

HIGHLIGHT COMPUTER GROUP

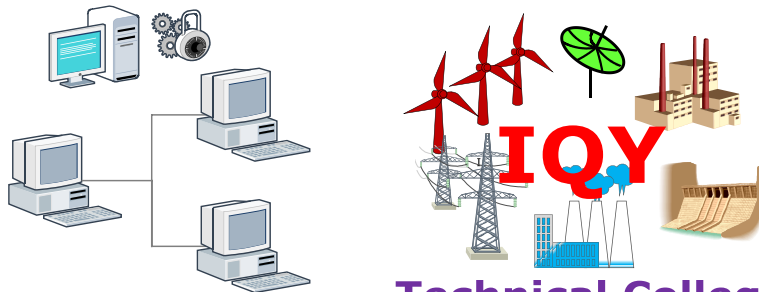
TRAINING CENTRE

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**Affiliated to St Clements University Higher Education School Niue of
St Clements University**



HIGHLIGHT COMPUTER GROUP Technical College

**DIPLOMA / ADVANCED DIPLOMA IN
CIVIL ENGINEERING**

&

**BACHELOR OF ADVANCED ENGINEERING
(BUILDING SERVICE)**

STUDY GUIDE

Study Option (1) Self Study

DIPLOMA IN CIVIL ENGINEERING

Pre-requisite

Trade Certificate or Certificate in Civil Engineering/ Building / Brick Laying/ Carpentry /Surveying etc or work experience.

ASSESSMENT (DIPLOMA)

Completion of the course works- submission of the assignments Theory/ Practical/ Calculations) for the over all knowledge of the subject
(Grading—Complete or Incomplete)

BACHELOR OF APPLIED ENGINEERING (BUILDING SERVICE)

Pre-requisite

Diploma in Civil Engineering

ASSESSMENT

The learning and assessment system involves two parts

(1) **Part (1)**

Completion of the course works- submission of the assignments Theory/ Practical/ Calculations) for the over all knowledge of the subject
(Grading—Complete or Incomplete)

(2) Completion of the course works- submission of the assignments (Theory/ Practical/ Calculations) for the competency units of the subject
(Grading—Complete or Incomplete)

(3) **Part (2)**

Sitting the final test for the subject by either online or paper based test- -Grading—In accordance with St Clements University Higher Education School-Niue Students Handbook.

STAGE (1) DIPLOMA IN CIVIL ENGINEERING (Each 2.5 Credits) (30 Pt)

CE 101 Mathematics

CE 102 Physics

CE 103 Basic Surveying

CE 104 Fluid Dynamics

CE 105 Hydraulic

CE 106 Hydrology

CE 107 Sanitation-and-Water-supply

CE 108 Electrical Principle

CE 109 Energy Efficient Building Design

CE 110 Building Construction & Building Drawing

CE 111 Engineering Mechanics

ME 301 Applied Mathematics

Sequence of study

CE 101, CE 102, CE 111, CE 110, ME 301

CE 103, CE 104, CE 105, CE 106, CE 107, CE 108

CE 109

STAGE (2) BASIC MECHANICAL ENGINEERING (30 Pt) (Each unit has 1 point)

Maths 101 Engineering Mathematics (1 pt)

Maths 301 Introductory Finite Difference Methods-for-partial differential equations(1 pt)

Maths 302 Elementary-Linear-Algebra(1 pt)

Maths 403 Engineering-Mathematics(1 pt)

Maths 501 Linear Algebra (1 pt)

Maths 303 Introductory Finite Volume Methods-for- partial differential equations(1 pt)

ME 103 Engineering Mechanics (2pt)
ME 101 Applied Mathematics (1 pt)
ME 107 Heat Transfer (1 pt)
ME 306 Theory-of-waves-in-materials (1 pt)
ME 102 Engineering Thermodynamics (2pt)
ME 234 Wind Turbines (1 pt)
ME 634 Pneumatics (1 pt)
ME 105 Electrical Principle (1 pt)
ME 106 Electrical Circuits (1 pt)
ME 104 Machine Principle (2 pt)
ME 304 Introduction to Nonlinearity-in-control-systems (1 pt)
ME 203 Control Engineering (1 pt)
EE 624 Process Control (2 pt)
ME 534 Numerical Control (1 pt)
ME 434 Mechtronics-Robotics (1 pt)
Mgt 501 Basic Management (1 pt)
EE 617 Building Electrical and Mechanical System Part 1 (2 pt)
ME 334 Airconditioning and Refrigeration (2 pt)

STAGE (3) BASIC ELECTRICAL & ELECTRONICS ENGINEERING (18 Pt)

Files--Certificate in Electrical Engineering, Diploma in Electrical Engineering, Advanced Diploma in Electrical Engineering , see the following contents

EE101 DC Circuit Problems

EE102 Basic Electrical Fitting & Wiring

EE103 Basic Electrical Drafting

EE104 Electrical Equipments Safety Protection

EE105 Electrical Installation Design

EE107 Electrical Equipments

EE106 Advanced Electrical Wiring

EE108 Electrical Fault Finding

EE109 Electrical Control Circuits

EE111 Electromagnetism & Basic Electrical Machines

EE112 Alternating Current Principle

EE113 Electrical Fundamental

EE115 Basic Analogue & Digital Electronics

EE116 Process Control System

EE117 Solar Electrical System

EE119 Electrical Risk Assessment

EE120 Electrical Contracting & Specifications

EE308 Sustainability

STAGE (4 A) ADVANCED MECHANICAL ENGINEERING STUDY (6Pt)

ME 108 Principle of Engines

ME 109 Engineering Drawing

ME 201 Introduction to Fluid Mechanics

ME 204 Engineering Fluid Mechanics

ME 301 Fluid Dynamics

EE 305 Corrosion Prevention

STAGE (4B)ADVANCED ELECTRICAL & ELECTRONICS ENGINEERING STUDY

(ADVANCED DIPLOMA) (4 pt)

Files--Certificate in Electrical Engineering, Diploma in Electrical Engineering, Advanced Diploma in Electrical Engineering , see the following contents (Each 2.5 pt)

EE201 Engineering Mathematics

EE204 Engineering Physics

EE302 Advanced Engineering Mathematics

EE307 Energy Efficient Building Design

STAGE (5)BACHELOR OF APPLIED ENGINEERING (BUILDING SERVICE) DEGREE (32 pt)

Subjects	Points	Competency Units	Page
BAE 401 Advanced Engineering Mathematics	9	Maths 301 Introduction to Complex Variables (1 pt) Maths 302 Elementary Linear Algebra (1 pt) Maths 401 Continuous Distributions (1 pt) Maths 402 Discrete Distributions (1 pt) Maths 403 Engineering Mathematics (1 pt) Maths 501 Introduction to Probability(1 pt) Maths 501 Linear Algebra & Matrices (1 pt) Maths 502 Finite Difference Methods for Partial Differential Equations & Mathematical Modelling (1 pt) Maths 601 Random Variables (1 pt)	
BAE 402 Calculus	3	Maths 304 Integration and Differential Equations (1 pt) Maths 403 Second Order Differential Equations (1 pt) Maths 303 Engineering Mathematics (1 pt)	
BAE 403 Engineering Mechanics	1	ME 301 Applied Mathematics (1 pt)	

BAE 404 Engineering Materials & Thermodynamics	3	ME 334 Engineering Thermodynamics (1 pt) ME 434 Wind Turbines (1 pt) ME 634 Pneumatics (1 pt)	
BAE 508 Industrial Engineering & Industrial Management	1	Mgt 501 Basic Management & Communication Skills (1 pt)	
BAE 601 Computer Programming	3	IT 401 Object Oriented Programming (1 pt) IT 402 Structured Programming (1 pt) IT 403 Visual Basic Programming (1 pt)	
BAE 605 Engineering Management	5	Mgt 502 Operation Management (1 pt) Mgt 503 Production & Operation Management (1 pt) Mgt 504 Project Management (1 pt) Mgt 505 Quality Management and Manufacturing Engineering (1 pt) Mgt 506 Strategic Financial Management (1 pt)	
BAE 606 Building Service Electrical & Mechanical Engineering	2	EE 617 Building Electrical and Mechanical System (1 pt) ME 334 Airconditioning and Refrigeration (1 pt) CE 301 Building Construction (Optional) CE 301 Conceise Hydraulics (Optional)	
BAE 609 Design Project	5		
Total Credit points	32Pt		

Stage	Points
Stage 1—Diploma in Civil Engineering	30
Stage 2	30
Stage 3	18
Stage 4A	6

Stage 4B	4
Stage 5	32
Total (Bachelor of Applied Engineering-Building Service)	120

STAGE (2) BASIC MECHANICAL ENGINEERING

Dip/Adv Dip Mechanical Engineering

Maths 101 Engineering Mathematics

Engineering Mathematics

Part (1) Overview Knowledge of the subject

Folder		BAE 401 Advanced Engineering Mathematics			
File		An Introduction to theory of complex variables			
		<p style="text-align: center;"><u>Instruction</u></p> <p style="text-align: center;">Study the notes, calculate the example problems then do the exercises numbers as indicated</p>			
Chapter	Page			Topics	
				Note- PDF File page number and the page number of the scanned document may be different. The student need to check both as necessary	
1	12	to	16	Complex numbers	
2	20	to	26	Functions	
3	29	to	38	Differentiability	
4	42	to	46	Integration in the complex plane	
5	53	to	66	Integral theorems	
6	71	to	73	Power series	
	156	to	159	Introduction of rational functions of trigonometric functions.	
Exercise	Q 1	to	Q8	of Assignment Number (1)	

Dip/ Adv Dip in Mechanical Engineering

Maths 301 Introductory Finite Difference Methods-for-partial differential equations

Introductory Finite Difference Methods-for-partial differential equations

Folder				Maths 301 Introduction to Complex Variables (1 pt)
File				Maths 301 Introduction to Complex Variables
<p><u>Instruction</u></p> <p>Study the notes, calculate the example problems then do the exercises numbers as indicated</p>				
Chapter	Page			Topics
	80			The residue Theorem
	83			Example 32
	84	to	86	Example 33
	87			Example 34
	93			Fourier Transform
	95			Example 36
	96			Example 37
	96			Example 38
	107	to	108	Integral theorem of complex analysis with applications to the evaluation of real integral
	110			Introduction
	111			Example 1
	113			Integral theorems – The green Theorem
	114			Cauchy's integral theorem
	114	to	115	Example 2
	116	to	119	Example 3, 4, 5
	120	to	123	Cauchy's residue theorem
Exercise	Q 52	to	Q58	of Assignment Number (2)

Dip/ Adv Dip in Mechanical Engineering**Maths 302 Elementary-Linear-Algebra****Elementary-Linear-Algebra**

Folder	Maths 302 Elementary Linear Algebra (1 pt)		
File	Maths 302 Elementary Linear Algebra		
<u>Instruction</u>			
Study the notes, calculate the example problems then do the exercises numbers as indicated			
Chapter	Page		Topics
			Note- PDF File page number and the page number of the scanned document may be different. The student need to check both as necessary
	134		A formula for the inverse
	138		Cramer's rule
	135	to 141	Example 6.2.3 , 6.2.4 , 6.2.6, 6.2.7
	165	to 169	Rank of a matrix
	177	to 182	Example 8.2.9 , 8.2.10, 8.3.3 , 8.3.5, 8.3.6, 8.3.7, 8.3.8
	182	to 186	Linear independence and bases Example 8.4.6, 8.4.7,
	193	to 194	Example 8.4.21, 8.4.22, 8.4.24
	211	to 212	Linear transformation
	214		Constructing the matrix of a linear transformation
	215	to 216	Example 9.2.3 , 9.2.4
	223		Example 9.2.14
	249	to 250	Linear programming
	253		Example 11.2.2
	255		Example 11.2.3
Exercise	Q 59	to Q65	of Assignment Number (3)

Dip/ Adv Dip in Mechanical Engineering**Maths 403 Engineering-Mathematics****Engineering-Mathematics**

Unit		Maths 403 Engineering mathematics (1 pt)		
Folder	File	Maths 303 Essential Engineering Mathematics		
<u>Instruction</u>				
Study the notes, calculate the example problems then do the exercises numbers as indicated				
Chapter	Page			Topics
				Note- PDF File page number and the page number of the scanned document may be different. The student need to check both as necessary
	23			Vectors and matrices
	30	&	35	Example problems
	39	to	48	Functions and limits , Example problems
	51	to	69	Calculation of one variable (Part 1) Differentiation, Example problems
	79	to	105	Calculation of one variable (Part 1) Integration, Example problems
	111	to	121	Calculus of many variables, Example problems
	123	to	126	Ordinary differential equations, Example problems
	134	to	142	Complex function theory , Example problems
Exercise	Q 73	to	Q90	of Assignment Number (6)

Dip/ Adv Dip in Mechanical Engineering**Maths 501 Linear Algebra****Linear Algebra**

Folder				Maths 501 Linear algebra and matrices (1 pt)
File				Maths 501 Linear algebra and matrices
<u>Instruction</u>				
Study the notes, calculate the example problems then do the exercises numbers as indicated				
Chapter	Page			Topics
				Note- PDF File page number and the page number of the scanned document may be different. The student need to check both as necessary
	47			Linear transformation matrices
	48	to	49	Definition 2.1.1 to 2.1.3
	50			Example 2.1.4
	51			Example 2.1.6
	52	to	53	i j Entry of product Definition 2.1.8
	54			Example 2.1.9
	55			Example 2.1.11
	58			Example 2.1.14
	62			Example 2.1.24 , 2.1.26
	64			Example 2.1.27
	65			Example 2.1.28
	122			Rank of matrices
	137	to	139	Row operations
	145			Example 4.2.5
	146			Example 4.2.6
Exercise	Q 95	to	Q98	of Assignment Number (8)

Dip/Adv Dip Mechanical Engineering

Maths 303 Introductory Finite Volume Methods-for- partial differential equations

Introductory Finite Volume Methods-for- partial differential equations

Folder				Maths 502 Introductory Finite Difference Method for PDE (1pt)
File				Maths 502 Introductory Finite Difference Method for PDE
<p><u>Instruction</u></p> <p>Study the notes, calculate the example problems then do the exercises numbers as indicated</p>				
Chapter	Page			Topics
				Note- PDF File page number and the page number of the scanned document may be different. The student need to check both as necessary
	10	to	15	Partial differential equations. Example problems
	17	to	30	Taylor theorem
	42			Iterative solution methods
	43			Jacobi Iteration
	45			Gauss Seidel Iteration
	47			Successive Relaxation method
<p>Exercise Q 99 to Q108 of Assignment Number (9)</p>				

Dip/Adv Dip in Mechanical Engineering**ME 103 Engineering Mechanics****Engineering Mechanics**

Folder		BAE 403 Engineering Mechanics		
File				
		<u>Instruction</u> Study the notes, calculate the example problems then do the exercises numbers as indicated		
File name	Chapter	Page		Topics
				Note- PDF File page number and the page number of the scanned document may be different. The student need to check both as necessary
Chap 1. pdf			All	Stress Example 1.1, 1.2, 1.3
Chap 1 slide.pdf			All	Stress lectures
Chap 2.pdf			All	Strain All examples
Chap 2 slide.pdf			All	Strain lessons
Chap 3.pdf			All	Mechanical properties of materials
Chap 3 slide.pdf			All	Mechanical properties of materials
Chap 4.pdf			All	Axial members
Chap 4 slide.pdf			All	Axial members
Chap 5.pdf			All	Torsion of shaft
Chap 5 slide.pdf			All	Torsion of shaft
Chap 6.pdf			All	Symmetric bending of beams
Chap 6 slide.pdf			All	Symmetric bending of beams
Chap 7.pdf			All	Deflection of symmetric beams
Chap 7 slide.pdf			All	Deflection of symmetric beams
Chap 8.pdf			All	Stress transformation

Chap 8 slide.pdf			All		Stress transformation
Chap 9.pdf			All		Strain transformation
Chap 9 slide.pdf			All		Strain transformation
Chap 10.pdf			All		Design and failure
Chap 10 slide.pdf			All		Design and failure
Chap 11.pdf			All		Stability of columns
Chap 11 slide.pdf			All		Stability of columns
Exercise	Q186	to	251		of Assignment (14)

ADDITIONAL READINGS

File Name	Topics
Lectures.pdf	Page 1 to 3 Newton motion Page 3 One dimensional motion Page 11/12/15 Simple harmonic motion Page 17 Damped oscillation Page 20--- $X(t) = Ar e^{-rt/l} \cos(wt - \delta_r)$ Page 40 Rotating reference frame equations
PHY 1004W Buffer –M & IMM1.pdf	Modern Mechanics Part 1
PHY 1004W Buffer –M & IMM2.pdf	Modern Mechanics Part 2
PHY 1004W Buffer –M & IMM3.pdf	Modern Mechanics Part 3
PHY 1004W Buffer –M & IMM4.pdf	Modern Mechanics Part 4
PHY 1023H Buffer Mechanics Part A	Modern Mechanics Part A
PHY 1023H Buffer Mechanics Part B	Modern Mechanics Part B
PHY 1023H Buffer Mechanics Part C	Modern Mechanics Part C

Dip/ Adv Dip in Mechanical Engineering**ME 101 Applied Mathematics****Applied Mathematics**

Folder		ME 301 Applied Mathematics (1 pt)	
File		ME 301 Applied Mathematics	
<u>Instruction</u>			
Study the notes, calculate the example problems then do the exercises numbers as indicated			
Chapter	Page	Topics	
		Note- PDF File page number and the page number of the scanned document may be different. The student need to check both as necessary	
	16		Kinematics
	26		Projectiles
	36		Forces
	45		Resistance forces
	55		Resolving forces
	63		Rigid bodies
	73		Centre of gravity
	80		Momentum
	92		Energy
	100		Circular motion
	112		Gravitation and planetary motion
	122		The language of vectors
Exercise	Q252 to	Q264	of Assignment Number (15)

Dip/Adv Dip in Mechanical Engineering**ME 107 Heat Transfer****Heat Transfer**

Folder	BAE 403 Engineering Mechanics –Mechanical Engineering		
File	Heat Transfer. pdf		
<u>Instruction</u>			
Study the notes, calculate the example problems then do the exercises numbers as indicated			
Chapter	Page	Topics	
		Note- PDF File page number and the page number of the scanned document may be different. The student need to check both as necessary	
	6		(1) Heat transfer mode Example problems
	25		(2) Conduction Example problems
	58		(3) Convection Example problems
	107		(4) Radiation Example problems
	127		(5) Heat Exchanger Example problems
Exercise Q261 to Q276 of Assignment Number (16)			

Dip/ Adv Dip in Mechanical Engineering**ME 306 Theory-of-waves-in-materials****Theory-of-waves-in-materials**

Folder	BAE 403 Engineering Mechanics –Mechanical Engineering		
File	Theory of waves in materials.pdf		
<u>Instruction</u>			
Study the notes, calculate the example problems then do the exercises numbers as indicated			
Chapter	Page		Topics
			Note- PDF File page number and the page number of the scanned document may be different. The student need to check both as necessary
	16	to	23
	Materials-Preliminary		
	26	to	35
	Materials- Basic mechanical properties		
	38	to	39
	Basic wave phenomena		
	50	to	51
	Harmonic waves		
	60		
	Elastic volume and shear waves		
	85		
	Rayleigh Elastic waves		
Exercise Q277 to Q295 of Assignment Number (17)			

Dip/ Adv Dip in Mechanical Engineering**ME 102 Engineering Thermodynamics****Engineering Thermodynamics**

Folder	ME334 Engineering Thermodynamics (1 pt)			
File	ME334 Engineering Thermodynamics			
<u>Instruction</u>				
Study the notes, calculate the example problems then do the exercises numbers as indicated				
Chapter	Page			Topics
				Note- PDF File page number and the page number of the scanned document may be different. The student need to check both as necessary
	6			General definition
	11			Thermodynamics-Working fluids
	38	to	55	Laws of Thermodynamics
	56	to	88	Worked Example 3.1 to 3.25
Exercise Q296 to Q307 of Assignment Number (18)				

Dip/Adv Dip in Mechanical Engineering**ME 234 Wind Turbines****Wind Turbines**

Folder	ME434 Wind Turbines(1 pt)		
File	ME434 Wind Turbines		
<u>Instruction</u>			
Study the notes, calculate the example problems then do the exercises numbers as indicated			
Chapter	Page		Topics
			Note- PDF File page number and the page number of the scanned document may be different. The student need to check both as necessary
	27		Wind Energy
	38		Theory of wind energy
	46		Wind turbine types and components
	61	to	66
			Wind energy measurement, Wheel encoder Worked Example 6.1 to 6.3
Exercise	Q308	to	Q316 of Assignment Number (19)

Dip / Adv Dip in Mechanical Engineering**ME 634 Pneumatics****Pneumatics**

Folder				ME634 Pnuematics(1 pt)
File				ME634 Pnuematics
<u>Instruction</u>				
Study the notes, calculate the example problems then do the exercises numbers as indicated				
Chapter	Page			Topics
				Note- PDF File page number and the page number of the scanned document may be different. The student need to check both as necessary
	6	to	23	Principle of pneumatics
	24	to	35	Linear actuators
	36	to	44	Flow control
	45	to	50	Pnuematics sensors
	50	to	52	Pnuematics symbols
Exercise Q317 to Q325 of Assignment Number (20)				

Dip/Adv Dip in Mechanical Engineering**ME 105 Electrical Principle****Electrical Principle****ME 106 Electrical Circuits****Electrical Circuits**

Folder		EE301 Electrical Circuit 1 (1 pt)		
File		EE301 Concepts in Electrical Circuit		
<u>Instruction</u>				
Study the notes, calculate the example problems then do the exercises numbers as indicated				
Chapter	Page			Topics
				Note- PDF File page number and the page number of the scanned document may be different. The student need to check both as necessary
	27	to	52	Circuit theorem
	54	to	71	Sinusoids & phasors
	73	to	81	Frequency response
Exercise	Q330	to	Q337	of Assignment Number (22)

Dip/Adv Dip in Mechanical Engineering**ME 104 Machine Principle****Machine Principle**

Folder		ME 301 Machine Principle (1 pt)		
File		ME 301 Machine Principle		
<u>Instruction</u>				
Study the notes, calculate the example problems then do the exercises numbers as indicated				
Chapter	Page	Topics		
		Note- PDF File page number and the page number of the scanned document may be different. The student need to check both as necessary		
2	114			Rotating machines
3	116			Machinery mounting
4	118			Balancing
6	124			Bearing
7	139			Power transmission
Exercise Q431 to Q435 of Assignment Number (27)				

Dip/ Adv Dip in Mechanical Engineering**ME 304 Introduction to Nonlinearity-in-control-systems****Introduction to Nonlinearity-in-control-systems**

Folder				EE 601 Non Linear Control Applications (1 pt)
File				EE 601 Applications of Non Linear Control
<u>Instruction</u>				
Study the notes, calculate the example problems then do the exercises numbers as indicated				
Chapter	Page			Topics
				Note- PDF File page number and the page number of the scanned document may be different. The student need to check both as necessary
	10	to	28	Application of input/ output linearization
	31	to	44	Non linear control for 2 stages PF correction converter
	125	to	137	Non linear observer based control allocation
Exercise Q672 to Q675 of Assignment Number (43)				

Dip/ Adv Dip in Mechanical Engineering**ME 203 Control Engineering****Control Engineering**

Folder	EE 601 Control Engineering (1 pt)		
File	EE 601 Control Engineering MATLAB		
<u>Instruction</u>			
Study the notes, calculate the example problems then do the exercises numbers as indicated			
Chapter	Page		Topics
			Note- PDF File page number and the page number of the scanned document may be different. The student need to check both as necessary
	29	to	39
	Transfer functions and their responses		
	40	to	59
	Frequency response/ Plotting		
	60	to	69
	Closed loop control		
	70	to	91
	Controller design		
Exercise	Q678	to	Q684 of Assignment Number (43)

Folder	EE 601 Feedback and Control System		
File	EE 601 Feedback and Control System		
<u>Instruction</u>			
Study the notes, calculate the example problems then do the exercises numbers as indicated			
Chapter	Page		Topics
			Note- PDF File page number and the page number of the scanned document may be different. The student need to check both as necessary
	8	to	19
	Introduction to linearized dynamic model		
	23	to	36
	Transfer function model of physical systems		

	40	to	53	Transient performance / S- Plane
	56	to	65	Feedback system modelling / Performance
	69	to	78	Dynamic compensation of feedback system
Exercise	Q685	to	Q705	of Assignment Number (43)

Folder	EE 601 PID Control			
File	EE 601 PID Control			
<u>Instruction</u>				
Study the notes, calculate the example problems then do the exercises numbers as indicated				
Chapter	Page		Topics	
			Note- PDF File page number and the page number of the scanned document may be different. The student need to check both as necessary	
4	91	to	108	Application of PID controllers in motor drive system
Exercise	Q705	to	Q708	of Assignment Number (43)

Folder	EE 601 Non Linear Control Applications			
File	EE 601 Applications of Non Linear Control			
<u>Instruction</u>				
Study the notes, calculate the example problems then do the exercises numbers as indicated				
Chapter	Page		Topics	
			Note- PDF File page number and the page number of the scanned document may be different. The student need to check both as necessary	
1	12			Introduction
2	19	to	34	Phase plane method
Exercise	Q709	to	Q714	of Assignment Number (44)

Dip/ Adv Dip in Mechanical Engineering**EE 624 Process Control****Process Control**

Folder					EE 624 Process Control (1 pt)
File					EE 624 Process Control
<u>Instruction</u>					
Study the notes, calculate the example problems then do the exercises numbers as indicated					
Chapter	Page			Topics	
				Note- PDF File page number and the page number of the scanned document may be different. The student need to check both as necessary	
2	31	to	59	Analog Signal Conditioning	
3	62	to	85	Digital Signal Conditioning	
7	169	to	189	Final Control	
8	193	to	211	Discrete State Control	
9	214	to	234	Controller Principle	
10	235	to	252	Analog Controller	
11	254	to	276	Digital Controller	
12	279	to	295	Control Loop Characteristics	
Exercise Q715 to Q743 of Assignment Number (44)					

Dip/ Adv Dip in Mechanical Engineering**ME 534 Numerical Control****Numerical Control**

Folder	ME 534 Numerical Control (1 pt)			
File	ME 534 Numerical Control Part 2			
<u>Instruction</u>				
Study the notes, calculate the example problems then do the exercises numbers as indicated				
Chapter	Page			Topics
				Note- PDF File page number and the page number of the scanned document may be different. The student need to check both as necessary
1	8	to	16	Introduction to numerical control machinery
2	17	to	27	Numerical control system
5	57	to	63	Programming co-ordinates
6	63	to	81	Two axis programming
7	82	to	100	Three axis programming
8	101	to	109	Maths for numerical control programming
Exercise Q744 to Q750 of Assignment Number (45)				

Dip/ Adv Dip in Mechanical Engineering**ME 434 Mechtronics-Robotics****Mechtronics-Robotics**

Folder		ME 434 Mechtronics/ Robotics (1 pt)		
File		ME 434 Mechtronics/ Robotics		
<u>Instruction</u>				
Study the notes, calculate the example problems then do the exercises numbers as indicated				
Chapter	Page			Topics
				Note- PDF File page number and the page number of the scanned document may be different. The student need to check both as necessary
1	3			Robotics Application
9	3			Robotic Gears
10	19			Interfacing
12	43			Robotic Sensors
15	79			Communication
Exercise Q912 to Q918 of Assignment Number (56 B)				

Dip/Adv Dip in Mechanical Engineering

Mgt 501 Basic Management

Basic Management

Part (1) Overview Knowledge of the subject

Effective management decision making

Chapter (1) Introduction

Business Information System

Chapter (1) Defining Information System

Chapter (7) Acquiring Information System

Chapter (8) Developing Information System

Managing Human Resources in 21 Century

Chapter (3) Human resources Management

Management Basics

Chapter (2) The Manager's Job

Chapter (4) Planning in Organization

Operation Management

Chapter (1) Introduction

Chapter (2) Operation Strategy

Chapter (10) Work System Design

Chapter (11) Project Management

Chapter (12) Inventory Management

Quality Management

Chapter (7) Leadership in Quality Management

Chapter (8) Strategic Quality Management

Chapter (15) Implementing Quality Management

Strategic Financial Management

Chapter (1) Finance An Overview

Chapter (2) Capital Budgeting

Chapter (5) Equity Valuation & Cost of Capital

Strategic Management

Chapter (2) The Basic of Strategy

Chapter (3) The Levels of formulation of strategy

Chapter (6) External analysis

Chapter (7) Internal analysis

Chapter (10) Strategy implementation

Understanding organization part 1

Chapter (3) Organization structure

Chapter (4) Organization culture

Chapter (5) Managing behaviour

Chapter (6) Effective leadership

Assignment (57)

Do Q919 for BAE 508

Mgt 501 Basic Management (1 pt)

Textbook – Mgt 501 Management Basics

Chapter (1) Management basics

Chapter (3) Planning

Chapter (5) Organizing

Chapter (6) Organizing the organization

Chapter (7) Leading

Textbook—Mgt501 Management Briefs

Chapter (2) Leadership

Chapter (5) Motivation

Assignment (58)

Do Q919 for Mgt 919

Dip/ Adv Dip in Mechanical Engineering

EE 617 Building Electrical and Mechanical System Part 1

Building Electrical and Mechanical System Part 1

Folder	EE 617 Building Electrical & Mechanical System (1 pt)			
File	EE 617 Building Electrical & Mechanical System Part 1			
<u>Instruction</u>				
Study the notes, calculate the example problems then do the exercises numbers as indicated				
Chapter	Page			Topics
				Note- PDF File page number and the page number of the scanned document may be different. The student need to check both as necessary
	35	to	50	Climate comfort and design strategies
	74	to	85	Thermal control
	109	to	120	Designing for heating cooling
	209	to	234	Large building HVAC system
	256	to	270	Water and basic design
	276	to	291	Water supply
	314	to	322	Water and waste
	366	to	379	Fire protection
	388	to	401	Fire protection
	479	to	507	Illumination
	554	to	575	Lighting design
	624	to	630	Signal system
Exercise	Q1060	to	Q1077	of Assignment Number (75)

Dip/ Adv Dip in Mechanical Engineering**ME 334 Airconditioning and Refrigeration****Airconditioning and Refrigeration**

Folder	ME 334 Air-conditioning & Refrigeration (1 pt)			
File	ME 334 Air-conditioning & Refrigeration			
<u>Instruction</u>				
Study the notes, calculate the example problems then do the exercises numbers as indicated				
Chapter	Page			Topics
				Note- PDF File page number and the page number of the scanned document may be different. The student need to check both as necessary
	13	to	24	Theory of heat
	286	to	297	Solar heat
	305	to	307	Humidification
	308	to	315	Air-conditioning-Cooling
	324	to	339	Air-distribution & Balance
	399	to	442	Air-conditioning Calculation worksheets
Exercise	Q1078	to	Q1085	of Assignment Number (76)

STAGE (3) BASIC ELECTRICAL & ELECTRONICS ENGINEERING STUDY

Refer Certificate in Electrical Engineering Learning System, Diploma in Electrical Engineering Learning System, Advanced , Diploma in Electrical Engineering Learning System files for the following units

EE101 DC Circuit Problems

[Lesson 1](#) [Lesson 2](#) [Lesson 3](#)

Test & Assessment

http://www.filefactory.com/file/58r3nfe1qieh/n/E003_E004_Online_Test_1_Question_pdf

http://www.filefactory.com/file/796n6fdurdij/n/E003_E004_Online_Test_1_Answer_doc

Do the tests and send the answer sheet in soft copy by e-mail to **iqytechnicalcollege@gmail.com**

EE102 Basic Electrical Fitting & Wiring

[Lesson 1](#) [Lesson 2](#) [Lesson 3](#)

Test & Assessment

<http://www.classroomclipboard.com/503511/Home/Test/e3b8ef2c72e94d209034f9633e22c26a#/InitializeTest.xaml>

Type your name Put the following access code

CEAHU

EE103 Basic Electrical Drafting

[ElectricalDrawing1.zip](#)

[ElectricalDrawing2.zip](#)

[ElectricalDrawing3.pdf](#)

[GeneralDrawing1.zip](#)

[GeneralDrawing2.zip](#)

Test & Assessment

[Stage_1_Electrical_workshop_practicals.pdf](#)

Draw the diagrams from page 37 to 52 and give it to Highlight Computer Group Manager/ Teacher/ Principal, they will forward your work to the assessor

EE104 Electrical Equipments Safety Protection

[Lesson 1](#)

Test & Assessment

Study all lessons in EE104+EE105+EE106+EE107 and EE108 and sit the test for EE106+EE108 to get the points for all those units.

EE105 Electrical Installation Design

EE107 Electrical Equipments

[Lesson 1](#) [Lesson 2](#) [Lesson 3](#) [Lesson 4](#)

Test & Assessment

Study all lessons in EE104+EE105+EE106+EE107 and EE108 and sit the test for EE106+EE108 to get the points for all those units.

EE106 Advanced Electrical Wiring

EE108 Electrical Fault Finding

[Lesson 1](#) [Lesson 2](#) [Lesson 3](#) [Lesson 4](#)

Test & Assessment

<http://www.classroomclipboard.com/503511/Home/Test/334df2651a9440aa8fe25532f0e3d7c5#/InitializeTest.xaml>

Type your name Put the following access code

NY78T

EE109 Electrical Control Circuits

[Lesson 1](#) [Lesson 2](#)

Test & Assessment

<http://www.classroomclipboard.com/503511/Home/Test/618fafbe4aae4b6ab065df53cf9aebbb#/InitializeTest.xaml>

Type your name Put the following access code

U8FS3Y

EE110 Computer Applications

The students can attend any computer course and take the training in Microsoft Word, Excel, Access, Internet E-mail application. On submission of the completed certificate, the credit for EE110 Computer Applications will be given.

EE111 Electromagnetism & Basic Electrical Machines

Lesson 1

Test & Assessment

http://www.filefactory.com/file/7c658zyrj9gx/n/G001_Online_Test_1_Question_pdf

http://www.filefactory.com/file/1h8minstf7ux/n/G001_Online_Test_1_Answer_doc

Do the tests and send the answer sheet in soft copy by e-mail to **iqytechnicalcollege@gmail.com**

EE112 Alternating Current Principle

Lesson 1 Lesson 2

Test & Assessment

http://www.filefactory.com/file/7ebmnciqxmf3/n/G002_Online_Test_1_Question_pdf

http://www.filefactory.com/file/6d3yokhjziur/n/G002_Online_Test_1_Answer_doc

Do the tests and send the answer sheet in soft copy by e-mail to **iqytechnicalcollege@gmail.com**

EE113 Electrical Fundamental

Lesson 1 Lesson 2 Lesson 3

Test & Assessment

http://www.filefactory.com/file/r372kwb529d/n/E029_G012_Online_Test_1_Question_pdf

http://www.filefactory.com/file/73yyxs4hpdmv/n/E029_G012_Online_Test_1_Answer_doc

Do the tests and send the answer sheet in soft copy by e-mail to **iqytechnicalcollege@gmail.com**

EE114 Electrical Power Principle

[Lesson 1](#) [Lesson 2](#) [Lesson 3](#)

Test & Assessment

http://www.filefactory.com/file/789ejsjf1yq1/n/G012_Online_Test_3_Question_pdf

http://www.filefactory.com/file/5hurvxj3u09r/n/G012_Online_Test_3_Answer_doc

Do the tests and send the answer sheet in soft copy by e-mail to **iqytechnicalcollege@gmail.com**

EE115 Basic Analogue & Digital Electronics

EE116 Process Control System

[Lesson 1](#) [Lesson 2](#) [Lesson 3](#) [Lesson 4](#) [Lesson 5](#) [Lesson 6](#) [Lesson 7](#)

[Lesson 8](#) [Lesson 9](#) [Lesson 10](#)

Test & Assessment

http://www.filefactory.com/file/46zzpcym7uqz/n/I006_H012_Online_Test_1_Question_pdf

http://www.filefactory.com/file/4e2chw2sf343/n/I006_H012_Online_Test_1_Answer_doc

Do the tests and send the answer sheet in soft copy by e-mail to **iqytechnicalcollege@gmail.com**

EE117 Solar Electrical System

[Lesson 1](#) [Lesson 2](#) [Lesson 3](#) [Lesson 4](#) [Lesson 5](#) [Lesson 6](#)

Test & Assessment

Read the following notes

[K025 Note 1](#)

[K025 Note 2](#)

And then

[K025_Tutorials.zip](#)

Do the exercises and give them to Highlight Computer Group Manager/ Teacher/ Principal, they will forward your work to the assessor

EE119 Electrical Risk Assessment

[Lesson 1](#)

Test & Assessment

<http://www.classroomclipboard.com/503511/Home/Test/eafdcf3b16cf46908aad44c6d604b550#/InitializeTest.xaml>

Type your name Put the following access code

P2PLK

EE120 Electrical Contracting & Specifications

[Lesson 1](#) [Lesson 2](#) [Lesson 3](#)

Test & Assessment

<http://www.classroomclipboard.com/503511/Home/Test/75fe3cafb1347eeb991b4629ad23a92#/InitializeTest.xaml>

Type your name Put the following access code

5V4YBGS

Unit Code: EE308	Sustainability
Australian Curriculum Units	
UEENEEK132A	Develop strategies to address environmental and sustainability issues in the energy sector
Reference Resources + Textbooks	

Lesson		
Week1	Week1	Lesson 1a Lesson 1b Lesson 1 c
	Week 2	Lesson 2a Lesson 2b Lesson 2c Lesson 2d
Week 2	Week 3	Lesson 3a Lesson 3b Energy Analysis + Renewable Energy
	Week 4	Lesson 4 -NREL Energy Analysis
Week 3	Week 5	Lesson 5a Lesson 5b Lesson 5c Renewable Energy Resources
	Week 6	Lesson 6 - Renewable Energy Packages Primary Energy Embodied Energy
Week 4	Week 7	Lesson 7a Lesson 7b
	Week 8	Lesson 8 Climate Change Energy Efficiency & global warming
Week 5	Week 9	Lesson 9-End Use Energy Part 1 Part 2 Part 3 Basket Products Appliances Star Rating
	Week10	Lesson 10-Solar Energy Part 1a Part 1b
Week 6	Week 11	Lesson 11-Solar Energy Part 2a Part 2b
	Week 12	Lesson 12-Solar Energy Part 3
Week 7	Week 13	Lesson 13-Micro Hydro Power Plants
	Week 14	Lesson 14-Wind Energy -Part 1 Wind Part 2 Wind Energy Concept Part 3 Wind Energy Conversion
Week 8	Week 15	Lesson 15- Part 1 Wind Energy Part 2PID Wind Energy Conversion Part 3 Low & medium voltage conversion
	Week 16	Lesson 16 Part 1 Control Structure

		Part 2 Doubly fed generator
Week 9	Week 17	Lesson 17- Stand Alone Power System Part 1 Part 2-Wind + stand Alone Standard

STAGE (4A) ADVANCED MECHANICAL ENGINEERING STUDY

GROUP (1)

Do the exercises given by the teacher for the following units

ME 108 Principle of Engines

- [Principle of Engines](#)

ME 109 Engineering Drawing

- [Engineering Drawing](#)
- [GeneralDrawing1.zip](#)
- [GeneralDrawing2.zip](#)

ME 201 Introduction to Fluid Mechanics

- [Introduction to Fluid Mechanics](#)

ME 202 Introduction to Aero Dynamics

- [Introduction to Aero Dynamics](#)

ME 204 Engineering Fluid Mechanics

- [Engineering Fluid Mechanics](#)

ME 206 Introduction to Turbo Machinery

- [Introduction to Turbo Machinery](#)

ME 301 Fluid Dynamics

- [Fluid Dynamics](#)

GROUP (2)

Write the essay for the manufacturing system based on the study in the following units

ME 205 Manufacturing Processes-and-Materials

- [Manufacturing Processes-and-Materials](#)

ME 302 Automation-and-Robotics

- [Automation-and-Robotics](#)

ME 303 Computer Aided Design and Manufacturing

- [Computer Aided Design and Manufacturing](#)

ME 305 Corrosion Prevention

- [Corrosion Prevention](#)

GROUP (3)

Write the essay for the hydro carbon production system based on the study in the following units

ME 209 Introduction-to-polymer-science-and-technology (Optional)

[Introduction-to-polymer-science-and-technology](#)

STAGE (4B) ADVANCED ELECTRICAL & ELECTRONICS ENGINEERING STUDY (ADVANCED DIPLOMA)

Refer Certificate in Electrical Engineering Learning System, Diploma in Electrical Engineering Learning System, Advanced , Diploma in Electrical Engineering Learning System files for the following units

EE201 Engineering Mathematics

[EE201 Part 1](#) [EE201 Part 2](#) [EE201 Part 3](#) [EE201 Part 4](#)

Test & Assessment

http://www.filefactory.com/file/5ho7s6h0svhv/n/E050_Online_Test_1_Answer_doc

http://www.filefactory.com/file/6dgo87kdsorz/n/E050_Online_Test_1_Question_pdf

Do the tests and send the answer sheet in soft copy by e-mail to **iqytechnicalcollege@gmail.com**

EE204 Engineering Physics

[EE204 Part 1](#) [EE204 Part 2](#) [EE204 Part 3](#) [EE204 Part 4](#) [EE204 Part 5](#)

[EE204 Part 6](#)

Test & Assessment

http://www.filefactory.com/file/13o82qnudgr3/n/E046_Online_Test_1_Question_pdf

http://www.filefactory.com/file/6o2lsbtqe7tt/n/E046_Online_Test_1_Answer_doc

Do the tests and send the answer sheet in soft copy by e-mail to **iqytechnicalcollege@gmail.com**

EE302 Advanced Engineering Mathematics

[EE302 Part 1](#) [EE302 Part 2](#) [EE302 Part 3](#) [EE302 Part 4](#)

http://www.filefactory.com/file/5l9fpcclhjzp/n/E026_Online_Test_3_Question_pdf

http://www.filefactory.com/file/64ccdiuf0ax/n/E026_Online_Test_3_Answer_doc

Do the tests and send the answer sheet in soft copy by e-mail to **iqytechnicalcollege@gmail.com**

Unit Code: EE307	Energy Efficient Building Design
Teaching Video	<p>K041 Lesson 1-Solar Design.zip</p> <p>K041 Lesson 2-Basic psychrometric chart.zip</p> <p>K041 Lesson 3-Total heat resistance.zip</p>

	<p>K041 Lesson 4-U value Heat conductance calculation.zip</p> <p>K041 Lesson 5-Glazing+Net Heat gain heat loss.zip</p> <p>K041 Lesson 6-Shading.zip</p> <p>K041 Lesson 7-Insulation+ Thermal mass.zip</p> <p>K041 Lesson 8-Thermal mass insulation.zip</p> <p>K041 Lesson 9-Airconditioning load calculation.zip</p> <p>K041 Lesson 10-Heat gain per day.zip</p> <p>K041 Lesson 11-Ventilation.zip</p> <p>K041 Lesson 12-Building heating load</p> <p>K041 Lesson 14-Design for Australian climate.zip</p> <p>K041 Lesson 15-Domestic solar hot water system.zip</p> <p>K041 Lesson 16-Energy efficiency+Lighting.zip</p> <p>K041 Lesson 17-Illumination+Smoke alarm.zip</p> <p>K041 Lesson 18-Water supply.zip</p> <p>K041 Lesson 19-Ventilation+Lighting control.zip</p> <p>K041 Lesson 20-Electrical system design.zip</p> <p>K041 Lesson 21-Building materials.zip</p>
Writing on whiteboard+Audio	Building Design+Material Science-K041+E047.zip
Exercise	EXERCISES Page 263 to 274
Reference Resources + Textbooks	<p>K041Textbook1.zip</p> <p>K041Textbook2.zip</p> <p>K041Textbook3.zip</p>

	K041 Building Design 1 K041 Building Design 2 K041Airconditioning K041Energy Management Textbook E047Mech
Australian Curriculum Units	
UEENEEK151A	Develop effective engineering strategies for energy reduction in buildings

BAE 401 Advanced Engineering Mathematics (9 pt)

Part (1) Overview Knowledge of the subject

Folder	BAE 401 Advanced Engineering Mathematics
File	An Introduction to theory of complex variables

<u>Instruction</u>				
Study the notes, calculate the example problems then do the exercises numbers as indicated				
Chapter	Page			Topics
				Note- PDF File page number and the page number of the scanned document may be different. The student need to check both as necessary
1	12	to	16	Complex numbers
2	20	to	26	Functions
3	29	to	38	Differentiability
4	42	to	46	Integration in the complex plane
5	53	to	66	Integral theorems
6	71	to	73	Power series
	156	to	159	Introduction of rational functions of trigonometric functions.
Exercise	Q 1	to	Q8	of Assignment Number (1)

Folder	BAE 401 Advanced Engineering Mathematics
File	Continuous distribution
<u>Instruction</u>	
Study the notes, calculate the example problems then do the	

exercises numbers as indicated				
Chapter	Page			Topics
				Note- PDF File page number and the page number of the scanned document may be different. The student need to check both as necessary
2	7	&	20	Exponential distribution
3	9	&	31	Normal distribution
6	13	&	83	Gamma distribution
8	122			Convergence in distribution
10	127			F distribution
Exercise Q 9 to Q13 of Assignment Number (1)				

Folder	BAE 401 Advanced Engineering Mathematics
File	Discrete distribution
	<u>Instruction</u> Study the notes, calculate the example problems then do the

exercises numbers as indicated				
Chapter	Page			Topics
				Note- PDF File page number and the page number of the scanned document may be different. The student need to check both as necessary
2	6	&	12	Binomial distribution
3	8	&	26	Poisson distribution
Exercise Q 14 to Q16 of Assignment Number (1)				

Folder	BAE 401 Advanced Engineering Mathematics
File	Elementary linear algebra
	<u>Instruction</u>
	Study the notes, calculate the example problems then do the

exercises numbers as indicated			
Chapter	Page		Topics
			Note- PDF File page number and the page number of the scanned document may be different. The student need to check both as necessary
	27		Algebra in F^n Example problems
	30		Geometric meaning of vectors
	31		Geometric meaning of vector addition
	33		Distance between points in R^n Length of vector
	37		Geometric meaning of scalar multiplication
	47		Dot product
	54		Cross product
	73		System of equation geometry
	76		System of equation – Algebraic operation
	97		Matrice arithmetic
	125		Determinants –Basic technique & properties
Exercise Q 17 to Q34 of Assignment Number (1)			

Folder	BAE 401 Advanced Engineering Mathematics
File	Integration and differential equations
	<u>Instruction</u> Study the notes, calculate the example problems then do the

exercises numbers as indicated				
Chapter	Page			Topics
				Note- PDF File page number and the page number of the scanned document may be different. The student need to check both as necessary
	10			List of integrals
	12	to	14	Introduction to background
	19	to	24	Theorem of integration
	32			Improper integrals
	33	to	37	Improper integral problems
	38	to	40	Integration of rational functions
	63	to	65	Differential equations
	67	to	68	First order ordinary differential equations
	69	to	72	Homogenous equations
	73	to	77	The general linear equations
Exercise	Q 35	to	Q47	of Assignment Number (1)

Folder	BAE 401 Advanced Engineering Mathematics
File	Random variables
	<u>Instruction</u>
	Study the notes, calculate the example problems then do the

exercises numbers as indicated			
Chapter	Page		Topics
			Note- PDF File page number and the page number of the scanned document may be different. The student need to check both as necessary
	27		Algebra in F^n Example problems
	30		Geometric meaning of vectors
	31		Geometric meaning of vector addition
	33		Distance between points in R^n Length of vector
	37		Geometric meaning of scalar multiplication
	47		Dot product
	54		Cross product
	73		System of equation geometry
	76		System of equation – Algebraic operation
	97		Matrice arithmetic
	125		Determinants –Basic technique & properties
Exercise	Q 17	to	Q34 of Assignment Number (1)

Part (2) Competency Units

Maths 301 Introduction to Complex Variables (1 pt)

Maths 302 Elementary Linear Algebra (1 pt)

Maths 401 Continuous Distributions (1 pt)

Maths 402 Discrete Distributions (1 pt)

Maths 403 Engineering Mathematics (1 pt)

Maths 501 Introduction to Probability(1 pt)

Maths 501 Linear Algebra & Matrices (1 pt)

Maths 502 Finite Difference Methods for Partial Differential Equations & Mathematical Modelling
(1 pt)

Maths 601 Random Variables (1 pt)

Folder	Maths 301 Introduction to Complex Variables (1 pt)
File	Maths 301 Introduction to Complex Variables
	<u>Instruction</u>

Study the notes, calculate the example problems then do the exercises numbers as indicated				
Chapter	Page			Topics
				Note- PDF File page number and the page number of the scanned document may be different. The student need to check both as necessary
	80			The residue Theorem
	83			Example 32
	84	to	86	Example 33
	87			Example 34
	93			Fourier Transform
	95			Example 36
	96			Example 37
	96			Example 38
	107	to	108	Integral theorem of complex analysis with applications to the evaluation of real integral
	110			Introduction
	111			Example 1
	113			Integral theorems – The green Theorem
	114			Cauchy's integral theorem
	114	to	115	Example 2
	116	to	119	Example 3, 4, 5
	120	to	123	Cauchy's residue theorem
Exercise	Q 52	to	Q58	of Assignment Number (2)

Folder	Maths 302 Elementary Linear Algebra (1 pt)
File	Maths 302 Elementary Linear Algebra
<u style="color: blue;">Instruction</u>	
Study the notes, calculate the example problems then do the	

exercises numbers as indicated				
Chapter	Page			Topics
				Note- PDF File page number and the page number of the scanned document may be different. The student need to check both as necessary
	134			A formula for the inverse
	138			Cramer's rule
	135	to	141	Example 6.2.3 , 6.2.4 , 6.2.6, 6.2.7
	165	to	169	Rank of a matrix
	177	to	182	Example 8.2.9 , 8.2.10, 8.3.3 , 8.3.5, 8.3.6, 8.3.7, 8.3.8
	182	to	186	Linear independence and bases Example 8.4.6, 8.4.7,
	193	to	194	Example 8.4.21, 8.4.22, 8.4.24
	211	to	212	Linear transformation
	214			Constructing the matrix of a linear transformation
	215	to	216	Example 9.2.3 , 9.2.4
	223			Example 9.2.14
	249	to	250	Linear programming
	253			Example 11.2.2
	255			Example 11.2.3
Exercise	Q 59	to	Q65	of Assignment Number (3)

Folder	Maths 401 Continuous Distribution (1 pt)
File	Maths 401 Continuous Distribution
	<u>Instruction</u>

Study the notes, calculate the example problems then do the exercises numbers as indicated				
Chapter	Page			Topics
				Note- PDF File page number and the page number of the scanned document may be different. The student need to check both as necessary
	126			X^2 Distribution
	127			F Distribution
	130			F Distribution & "t" Distribution
	126			Example 9.1
	127			Example 10.2
	130			Example 11.1
	121			Estimation of parameters
	131			Example 12.1
	133	to	134	Example 12.2
Exercise	Q 66	to	Q68	of Assignment Number (4)

Folder	Maths 402 Discrete Distribution (1 pt)
File	Maths 402 Discrete Distribution
	<u>Instruction</u>

				Study the notes, calculate the example problems then do the exercises numbers as indicated
Chapter	Page			Topics
				Note- PDF File page number and the page number of the scanned document may be different. The student need to check both as necessary
	33			Geometric distribution
	33	to	39	Example 4.1, 4.2, 4.3, 4.4, 4.5, 4.6
	51			Pascal distribution
	51			Example 5.1
	54			Negative binomial distribution
	54			Example 6.1
	56			Hyper geometric distribution
	56			Example 7.1
Exercise	Q 69	to	Q72	of Assignment Number (5)

Unit	Maths 403 Engineering mathematics (1 pt)
Folder File	Maths 303 Essential Engineering Mathematics
<u>Instruction</u>	

Study the notes, calculate the example problems then do the exercises numbers as indicated				
Chapter	Page			Topics
				Note- PDF File page number and the page number of the scanned document may be different. The student need to check both as necessary
	23			Vectors and matrices
	30	&	35	Example problems
	39	to	48	Functions and limits , Example problems
	51	to	69	Calculation of one variable (Part 1) Differentiation, Example problems
	79	to	105	Calculation of one variable (Part 1) Integration, Example problems
	111	to	121	Calculus of many variables, Example problems
	123	to	126	Ordinary differential equations, Example problems
	134	to	142	Complex function theory , Example problems
Exercise Q 73 to Q90 of Assignment Number (6)				

Folder	Maths 501 Introduction to probability (1 pt)
File	Maths 501 Introduction to probability
<u>Instruction</u>	

Study the notes, calculate the example problems then do the exercises numbers as indicated				
Chapter	Page			Topics
				Note- PDF File page number and the page number of the scanned document may be different. The student need to check both as necessary
	6	to	8	Theoretical background
	9			Example 2.1, 2.2
	12	To7.1	18	Example 3.1, 3.2, 3.3, 3.4, 3.5, 3.6, 3.7
	19			Playing card
	20	to	23	Example 4.2. 4.3, 4.4, 4.5
	35			Binomial distribution
	35	to	37	Example 6.1, 6.2, 6.3
	38			Lotto Example
	42			Conditional probabilities –Baye’s formula
	42	to	43	Example 10.1, 10.2, 10.3
Exercise	Q 91	to	Q94	of Assignment Number (7)

Folder	Maths 501 Linear algebra and matrices (1 pt)
File	Maths 501 Linear algebra and matrices
	<u>Instruction</u>

Study the notes, calculate the example problems then do the exercises numbers as indicated				
Chapter	Page			Topics
				Note- PDF File page number and the page number of the scanned document may be different. The student need to check both as necessary
	47			Linear transformation matrices
	48	to	49	Definition 2.1.1 to 2.1.3
	50			Example 2.1.4
	51			Example 2.1.6
	52	to	53	$i j$ Entry of product Definition 2.1.8
	54			Example 2.1.9
	55			Example 2.1.11
	58			Example 2.1.14
	62			Example 2.1.24 , 2.1.26
	64			Example 2.1.27
	65			Example 2.1.28
	122			Rank of matrices
	137	to	139	Row operations
	145			Example 4.2.5
	146			Example 4.2.6
Exercise	Q 95	to	Q98	of Assignment Number (8)

Folder	Maths 502 Introductory Finite Difference Method for PDE (1pt)
File	Maths 502 Introductory Finite Difference Method for PDE

Folder					BAE 402 Calculus				
File					Calculus 1 a .pdf				
<u>Instruction</u>									
Study the notes, calculate the example problems then do the exercises numbers as indicated									
Chapter		Page			Topics				
					Note- PDF File page number and the page number of the scanned document may be different. The student need to check both as necessary				
	50	to	57	Differentiation, Example problems					
	58	to	76	Integration, Example problems					
	79	to	96	Simple differential equations, Example problems					
Exercise		Q116	to	Q122	of Assignment Number (11)				

Folder		BAE 402 Calculus		
File		Calculus 2 a .pdf		

<u>Instruction</u>			
Study the notes, calculate the example problems then do the exercises numbers as indicated			
Chapter	Page		Topics
			Note- PDF File page number and the page number of the scanned document may be different. The student need to check both as necessary
	8		Integration of trigonometric polynomials
	11		Complex decomposition of a fraction between two polynomials
	17		Chain rule
	19		Calculation of the directional derivatives
	29		An overview of integration in the plane and in the space
	44		Line integrals
	46		Surface integral
	70		Green's theorem in the plane
Exercise	Q123	to	Q127 of Assignment Number (11)

Folder

BAE 402 Calculus

File		Calculus 2b 1.pdf		
<u>Instruction</u>				
Study the notes, calculate the example problems then do the exercises numbers as indicated				
Chapter	Page			Topics
				Note- PDF File page number and the page number of the scanned document may be different. The student need to check both as necessary
	7			The range of functions in several variables
	37			Line integral
	51			Space integral
	66			Line integral
Exercise Q128 to Q138 of Assignment Number (11)				

Additional Study

Calculus 2 C (2) , Calculus 2 C (3) , Calculus 2 C (4), Calculus 2 C (5) , Calculus 2 C (6) , Calculus 2 C (7)

Calculus 2 C (8) , Calculus 2 C (9), Calculus 2 C (10)

Folder

BAE 402 Calculus

File				Calculus 3b. pdf
<u>Instruction</u>				
Study the notes, calculate the example problems then do the exercises numbers as indicated				
Chapter	Page			Topics
				Note- PDF File page number and the page number of the scanned document may be different. The student need to check both as necessary
	66	to	88	Power series method in solution of problems, Example problems
Exercise	Q139	to	Q142	of Assignment Number (11)

Folder		BAE 402 Calculus		
File		Calculus 3C 1. pdf		
<u>Instruction</u>				
Study the notes, calculate the example problems then do the exercises numbers as indicated				
Chapter	Page			Topics
				Note- PDF File page number and the page number of the scanned document may be different. The student need to check both as necessary
	6			Sequence in general Example 1.1 to 1.14
Exercise Q143 to Q150 of Assignment Number (11)				

Part (2) Competency Units

Maths 304 Integration and Differential Equations. (1 pt)

Maths 403 Second Order Ordinary Differential Equations (1 pt)

Maths 303 Engineering Mathematics (1 pt)

Folder					Maths 303 Engineering Mathematics (1 pt)				
File					Maths 303 Engineering Mathematics				
<u>Instruction</u>									
Study the notes, calculate the example problems then do the exercises numbers as indicated									
Chapter		Page			Topics				
					Note- PDF File page number and the page number of the scanned document may be different. The student need to check both as necessary				
	12	to	35	Introduction and background					
	38	to	48	Integration of rational functions					
	49	to	56	Integration of trigonometric functions					
	62	to	73	Differential equations					
Exercise		Q156	to	Q178	of Assignment Number (12)				

BAE 403 Engineering Mechanics (1 pt)

Part (1) Overview Knowledge of the subject

Folder		BAE 403 Engineering Mechanics		
File				
		<u>Instruction</u> Study the notes, calculate the example problems then do the exercises numbers as indicated		
File name	Chapter	Page		Topics
				Note- PDF File page number and the page number of the scanned document may be different. The student need to check both as necessary
Chap 1. pdf		All		Stress Example 1.1, 1.2, 1.3
Chap 1 slide.pdf		All		Stress lectures
Chap 2.pdf		All		Strain All examples
Chap 2 slide.pdf		All		Strain lessons
Chap 3.pdf		All		Mechanical properties of materials
Chap 3 slide.pdf		All		Mechanical properties of materials
Chap 4.pdf		All		Axial members
Chap 4 slide.pdf		All		Axial members
Chap 5.pdf		All		Torsion of shaft
Chap 5 slide.pdf		All		Torsion of shaft
Chap 6.pdf		All		Symmetric bending of beams
Chap 6 slide.pdf		All		Symmetric bending of beams
Chap 7.pdf		All		Deflection of symmetric beams
Chap 7 slide.pdf		All		Deflection of symmetric beams
Chap 8.pdf		All		Stress transformation
Chap 8 slide.pdf		All		Stress transformation

Chap 9.pdf			All		Strain transformation
Chap 9 slide.pdf			All		Strain transformation
Chap 10.pdf			All		Design and failure
Chap 10 slide.pdf			All		Design and failure
Chap 11.pdf			All		Stability of columns
Chap 11 slide.pdf			All		Stability of columns
Exercise	Q186	to	251		of Assignment (14)

ADDITIONAL READINGS

File Name	Topics
Lectures.pdf	Page 1 to 3 Newton motion Page 3 One dimensional motion Page 11/12/15 Simple harmonic motion Page 17 Damped oscillation Page 20--- $X(t) = Ar e^{-rt/l} \cos(\omega t - \delta_r)$ Page 40 Rotating reference frame equations
PHY 1004W Buffer –M & IMM1.pdf	Modern Mechanics Part 1
PHY 1004W Buffer –M & IMM2.pdf	Modern Mechanics Part 2
PHY 1004W Buffer –M & IMM3.pdf	Modern Mechanics Part 3
PHY 1004W Buffer –M & IMM4.pdf	Modern Mechanics Part 4
PHY 1023H Buffer Mechanics Part A	Modern Mechanics Part A
PHY 1023H Buffer Mechanics Part B	Modern Mechanics Part B
PHY 1023H Buffer Mechanics Part C	Modern Mechanics Part C

Part (2) Competency Units

Folder		ME 301 Applied Mathematics (1 pt)	
File		ME 301 Applied Mathematics	
<u>Instruction</u> Study the notes, calculate the example problems then do the exercises numbers as indicated			
Chapter	Page	Topics	
		Note- PDF File page number and the page number of the scanned document may be different. The student need to check both as necessary	
	16		Kinematics
	26		Projectiles
	36		Forces
	45		Resistance forces
	55		Resolving forces
	63		Rigid bodies
	73		Centre of gravity
	80		Momentum
	92		Energy
	100		Circular motion
	112		Gravitation and planetary motion
	122		The language of vectors
Exercise Q252 to Q264 of Assignment Number (15)			

BAE 404 Engineering Materials & Thermodynamics (3 pt)

Part (1) Overview Knowledge of the subject

Folder		BAE 403 Engineering Mechanics –Mechanical Engineering	
File		Heat Transfer. pdf	
<u>Instruction</u> Study the notes, calculate the example problems then do the exercises numbers as indicated			
Chapter	Page	Topics	
		Note- PDF File page number and the page number of the scanned document may be different. The student need to check both as necessary	
	6		(1) Heat transfer mode Example problems
	25		(2) Conduction Example problems
	58		(3) Convection Example problems
	107		(4) Radiation Example problems
	127		(5) Heat Exchanger Example problems
Exercise Q261 to Q276 of Assignment Number (16)			

Part (2) Competency Units

ME 334 Engineering Thermodynamics (1 pt)

ME 434 Wind Turbines (1 pt)

ME 634 Pneumatics (1 pt)

Folder		ME334 Engineering Thermodynamics (1 pt)		
File		ME334 Engineering Thermodynamics		
<u>Instruction</u> Study the notes, calculate the example problems then do the exercises numbers as indicated				
Chapter	Page			Topics
				Note- PDF File page number and the page number of the scanned document may be different. The student need to check both as necessary
	6			General definition
	11			Thermodynamics-Working fluids
	38	to	55	Laws of Thermodynamics
	56	to	88	Worked Example 3.1 to 3.25
Exercise Q296 to Q307 of Assignment Number (18)				

Folder				ME434 Wind Turbines(1 pt)
File				ME434 Wind Turbines
				<p><u>Instruction</u></p> <p>Study the notes, calculate the example problems then do the exercises numbers as indicated</p>
Chapter	Page			Topics
				Note- PDF File page number and the page number of the scanned document may be different. The student need to check both as necessary
	27			Wind Energy
	38			Theory of wind energy
	46			Wind turbine types and components
	61	to	66	Wind energy measurement, Wheel encoder Worked Example 6.1 to 6.3
Exercise				Q308 to Q316 of Assignment Number (19)

Folder					ME634 Pnuematics(1 pt)				
File					ME634 Pnuematics				
<u>Instruction</u>									
Study the notes, calculate the example problems then do the exercises numbers as indicated									
Chapter		Page			Topics				
					Note- PDF File page number and the page number of the scanned document may be different. The student need to check both as necessary				
	6	to	23	Principle of pneumatics					
	24	to	35	Linear actuators					
	36	to	44	Flow control					
	45	to	50	Pnuematics sensors					
	50	to	52	Pnuematics symbols					
Exercise		Q317	to	Q325	of Assignment Number (20)				

BAE 508 Industrial Engineering & Industrial Management (1 pt)

Part (1) Overview Knowledge of the subject

Effective management decision making

Chapter (1) Introduction

Business Information System

Chapter (1) Defining Information System

Chapter (7) Acquiring Information System

Chapter (8) Developing Information System

Managing Human Resources in 21 Century

Chapter (3) Human resources Management

Management Basics

Chapter (2) The Manager's Job

Chapter (4) Planning in Organization

Operation Management

Chapter (1) Introduction

Chapter (2) Operation Strategy

Chapter (10) Work System Design

Chapter (11) Project Management

Chapter (12) Inventory Management

Quality Management

Chapter (7) Leadership in Quality Management

Chapter (8) Strategic Quality Management

Chapter (15) Implementing Quality Management

Strategic Financial Management

Chapter (1) Finance An Overview

Chapter (2) Capital Budgeting

Chapter (5) Equity Valuation & Cost of Capital

Strategic Management

Chapter (2) The Basic of Strategy

Chapter (3) The Levels of formulation of strategy

Chapter (6) External analysis

Chapter (7) Internal analysis

Chapter (10) Strategy implementation

Understanding organization part 1

Chapter (3) Organization structure

Chapter (4) Organization culture

Chapter (5) Managing behaviour

Chapter (6) Effective leadership

Assignment (57)

Do Q919 for BAE 508

Part (2) Competency Units

Mgt 501 Basic Management & Communication Skills (1 pt)

Mgt 501 Basic Management (1 pt)

Textbook – Mgt 501 Management Basics

Chapter (1) Management basics

Chapter (3) Planning

Chapter (5) Organizing

Chapter (6) Organizing the organization

Chapter (7) Leading

Textbook—Mgt501 Management Briefs

Chapter (2) Leadership

Chapter (5) Motivation

Assignment (58)

Do Q919 for Mgt 919

BAE 601 Computer Programming (3 pt)

Part (1) Overview Knowledge of the subject

Select any of the following textbooks

- C Programming
- C++ Programming
- C# Programming
- Object Oriented Programming
- C Programming in Linux

Study the notes, example programs & practice

Assignment (64)

Submit the assignment Q 924 to complete the overview

Part (2) Competency Units

IT 401 Object Oriented Programming (1 pt)

IT 402 Structured Programming (1 pt)

IT 403 Visual Basic Programming (1 pt)

IT 401 Object Oriented Programming (1 pt)

Study the notes, example programs & practice

Assignment (65)

Submit the assignment Q 925 to complete the unit

IT 402 Structured Programming (1 pt)

Study the notes, example programs & practice

Assignment (66)

Submit the assignment Q 926 to complete the unit

IT 403 Visual Basic Programming (1 pt)

Assignment (67)

Submit the assignment Q 927 to complete the unit

BAE 605 Engineering Management (5 pt)

Part (1) Overview Knowledge of the subject

Completion of BAE 508 Overview also completes BAE 605 Overview

Part (2) Competency Units

Mgt 502 Operation Management (1 pt)

Mgt 503 Production & Operation Management (1 pt)

Mgt 504 Project Management (1 pt)

Mgt 505 Quality Management and Manufacturing Engineering (1 pt)

Mgt 506 Strategic Financial Management (1 pt)

Mgt 502 Operation Management (1 pt)

Chapter (3) Product design and process selection

Chapter (4) Total quality management

Chapter (7) JIT & Lean System

Chapter (8) Capacity planning

Assignment (59)

Do Q 920 to complete Mgt 502

Mgt 503 Production & Operation Management (1 pt)

Chapter (6) Planning production

Chapter (7) Managing inventories-Material requirement planning

Chapter (11) Manufacturing

Chapter (13) Dealing with technology and design

Chapter (15) Operation strategy

Assignment (60)

Do Q 921 to complete Mgt 502

Mgt 504 Project Management (1 pt)

Chapter (1) Project management

Chapter (2) Project organization

Chapter (4) Project plan

Chapter (5) Progress & performance measurement

Chapter (6) Risk management

Chapter (7) Documentation/ Audit/ Closure

Assignment (61)

Do Q 921 to complete Mgt 502

Mgt 505 Quality Management and Manufacturing Engineering (1 pt)

Chapter (2) Background

Chapter (3) Why quality management

Chapter (5) Standards and models

Chapter (5) Progress & performance measurement

Chapter (8) Strategic quality management

Chapter (7) Documentation/ Audit/ Closure

Assignment (62)

Do Q 923 to complete Mgt 505

Mgt 506 Strategic Financial Management (1 pt)

Chapter (3) Capital budgeting

Chapter (4) Treatment of uncertainty

Chapter (6) Debt valuation and cost of capital

Chapter (7) Capital gathering & cost of capital

Assignment (63)

Do Q 924 to complete Mgt 506

BAE 606 Building Service Electrical & Mechanical Engineering (2 pt)

Part (1) Overview Knowledge of the subject

Folder		BAE 606 Building Service Electrical & Mechanical Engineering		
File		Building Construction 1		
<u>Instruction</u> Study the notes, calculate the example problems then do the exercises numbers as indicated				
Chapter	Page			Topics
				Note- PDF File page number and the page number of the scanned document may be different. The student need to check both as necessary
	5	to	12	Making building
	13	to	20	Foundations
	40	to	47	Wood
	117	to	125	Interior finish for wood light frame construction
	173	to	175	Wall types
	181			
	237	to	239	Concrete construction

Folder				BAE 606 Building Service Electrical & Mechanical Engineering			
File				Air-conditioning & Refrigeration			
<u>Instruction</u>							
Study the notes, calculate the example problems then do the exercises numbers as indicated							
Chapter	Page			Topics			
				Note- PDF File page number and the page number of the scanned document may be different. The student need to check both as necessary			
	105	to	108	Controlling the temperature of mass			
	236	to	243	Electric heat			
	305	to	308	Humidification			
	309	to	314	Air-conditioning –Cooling / Comfort			
	324	to	339	Air-distribution & Balance			
	400	to	432	Reference Tables			

Folder				BAE 606 Building Service Electrical & Mechanical Engineering			
File				Sanitation & Water Supply			
<u>Instruction</u>							
Study the notes, calculate the example problems then do the exercises numbers as indicated							
Chapter	Page			Topics			
				Note- PDF File page number and the page number of the scanned document may be different. The student need to check both as necessary			
Annex A	124			Design of onsite sanitation system			
Annex B	127	to	139	Hydraulic design of sewers			
Exercise	Q1044	to	Q1059	of Assignment Number (74)			

Part (2) Competency Units

EE 617 Building Electrical and Mechanical System (1 pt)

ME 334 Airconditioning and Refrigeration (1 pt)

CE 301 Building Construction (Optional)

CE 301 Conceise Hydroulics (Optional)

Folder				EE 617 Building Electrical & Mechanical System (1 pt)
File				EE 617 Building Electrical & Mechanical System Part 1
<u>Instruction</u>				
Study the notes, calculate the example problems then do the exercises numbers as indicated				
Chapter	Page			Topics
				Note- PDF File page number and the page number of the scanned document may be different. The student need to check both as necessary
	35	to	50	Climate comfort and design strategies
	74	to	85	Thermal control
	109	to	120	Designing for heating cooling
	209	to	234	Large building HVAC system
	256	to	270	Water and basic design
	276	to	291	Water supply
	314	to	322	Water and waste
	366	to	379	Fire protection
	388	to	401	Fire protection
	479	to	507	Illumination
	554	to	575	Lighting design
	624	to	630	Signal system
Exercise	Q1060 to Q1077 of Assignment Number (75)			

Folder				ME 334 Air-conditioning & Refrigeration (1 pt)
File				ME 334 Air-conditioning & Refrigeration
<u>Instruction</u>				
Study the notes, calculate the example problems then do the exercises numbers as indicated				
Chapter	Page			Topics
				Note- PDF File page number and the page number of the scanned document may be different. The student need to check both as necessary
	13	to	24	Theory of heat
	286	to	297	Solar heat
	305	to	307	Humidification
	308	to	315	Air-conditioning-Cooling
	324	to	339	Air-distribution & Balance
	399	to	442	Air-conditioning Calculation worksheets
Exercise	Q1078	to	Q1085	of Assignment Number (76)

BAE 609 Design Project

- Design the building service engineering system for a building assigned by the teacher.

BAE 608 Professional Engineer Competency Demonstration Report

- The students will have to write Engineering Competency Demonstration Report based on their academic study and work experiences gained after completion of academic study.
- Competency Demonstration Report is voluntarily to be submitted. It prepares the students to have the necessary skills to gain the membership of Engineers Australia later.
- The outlines of Competency Demonstration Report will be provided to the students after completion of the last course work subject.