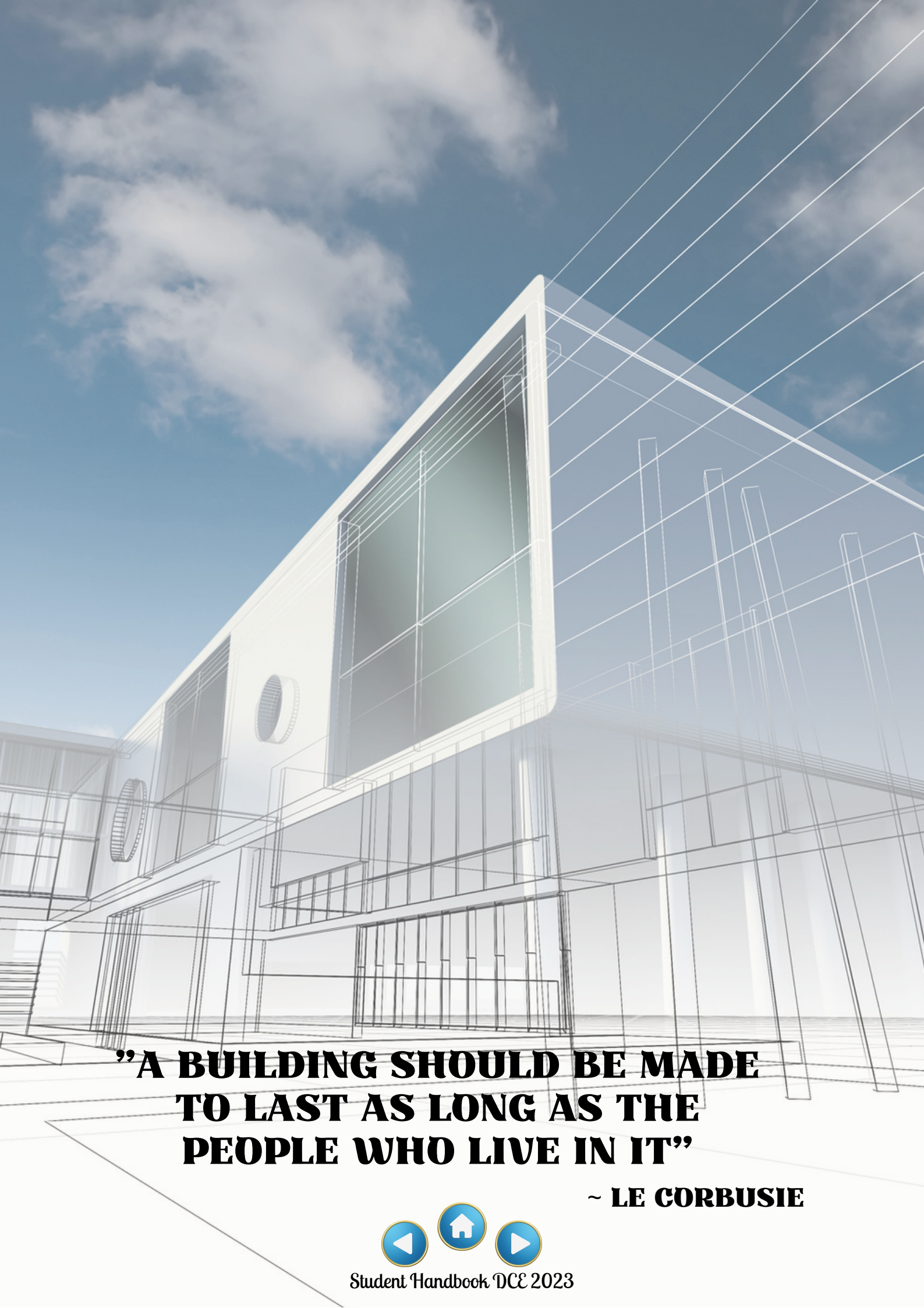
CLASSIFICATION	COURSE CODE	COURSE	CONTACT HOUR	CREDIT
SEMESTER 4				
COMPULSORY	DUE50032	COMMUNICATIVE ENGLISH 3	3	2
DISCIPLINE CORE	DCC40132	PROJECT MANAGEMENT & PRACTICES	3	2
	DCC40142	STEEL STRUCTURE DESIGN	3	2
	DCC40152	WATER SUPPLY & WASTE WATER ENG.	2	2
	DCC40163	THEORY OF STRUCTURES	4	3
	DCC40172	STRUCTURE, HYDRAULICS & WATER QUALITY LAB	3	2
	DCC40181	FINAL YEAR PROJECT 1	2	1
ELECTIVES		ELECTIVES	4	2
		TOTAL	24	16

PROGRAMME STRUCTURE

CLASSIFICATION	COURSE CODE	COURSE	CONTACT HOUR	CREDIT
SEMESTER 5				
DISCIPLINE CORE	DCC50194	FINAL YEAR PROJECT 2	8	4
	DCC50203	REINFORCED CONCRETE DESIGN	4	3
	DCC50212	HYDROLOGY	3	2
	DCC50222	HYDRAULICS	3	2
	DCC50232	ENGINEERING IN SOCIETY	2	2
ELECTIVES		ELECTIVES	2	2
		TOTAL	22	15
SEMESTER 6				
INDUSTRIAL TRAINING	DUT 600610	INDUSTRIAL TRAINING	0	10
		TOTAL	0	10
		TOTAL CREDIT HOUR		92

PROGRAMME STRUCTURE

CLASSIFICATION	COURSE CODE	COURSE	CONTACT HOUR	CREDIT
ELECTIVE COURSES				
1	DCC50242	BUILDING INFORMATION MODELLING (BIM)	4	2
2	DCC50252	BUILDING SERVICES	2	2
3	DCC50262	ENVIRONMENTAL POLLUTION & CONTROL	2	2



”A BUILDING SHOULD BE MADE TO LAST AS LONG AS THE PEOPLE WHO LIVE IN IT”

~ LE CORBUSIE

DESCRIPTIONS OF COURSES

ENGINEERING DRAWING & COMPUTER AIDED DRAFTING (CAD)

covers the basic manual drafting of technical drawing to enhance engineering student ability to communicate ideas in modern technology industry. It provides a platform for student to interpret engineering drawings, use CAD and develop their skills in technical sketching. Student should be able to produce engineering drawing using manual graphics sketching and CAD software related to IR4.0

CIVIL ENGINEERING MATERIALS

course is designed to equip students with a comprehensive knowledge and skills related to construction materials used in civil engineering. It will emphasize on types and function of cement, the function of aggregates in concrete, water, admixtures, properties of fresh and hardened concrete, concrete mix design, and manufacturing concrete on site. This course also focuses on the properties of timber, types and characteristics of brick and concrete block, steel and nonsteel, the types and function of building finishes materials and the introduction to building elements.

MECHANICS OF CIVIL ENGINEERING STRUCTURES

covers knowledge of facts and basic principles of types of forces, strength of materials and behavior of loaded structures. This course provides exposure to the impact of loaded structures on direct and shear stresses, slope and deflection. This exposure will be the pre requisite to understand other courses in Civil Engineering

OCCUPATIONAL SAFETY AND HEALTH FOR ENGINEERING

ENGINEERING SURVEY

focus on the basic principles of levelling and total station traverse survey. This course emphasizes the basic distance measurement, bearing and angle in order to get the shape of terrain and the position on the field. It also gives knowledge and practical skills to students in operating and handling survey instruments, control survey, detail survey, data collection or acquisition, calculation and plotting of survey works. The course emphasis on the method used to carry out surveying works especially data collection or acquisition to produce plan based on the scope of work. It also gives exposure to the need for accurate data to be used for other surveying work.

CONTRACT AND ESTIMATING

is a study of construction industry in general, tender procedure, contract procedure, preliminary estimating method, build-up rate and quantity measurement. The module emphasies on contract condition and provide exposure to the students regarding the procedures and standard practice in the construction field based on Standard Form of Contract (P.W.D. Form 203/ 203A)

IBS IN SUSTAINABLE CONSTRUCTION

is designed to equip student the concept of Industrialised Building System (IBS) in conjunction with sustainability of the construction industry. This course teaches on elements such as Modular Coordination and IBS Score, site management and supervision and installation of IBS components. This course will also include practical work in assembling green system, supervision and quality checking in IBS construction and also installation of IBS in a small scale project pertaining to sustainable construction.

GEOTECHNICAL ENGINEERING

covers basic knowledge of the process of soils and rock formation and the characteristics of soil. It also covers soil improvement works such as compaction, shear strength, seepage, slope stability, earth pressure and foundation.

HIGHWAY AND TRAFFIC ENIGINEERING

is a study on history of highway construction and the organization involved in Malaysia. This course also provides the students with the knowledge regarding the method and design involved in traffic engineering. This course emphasizes on introduction to highway and traffic, pavement materials, construction of flexible pavement, construction of rigid pavement, traffic control equipment and road furniture, flexible pavement design, junction design, traffic management and highway maintenance.

FLUID MECHANICS

covers the behaviour and characteristics of engineering fluid and their application in hydrostatic and hydrodynamic fluid. This course involves discussion on fluid properties, fluid flow concept and basic equations, moving fluid forces, dimensional analysis, flow in closed conduits and pipe network, and momentum equations.

PROJECT MANAGEMENT AND PRACTICES

focuses on the basic knowledge and understanding of project management. Students will be introduced to the definition and basic concept of project management and practices. . Every aspect in project management is explained starting from the overview of project management, the influences of organizational structures in project management, project lifecycle, resources in project management, planning and scheduling, project control and monitoring, safety control, environmental management plan and quality assurance in project management. The application of common software such as Microsoft Project for planning and scheduling also will be exposed to the student

STEEL STRUCTURE DESIGN

covers the fundamental concepts and basic principles required to design steel structures including beam, column, roof truss and connections. This course enables student to develop understanding basic knowledge related to the theoretical background for the design of steel structures and the practical expertise to translate this background knowledge into successfully performing actual design calculations according to Eurocode 3 (EC3) for a single storey steel building.

WATER & WASTEWATER ENGINEERING

is a study of water resources, water characteristics, usage and demand of water supply, raw water treatment process and water distribution system. This course also includes the information on the process in sewage treatment plant, sludge treatment and disposal. It also emphasize on the parameter of drinking water and effluent from sewage treatment plant.

THEORY OF STRUCTURE

covers basic knowledge of facts and principles in calculate the reactions, bending moments and shear forces for statically indeterminate beams and portal frame using the slope deflection method and moment distribution method. It also includes basic principles in analyse the forces in truss members using the equilibrium joint method for the statically determinate and using unit load method for the statically indeterminate trusses. Influence lines have important application for the design of structures that resist large live loads. Evaluation in influence lines include determination of shear force, bending moment and the absolute maximum moment.

FINAL YEAR PROJECT 1

covers the knowledge and displays practice skills in civil engineering. The students are exposed to communication skills, group works, work planning, decision making and creativity using available facilities.

FINAL YEAR PROJECT 2

covers knowledge and skills in civil engineering practices. The student will be exposed to communication skills, group works, work planning, decision making, recommendation and gain creativity by using related facilities to a design of a system. This course also covers conducting experiments in the laboratory/workshop, field works, and academic researches, designing product or method of civil engineering related fields. The student will learn the method to analyze data, prepare presentation and report writing.

REINFORCED CONCRETE DESIGN

covers concepts and methods of design for reinforced concrete structures comprising beam and slab. This course emphasizes on knowledge and practice of producing double storey reinforced concrete building design starting from the layout plan, action analysis, structural design and detailing according to Eurocode 2 (EC2).

HYDROLOGY

This course introduces students to the concepts of engineering hydrology including hydrologic cycle and rainfall-runoff processes. It covers the quantification of rainfall and runoff processes for engineering design, including computation of design rainfalls, peak discharges and hydrographs. The basic concept of Urban Drainage Design and compliance with local guideline of Urban Storm Water Management Manual for Malaysia (MSMA) are discuss and employ in considering sustainability environmental value

HYDRAULICS

covers the application in hydrostatic and hydrodynamic fluids. This course involves discussion on hydrostatics concept and basic equations of stability and buoyancy. This course also emphasize on the application of constituents of pumps and open channel flow concept appropriately in solving hydraulics problem.

ENGINEERING IN SOCIETY

focuses on the introduction to the role of engineers in the context of their employment in industry and their interaction with the wider community. In this course, students will be exposed to safety and health of the public, technology and development in industry of civil engineering. This course also covers the meaning and impacts of engineering in society, ethical decision making, professional codes of ethics and sustainable development in the context of science and engineering application locally and globally.

BUILDING INFORMATION MODELLING (BIM)

focuses on the designing and analysing building models using techniques, resources and BIM tools. Students will be introduced to building models using BIM process for architectural, structural and plumbing. It covers BIM coordination, clash detection and construction scheduling. This course is a project-based where students gain knowledge and skills on the implementation of BIM concepts from planning to design stage.

BUILDING SERVICES

focuses on the basic concepts and the principles of the systems in a building. The course emphasizes on the electrical installation system, fire prevention system, building transportation system, air conditioning system, maintenance works and the demolition works.

ENVIRONMENTAL POLLUTION AND CONTROL

is a study on types and effects of communicable and non-communicable diseases to public health. It also emphasize on the control and monitoring of pollution from water, air and noise and the effects to general health and environment. It also covers the knowledge on management of municipal solid waste and hazardous waste. The students are exposed to the Environmental Quality Act 1974 as the guidelines and procedures in managing environmental pollution.


"CONSTRUCTION IS MATTER OF OPTIMISM; ITS A MATTER OF FACING THE FUTURE WITH CONFIDENCE."
CESAR PELLI

FACILITIES

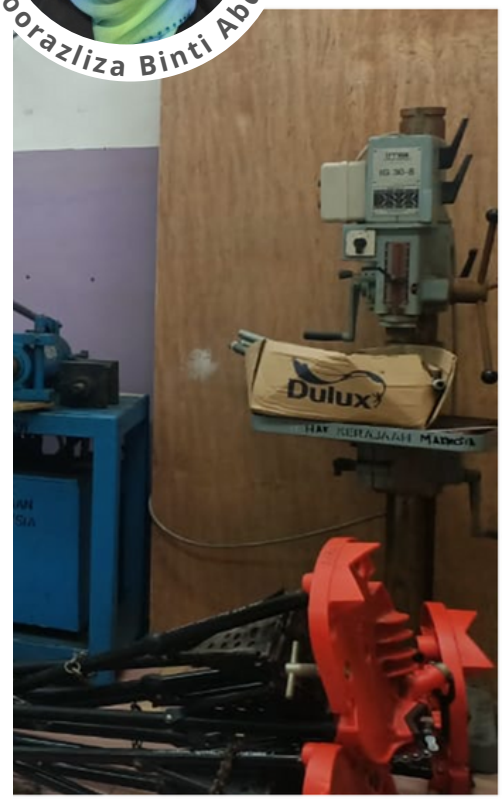
Carpentry Workshop

Head of Laboratories:
Ts Mohamad Azwan bin Ikhwat

PLUMBING LAB

PLUMBING AND CARPENTRY WORKSHOP
covers basic practical works of plumbing and carpentry works. This course emphasizes the related materials used and active participation of student to produce simple project.

Pn Noorazliza Binti Abd Rahim



GEOTECHNIC LAB

covers knowledge in the form of practical through the experiments which are carried out based on the concepts and the theories learned in the class. The emphasis of the course is on the method of conducting experiments, analysis and understanding its relationship with theories learned. The course also focused on the geotechnical and highway which are the core of the civil engineering field

HIGHWAY LAB

Head of Laboratory : Pn Fara Haszillah binti Hasim

IBS LAB

Head of Laboratory : En Norhafizan bin Majid

This laboratory serves courses in IBS practical work in assembling green system, supervision and quality checking in IBS construction and also installation of IBS in a small scale project pertaining to sustainable construction.

06

STRUCTURAL LAB

Head of Laboratory : En Hussein bin Alias

This laboratory serves courses in Structural Materials, Analysis and Design.
The laboratory comprises of equipments for carrying out experiments on basic structural theory

BRICKWORK WORKSHOP

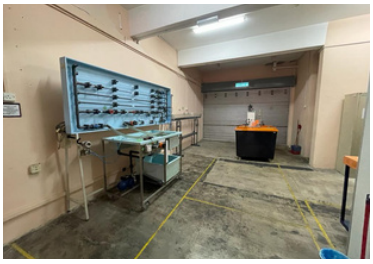
Head of Laboratory :
Pn Noor Hazalina bt Abdullah

CONCRETE LAB

Head of Laboratory :
Mohd Halid bin Abu

BRICKWORKS AND CONCRETE LABORATORY

covers a basic concept of practical works and principles regarding the brickworks and concrete works including the safety exposure in workshop. This course emphasizes the related brick laying using mortar mixing 1:3 and student needed to complete a selected mini project. As for concrete works the method of statement for concrete which referred is BS1881. The cement to be used throughout the work shall be Portland cement obtained from an approved manufacturers that comply with MS 522. Fine and coarse aggregates shall comply with MS 29. All testing specification were referred by MS EN 206. This course also need students to participate actively in teamwork during the practical activities



HYDRAULIC LAB

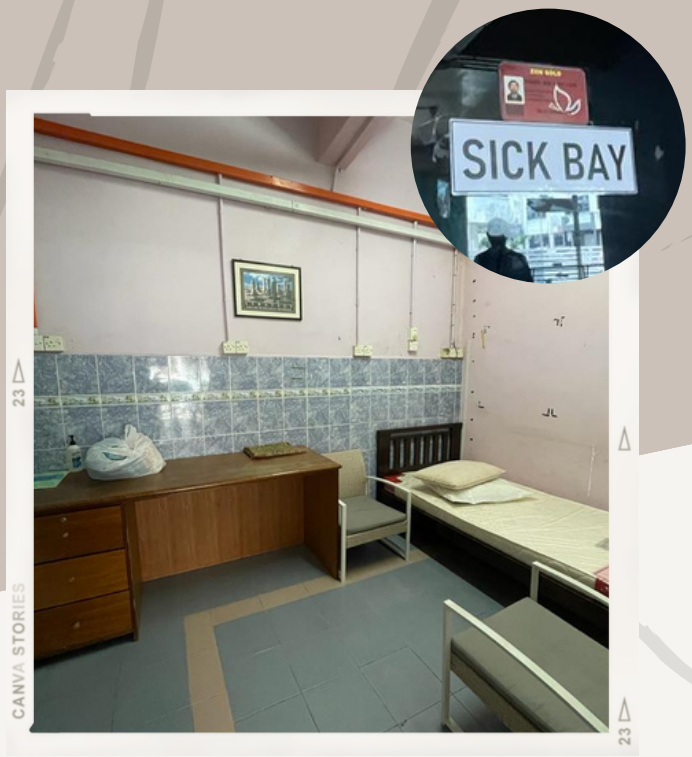
Head of Laboratory :
Muhammad Affendi bin Bahaudin

covers knowledge in the form of practical through the experiments which are carried out based on the concepts and the theories learned in the class. The emphasis of the course is on the method of conducting experiments, analysis and understanding its relationship with theories learned. The course also focused on the structure, hydraulics and water quality which are the core of the civil engineering field.

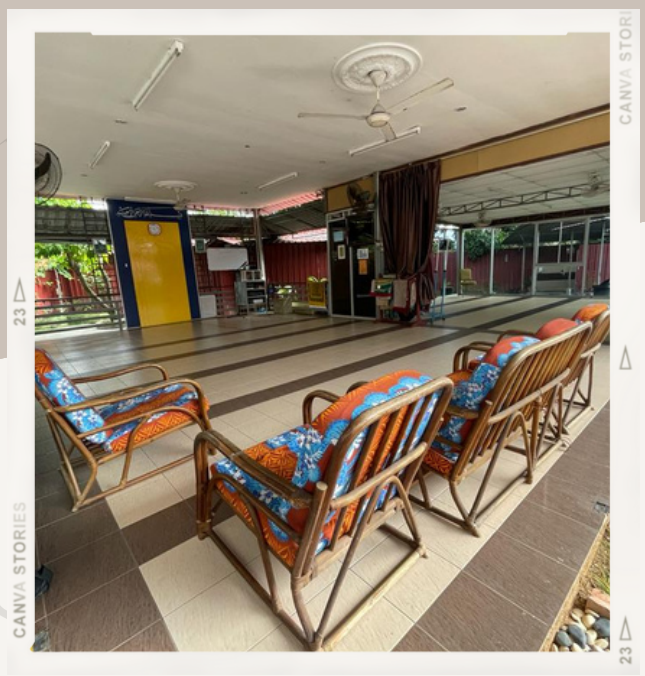
GYM

HALL

CO OP



SICK BAY



SURAU

PMK LIBRARY

LECTURE HALL 1

LECTURE HALL 2

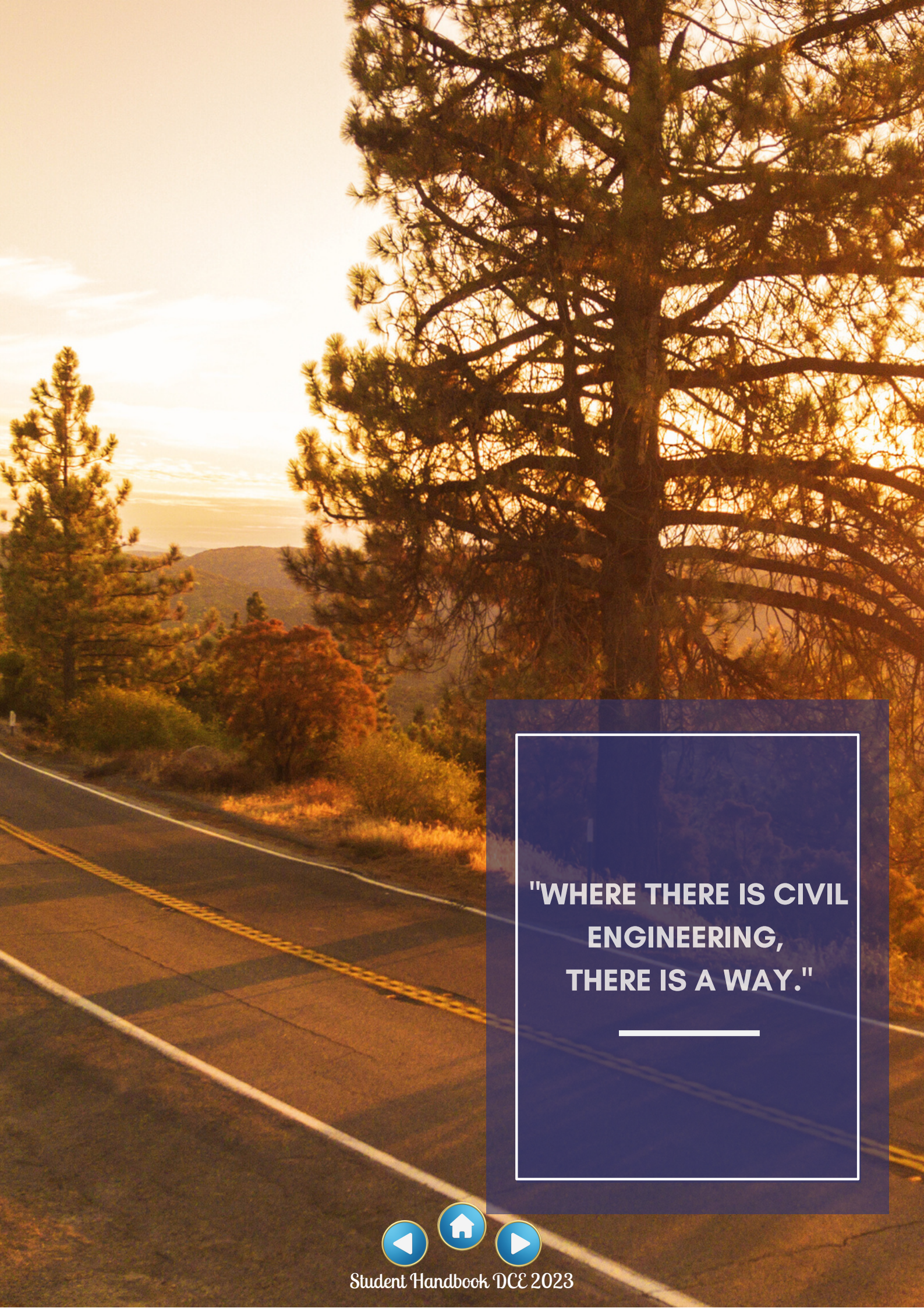
TECC ROOM 01

TECC ROOM 02

COMPUTER LAB

STUDENT'S CENTRE

LECTURE ROOM


"WHERE THERE IS CIVIL
ENGINEERING,
THERE IS A WAY."

CIVIL ENG DEPT

KEMENTERIAN PENGAJIAN TINGGI
JABATAN PENDIDIKAN POLITEKNIK DAN KOLEJ KOMUNITI

POLITEKNIK MALAYSIA MELAKA

CIVIL ENGINEERING DEPARTMENT
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STUDENT HANDBOOK CIVIL ENGINEERING DIPOLOMA INCIVIL ENGINEERING (DCE)

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