

# HIGHLIGHT COMPUTER GROUP

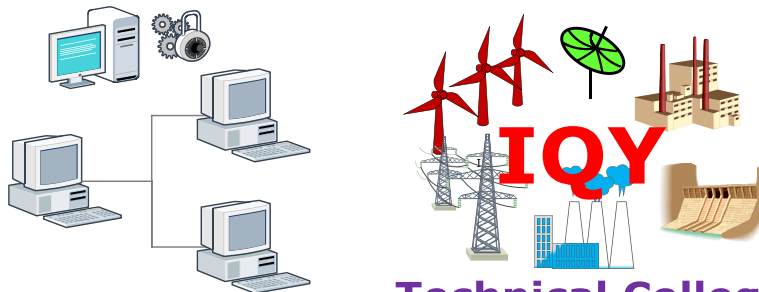
**TRAINING CENTRE**

[www.highlightcomputer.com](http://www.highlightcomputer.com)

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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  
MECHANICAL ENGINEERING**

**&**

**BACHELOR OF ADVANCED ENGINEERING  
(MECHTRONICS)**

**STUDY GUIDE**

**Study Option (1) Self Study**

## DIPLOMA IN MECHANICAL ENGINEERING

### Pre-requisite

Trade Certificate or Certificate in Mechanical Engineering/ Auto Mechanics 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 (MECHTRONICS)

### Pre-requisite

Diploma in Mechanical 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 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 (2)BASIC ELECTRICAL & ELECTRONICS ENGINEERING ( 17 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

**STAGE (3) ADVANCED MECHANICAL ENGINEERING STUDY ( 13 Pt)****GROUP (1) ( 7 pt)**

ME 108 Principle of Engines

ME 109 Engineering Drawing

ME 201 Introduction to Fluid Mechanics

ME 202 Introduction to Aero Dynamics

ME 204 Engineering Fluid Mechanics

ME 206 Introduction to Turbo Machinery

ME 301 Fluid Dynamics

**GROUP (2) ( 4 pt)**

ME 205 Manufacturing Processes-and-Materials

ME 302 Automation-and-Robotics

ME 303 Computer Aided Design and Manufacturing

ME 305 Corrosion Prevention

**GROUP (3) ( 2 pt)**

ME 207 Chemical Thermodynamics

ME 208 Hydrocarbons

**STAGE (4) ADVANCED ELECTRICAL & ELECTRONICS ENGINEERING STUDY****(ADVANCED DIPLOMA) ( 10 pt)**

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

EE121 Electronics Power Control Devices

EE201 Engineering Mathematics

EE202 Electrical Circuits

EE203 Three Phase Power Circuits

EE204 Engineering Physics

EE206 AC Machines

EE207 DC Machines

EE208 Operational Amplifiers

EE209 Analogue Electronics

EE301 Advanced Electrical Drafting

EE302 Advanced Engineering Mathematics ( Optional)

**STAGE (5) BACHELOR OF APPLIED ENGINEERING (MECHTRONICS) DEGREE**

<b>Subjects</b>	<b>Points</b>	<b>Competency Units</b>	<b>Page</b>
<b>BAE 401 Advanced Engineering Mathematics</b>	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)	
<b>BAE 402 Calculus</b>	3	Maths 304 Integration and Differential Equations ( 1 pt) Maths 403 Second Order Differential Equations ( 1 pt) Maths 303 Engineering Mathematics ( 1 pt)	
<b>BAE 403 Engineering Mechanics</b>	1	ME 301 Applied Mathematics ( 1 pt)	
<b>BAE 404 Engineering Materials &amp; Thermodynamics</b>	3	ME 334 Engineering Thermodynamics ( 1 pt) ME 434 Wind Turbines ( 1 pt) ME 634 Pneumatics ( 1 pt)	
<b>BAE 405 Advanced Circuit Analysis</b>	3	EE 301 Electrical Circuits ( 1 pt) EE 303 Engineering Circuit Analysis ( 1 pt) EE 404 Electrical Measurement ( 1 pt)	
<b>BAE 406 Electro-mechanics</b>	2	EE 502 Electrical Machines ( 1 pt) ME 301 Machine Principle ( 1 pt)	

<b>Subjects</b>	<b>Points</b>	<b>Competency Units</b>	<b>Page</b>
<b>BAE 408 Analogue &amp; Digital Electronics</b>	5	EE 403 Introduction to Electronic Engineering ( 1 pt) EE 524 Power Electronics & Applied Electronics ( 1 pt) EE 405 Digital System ( 1 pt) EE 526 Digital Signal Processing ( 1 pt) EE 527 Digital Image Processing 1/ 2 ( 1 pt)	
<b>BAE 502 Linear System</b>	1	EE 304 Computer Mathematics ( 1 pt)	
<b>BAE 503 Control System</b>	4	EE 601 Non Linear Control Applications ( 1 pt) EE 601 Control Engineering , Feedback and Control System , PID_Control ( 1 pt) EE 624 Process Control ( 1 pt) ME 534 Numerical Control Part 1 / 2 ( 1 pt)	
<b>BAE 507 Electro-mechanical Energy Conversion</b>	2	EE 602 Motor Control Electronics ( 1 pt) ME 434 Mechtronics & Robotics ( 1 pt)	
<b>BAE 508 Industrial Engineering &amp; Industrial Management</b>	1	Mgt 501 Basic Management & Communication Skills ( 1 pt)	
<b>BAE 601 Computer Programming</b>	3	IT 401 Object Oriented Programming ( 1 pt) IT 402 Structured Programming ( 1 pt) IT 403 Visual Basic Programming ( 1 pt)	
<b>BAE 602 Computer Network</b>	1	ICT 202 Information Systems Principles and Networking ( 1 pt)	
<b>BAE 603 Software Engineering</b>	3	ICT 106 Software Engineering ( 1 pt) ICT 203 Information Systems, Analysis and Design ( 1 pt) EE 626 Nano Technology ( 1 pt)	
<b>BAE 604 Telecommunication Engineering</b>	2	EE 525 Data Communication ( 1 pt)	



<b>BAE 605 Engineering Management</b>	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)	
<b>BAE 606 Building Service Electrical &amp; Mechanical Engineering</b>	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)	
<b>Total Credit points</b>	50 Pt		

<b>Stage</b>	<b>Points</b>
Stage 1—Diploma in Mechanical Engineering	30
Stage 2	17
Stage 3	13
Stage 4	10
Stage 5	50
<b>Total (Bachelor of Applied Engineering-Mechtronics)</b>	<b>120</b>

## STAGE (1) DIPLOMA IN 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		
<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.
<b>Exercise</b>	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><b><u>Instruction</u></b></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		
<b><u>Instruction</u></b>			
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
<b>Exercise</b>	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		
<b><u>Instruction</u></b>				
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
<b>Exercise</b> 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
<b><u>Instruction</u></b>				
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
<b>Exercise</b>	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><b><u>Instruction</u></b></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><b>Exercise</b> 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				
		<b><u>Instruction</u></b> 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
<b>Exercise</b>	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	
<b><u>Instruction</u></b>			
Study the notes, calculate the example problems then do the exercises numbers as indicated			
<b>Chapter</b>	<b>Page</b>	<b>Topics</b>	
		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
<b>Exercise</b>	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		
<b><u>Instruction</u></b>			
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
<b>Exercise</b> 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		
<b><u>Instruction</u></b>			
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
<b>Exercise</b> Q277 to Q295 of Assignment Number (17)			



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

Folder				ME434 Wind Turbines( 1 pt )
File				ME434 Wind Turbines
<b><u>Instruction</u></b>				
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
<b>Exercise</b> 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
<b><u>Instruction</u></b>				
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
<b>Exercise</b> Q317 to Q325 of Assignment Number (20)				





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

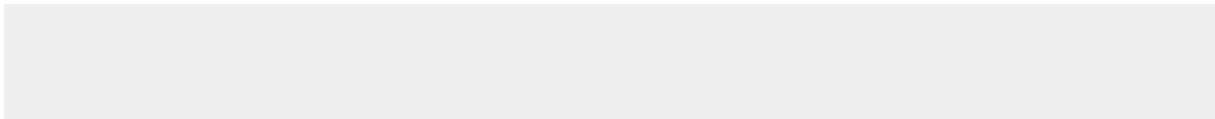
Folder		ME 301 Machine Principle ( 1 pt)		
File		ME 301 Machine Principle		
<b><u>Instruction</u></b>				
Study the notes, calculate the example problems then do the exercises numbers as indicated				
Chapter	Page		Topics	
			Note- PDF File page number and the page number of the scanned document may 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
<b>Exercise</b> 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
<b><u>Instruction</u></b>				
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
<b>Exercise</b> 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		
<b><u>Instruction</u></b>			
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		
<b><u>Instruction</u></b>			
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
<b>Exercise</b>	Q685	to	Q705	of Assignment Number (43)

<b>Folder</b>	<b>EE 601 PID Control</b>			
<b>File</b>	<b>EE 601 PID Control</b>			
<b><u>Instruction</u></b>				
Study the notes, calculate the example problems then do the exercises numbers as indicated				
<b>Chapter</b>	<b>Page</b>		<b>Topics</b>	
			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
<b>Exercise</b>	Q705	to	Q708	of Assignment Number (43)

<b>Folder</b>	<b>EE 601 Non Linear Control Applications</b>			
<b>File</b>	<b>EE 601 Applications of Non Linear Control</b>			
<b><u>Instruction</u></b>				
Study the notes, calculate the example problems then do the exercises numbers as indicated				
<b>Chapter</b>	<b>Page</b>		<b>Topics</b>	
			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
<b>Exercise</b>	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
<b><u>Instruction</u></b>					
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	
<b>Exercise</b> 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				
<b><u>Instruction</u></b>									
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					
<b>Exercise</b>		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		
<b><u>Instruction</u></b>				
Study the notes, calculate the example problems then do the exercises numbers as indicated				
<b>Chapter</b>	<b>Page</b>			<b>Topics</b>
				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
<b>Exercise</b> 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			
<b><u>Instruction</u></b>				
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
<b>Exercise</b>	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			
<b><u>Instruction</u></b>				
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 (2) 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/58r3nfe1qieh/n/E003_E004_Online_Test_1_Question_pdf)

[http://www.filefactory.com/file/796n6fdurdij/n/E003\\_E004\\_Online\\_Test\\_1\\_Answer\\_doc](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](mailto: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.aml>

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.xml>

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/7c658zyrj9gx/n/G001_Online_Test_1_Question_pdf)

[http://www.filefactory.com/file/1h8minstf7ux/n/G001\\_Online\\_Test\\_1\\_Answer\\_doc](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](mailto: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/7ebmnciqxmf3/n/G002_Online_Test_1_Question_pdf)

[http://www.filefactory.com/file/6d3yokhjziur/n/G002\\_Online\\_Test\\_1\\_Answer\\_doc](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](mailto: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/r372kwb529d/n/E029_G012_Online_Test_1_Question_pdf)

[http://www.filefactory.com/file/73yyxs4hpdmv/n/E029\\_G012\\_Online\\_Test\\_1\\_Answer\\_doc](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](mailto: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/789ejsjf1yq1/n/G012_Online_Test_3_Question_pdf)

[http://www.filefactory.com/file/5hurvxj3u09r/n/G012\\_Online\\_Test\\_3\\_Answer\\_doc](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](mailto: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/46zzpcym7uqz/n/I006_H012_Online_Test_1_Question_pdf)

[http://www.filefactory.com/file/4e2chw2sf343/n/I006\\_H012\\_Online\\_Test\\_1\\_Answer\\_doc](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](mailto: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

### STAGE (3) 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 207 Chemical Thermodynamics**

- **Chemical Thermodynamics**

### **ME 208 Hydrocarbons**

- **Hydrocarbons**

### **ME 209 Introduction-to-polymer-science-and-technology**

### **Introduction-to-polymer-science-and-technology**

## **STAGE (4) 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

### **EE121 Electronics Power Control Devices**

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

### **Test & Assessment**

[http://www.filefactory.com/file/fch86cnsrdp/n/H026\\_Online\\_Test\\_1\\_Question\\_pdf](http://www.filefactory.com/file/fch86cnsrdp/n/H026_Online_Test_1_Question_pdf)

[http://www.filefactory.com/file/5wtb5ooaiizf/n/H026\\_Online\\_Test\\_1\\_Answer\\_doc](http://www.filefactory.com/file/5wtb5ooaiizf/n/H026_Online_Test_1_Answer_doc)

## 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/5ho7s6h0svhv/n/E050_Online_Test_1_Answer_doc)

[http://www.filefactory.com/file/6dgo87kdsorz/n/E050\\_Online\\_Test\\_1\\_Question\\_pdf](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](mailto:iqytechnicalcollege@gmail.com)**

## EE202 Electrical Circuits

[EE202 Part 1](#) [EE202 Part 2](#) [EE202 Part 3](#)

### Test & Assessment

[http://www.filefactory.com/file/52h82a0t0f3f/n/E025\\_Online\\_Test\\_1\\_Question\\_pdf](http://www.filefactory.com/file/52h82a0t0f3f/n/E025_Online_Test_1_Question_pdf)

[http://www.filefactory.com/file/1qw3qtpv9qd5/n/E025\\_Online\\_Test\\_1\\_Answer\\_doc](http://www.filefactory.com/file/1qw3qtpv9qd5/n/E025_Online_Test_1_Answer_doc)

[http://www.filefactory.com/file/4m4fl31kp6w3/n/G048\\_Online\\_Test\\_1\\_Answer\\_doc](http://www.filefactory.com/file/4m4fl31kp6w3/n/G048_Online_Test_1_Answer_doc)

[http://www.filefactory.com/file/713uvwk5vbel/n/G048\\_Online\\_Test\\_1\\_Question\\_pdf](http://www.filefactory.com/file/713uvwk5vbel/n/G048_Online_Test_1_Question_pdf)

Do the tests and send the answer sheet in soft copy by e-mail to **[iqytechnicalcollege@gmail.com](mailto:iqytechnicalcollege@gmail.com)**

## EE203 Three Phase Power Circuits

[EE203 Part 1](#) [EE203 Part 2](#) [EE203 Part 3](#)

### Test & Assessment

[http://www.filefactory.com/file/49ibg1gt9fgh/n/G049\\_Online\\_Test\\_1\\_Answer\\_doc](http://www.filefactory.com/file/49ibg1gt9fgh/n/G049_Online_Test_1_Answer_doc)

[http://www.filefactory.com/file/5vhbs8sn20f3/n/G049\\_Online\\_Test\\_1\\_Question\\_pdf](http://www.filefactory.com/file/5vhbs8sn20f3/n/G049_Online_Test_1_Question_pdf)

Do the tests and send the answer sheet in soft copy by e-mail to **[iqytechnicalcollege@gmail.com](mailto: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/13o82qnudgr3/n/E046_Online_Test_1_Question_pdf)

[http://www.filefactory.com/file/6o2lsbtqe7tt/n/E046\\_Online\\_Test\\_1\\_Answer\\_doc](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](mailto:iqytechnicalcollege@gmail.com)**

## EE206 AC Machines

[EE206 Part 1](#) [EE206 Part 2](#) [EE206 Part 3](#)

### Test & Assessment

[http://www.filefactory.com/file/5stgjiskbar09/n/G043\\_G045\\_Online\\_Test\\_1\\_Answer\\_doc](http://www.filefactory.com/file/5stgjiskbar09/n/G043_G045_Online_Test_1_Answer_doc)

[http://www.filefactory.com/file/7h9o99zngfq1/n/G043\\_G045\\_Online\\_Test\\_1\\_Question\\_pdf](http://www.filefactory.com/file/7h9o99zngfq1/n/G043_G045_Online_Test_1_Question_pdf)

Do the tests and send the answer sheet in soft copy by e-mail to **[iqytechnicalcollege@gmail.com](mailto:iqytechnicalcollege@gmail.com)**

## EE207 DC Machines

[EE207 Part 1](#) [EE207 Part 2](#) [EE207 Part 3](#)

### Test & Assessment

[http://www.filefactory.com/file/2ejf6p7o0j0f/n/G044\\_Online\\_Test\\_1\\_Answer\\_doc](http://www.filefactory.com/file/2ejf6p7o0j0f/n/G044_Online_Test_1_Answer_doc)

[http://www.filefactory.com/file/5iy92bjj67/n/G044\\_Online\\_Test\\_1\\_Question\\_pdf](http://www.filefactory.com/file/5iy92bjj67/n/G044_Online_Test_1_Question_pdf)

Do the tests and send the answer sheet in soft copy by e-mail to **[iqytechnicalcollege@gmail.com](mailto:iqytechnicalcollege@gmail.com)**

## [EE208 Operational Amplifiers](#)

[EE208 Part 1](#) [EE208 Part 2](#) [EE208 Part 3](#)

### [Test & Assessment](#)

[http://www.filefactory.com/file/2a3bpimaxqx3/n/H025\\_H045\\_I006\\_Online\\_Test\\_1\\_Answer\\_doc](http://www.filefactory.com/file/2a3bpimaxqx3/n/H025_H045_I006_Online_Test_1_Answer_doc)

[http://www.filefactory.com/file/7j320h1rk6k9/n/H025\\_H045\\_I006\\_Online\\_Test\\_1\\_Question\\_pdf](http://www.filefactory.com/file/7j320h1rk6k9/n/H025_H045_I006_Online_Test_1_Question_pdf)

Do the tests and send the answer sheet in soft copy by e-mail to  
**[iqytechnicalcollege@gmail.com](mailto:iqytechnicalcollege@gmail.com)**

## [EE209 Analogue Electronics](#)

[EE209 Part 1](#) [EE209 Part 2](#) [EE209 Part 3](#) [EE209 Part 4](#) [EE209 Part 5](#)

[EE209 Part 6](#) [EE209 Part 7](#)

### [Test & Assessment](#)

[http://www.filefactory.com/file/5ht8f5ih8lvr/n/H011\\_Online\\_Test\\_1\\_Answer\\_doc](http://www.filefactory.com/file/5ht8f5ih8lvr/n/H011_Online_Test_1_Answer_doc)

[http://www.filefactory.com/file/74ma7pvjy4un/n/H011\\_Online\\_Test\\_1\\_Question\\_pdf](http://www.filefactory.com/file/74ma7pvjy4un/n/H011_Online_Test_1_Question_pdf)

[http://www.filefactory.com/file/229n33ldqwah/n/H011\\_Online\\_Test\\_2\\_Answer\\_doc](http://www.filefactory.com/file/229n33ldqwah/n/H011_Online_Test_2_Answer_doc)

[http://www.filefactory.com/file/3e54mrgli7ft/n/H011\\_Online\\_Test\\_2\\_Question\\_pdf](http://www.filefactory.com/file/3e54mrgli7ft/n/H011_Online_Test_2_Question_pdf)

Do the tests and send the answer sheet in soft copy by e-mail to  
**[iqytechnicalcollege@gmail.com](mailto:iqytechnicalcollege@gmail.com)**

## [EE301 Advanced Electrical Drafting](#)

[6-ElectricalDrawing](#)

[1WiringInstallationDrawing](#)

[7MachineDriveSystems](#)

[8PowerElectronicsDevices](#)

[Electronics\\_Drawing.zip](#)

[AutoCAD\\_2D\\_3D\\_Lessons](#)

[Symbol A](#)

[Symbol B](#)

[Symbol C](#)

[Symbol D](#)

[Symbol E](#)

[Symbol F](#)

[Symbol G](#)

**Test & Assessment**

[E071\\_MEM09004\\_Tutorial](#)

Submit the drawing tutorial assignment

**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/5l9fpcclhjzp/n/E026_Online_Test_3_Question_pdf)

[http://www.filefactory.com/file/64ccdiuf0ax/n/E026\\_Online\\_Test\\_3\\_Answer\\_doc](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](mailto:iqytechnicalcollege@gmail.com)**

**STAGE (5) ADVANCED ELECTRICAL & ELECTRONICS ENGINEERING STUDY**  
**(DEGREE)**

<b>Folder</b>				Maths 401 Continuous Distribution (1 pt)
<b>File</b>				Maths 401 Continuous Distribution
<b><u>Instruction</u></b>				
Study the notes, calculate the example problems then do the exercises numbers as indicated				
<b>Chapter</b>	<b>Page</b>			<b>Topics</b>
				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 <sup>2</sup> 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
<b>Exercise</b> Q 66 to Q68 of Assignment Number (4)				



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
<b>Exercise</b> 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
<b>Exercise</b> Q 35 to Q47 of Assignment Number (1)				

Folder		BAE 401 Advanced Engineering Mathematics		
File		Random variables		
<p style="text-align: center;"><u><b>Instruction</b></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	
	20			Simple introduction examples
	21			Problems
	22			Frequency and distribution functions in 1 dimension
<b>Exercise</b>	Q 48	to	Q51	of Assignment Number (1)

<b>Folder</b>		<b>BAE 401 Advanced Engineering Mathematics</b>		
<b>File</b>		<b>Mathematical modelling preliminary</b>		
<b><u>Instruction</u></b>				
Study the notes, calculate the example problems then do the exercises numbers as indicated				
<b>Chapter</b>	<b>Page</b>			<b>Topics</b>
				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			Introduction
	9	to	11	Discrete time model
	12	to	13	Example problems
<b>Exercise</b>	Q 52	to	Q53	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
<b>Exercise</b> Q 17 to Q34 of Assignment Number (1)			

<b>Folder</b>				Maths 402 Discrete Distribution ( 1 pt )
<b>File</b>				Maths 402 Discrete Distribution
				<p><b><u>Instruction</u></b></p> <p>Study the notes, calculate the example problems then do the exercises numbers as indicated</p>
<b>Chapter</b>	<b>Page</b>			<b>Topics</b>
				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
<b>Exercise</b>	Q 69	to	Q72	of Assignment Number (5)



<b>Folder</b>				Maths 501 Introduction to probability ( 1 pt )
<b>File</b>				Maths 501 Introduction to probability
<b><u>Instruction</u></b>				
Study the notes, calculate the example problems then do the exercises numbers as indicated				
<b>Chapter</b>	<b>Page</b>			<b>Topics</b>
				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
<b>Exercise</b>	Q 91	to	Q94	of Assignment Number (7)

Folder				Maths 601 Random Variables ( 1 pt )
File				Maths 601 Random Variables
				<p><b><u>Instruction</u></b></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
	6	to	14	Theoretical results
	20	to	34	Frequencies and distribution ( 1 dimension )
	75	to	82	Function of random variables
Exercise				Q109 to Q115 of Assignment Number (10)

## BAE 402 Calculus ( 3 pt)

### Part (1) Overview Knowledge of the subject

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	
<b><u>Instruction</u></b>			
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
<b>Exercise</b> 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		
<p style="text-align: center;"><u><b>Instruction</b></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
	66	to	88	Power series method in solution of problems, Example problems
<b>Exercise</b> Q139 to Q142 of Assignment Number (11)				

Folder		BAE 402 Calculus		
File		Calculus 3C 1. pdf		
<b><u>Instruction</u></b>				
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
<b>Exercise</b> Q143 to Q150 of Assignment Number (11)				

<b>Folder</b>		BAE 402 Calculus	
<b>File</b>		Calculus 4C 1. pdf	
<b><u>Instruction</u></b>			
Study the notes, calculate the example problems then do the exercises numbers as indicated			
<b>Chapter</b>	<b>Page</b>	<b>Topics</b>	
		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		Sum function of Fourier series
	62		Fourier series and uniform convergence Example 2.1 to 2.10
<b>Exercise</b>	Q151	to	Q155 of Assignment Number (11)

**Additional Study**

Calculus 3 C (1) , Calculus 3 C (2) , Calculus 3 C (3), Calculus 3 C (4) , Calculus 4 b , Calculus 4 C (1)

Calculus 4 C (2) , Calculus 4 C (3)



**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)

<b>Folder</b>				<b>Maths 303 Engineering Mathematics ( 1 pt )</b>
<b>File</b>				<b>Maths 303 Engineering Mathematics</b>
				<p><b><u>Instruction</u></b></p> <p>Study the notes, calculate the example problems then do the exercises numbers as indicated</p>
<b>Chapter</b>	<b>Page</b>			<b>Topics</b>
				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
<b>Exercise</b>	Q156	to	Q178	of Assignment Number (12)

<b>Folder</b>				<b>Maths 403 Second Order Differential Equations ( 1 pt )</b>
<b>File</b>				<b>Maths 403 Second Order Differential Equations</b>
				<u><b>Instruction</b></u>  Study the notes, calculate the example problems then do the exercises numbers as indicated
<b>Chapter</b>	<b>Page</b>			<b>Topics</b>
				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	16	Power series solutions
	39	to	46	Bessel equations and Bessel functions
	49	to	51	Legendre polynomials
	62	to	73	Differential equations
<b>Exercise</b>	Q179	to	Q185	of Assignment Number (13)

## BAE 405 Advanced Circuit Analysis ( 3 pt )

### Part (1) Overview Knowledge of the subject

Folder		BAE 405 Advanced Circuit Analysis		
File				
		<p><u>Instruction</u></p> <p>Study the notes, calculate the example problems then do the exercises numbers as indicated</p>		
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
DC Analysis Examples.mht			All	DC Circuit Analysis
Design Analysis & Circuit Theory.mht			All	Circuit Theory
Diode charge pump AM-FM Demodulators.mht			All	Modulators
<u>CIRCUIT ANALYSIS LECTURES</u>				
Lec 1-4pg.pdf			All	Analog, digital signals , electric current, power summary
Lec 2-4pg.pdf			All	Circuit analysis, electric potential, electric power, sign convection, electric source, Kirchoffs' law
Lec 3-4pg.pdf			All	Circuit elements, characteristics KCL, KVL
Lec 4-4pg.pdf			All	Resistor (Series, parallel, wheatstone bridge, Nodal analysis
Lec 5-4pg.pdf			All	Nodal analysis, mesh analysis
Lec 6-4pg.pdf			All	Superposition theorem, Thevenin's theorem, Norton theorem, Maximum power transfer theorem,

Lec 7-4pg.pdf			All		Operational amplifier
Lec 8-4pg.pdf			All		Inverting amplifier circuit, Summing amplifier, Differential amplifier
Lec 9-4pg.pdf			All		Capacitor, Op-amp integrator, stored energy
Lec 10-4pg.pdf			All		Mutual inductance, time constant, transient
Lec 11-4pg.pdf			All		Transient response of 1 st order circuit, RL transient analysis, sequential switching
Lec 12-4pg.pdf			All		RC/RL Circuit , Propagation, Delay, DRAM
Lec 13-4pg.pdf			All		Semi conductor
Lec 14-4pg.pdf			All		PN Junction diode
Lec 15-4pg.pdf			All		Light emitting diode
Lec 16-4pg.pdf			All		MOSFET
Lec 18-4pg.pdf			All		Digital signal
Lec 19-4pg.pdf			All		CMOS Digital circuit
Lec 20-4pg.pdf			All		Combinational logic circuits
Lec 21-4pg.pdf			All		Flip flops
Lec 22-4pg.pdf			All		Propagation delay in timing diagram
Lec 24-4pg.pdf			All		Integrated circuit fabrication
Lec 25-4pg.pdf			All		Device isolation methods
Lec 26-4pg.pdf			All		Interconnected resistance and capacitance
Lec 27-4pg.pdf			All		Transistor scaling
<b><u>REFERENCES</u></b>					
Ch 1. ppt			All		Integrated circuit design for application in communications
Ch 2. ppt			All		Small signal amplifiers

Ch 3. ppt			All		Network noise intermodulation distortion
Ch 4. ppt			All		CAD for noise analysis
Ch 5. ppt			All		Snsors & Detectors
Ch 6. ppt			All		Low noise design methodology
Ch 7. ppt			All		Oscillators
Ch 8. ppt			All		Modulators and demodulators
<b>Exercise</b>	Q368	to	Q371		of Assignment (21)
	Q326	to	Q 329		

<b>Folder</b>					<b>EE301 Electrical Circuit 1 ( 1 pt )</b>				
<b>File</b>					<b>EE301 Concepts in Electrical Circuit</b>				
<b><u>Instruction</u></b>									
Study the notes, calculate the example problems then do the exercises numbers as indicated									
<b>Chapter</b>		<b>Page</b>			<b>Topics</b>				
					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				
<b>Exercise</b>		Q330	to	Q337	of Assignment Number (22)				

**Part (2) Competency Units**

EE 301 Electrical Circuits ( 1 pt)

EE 303 Engineering Circuit Analysis ( 1 pt)

EE 404 Electrical Measurement ( 1 pt)



Folder		EE303 Engineering Circuit Analysis ( 1 pt )	
File		EE303 Engineering Circuit Analysis	
<b><u>Instruction</u></b>			
Study the notes, calculate the example problems then do the exercises numbers as indicated			
<b>Chapter</b>	<b>Page</b>		<b>Topics</b>
			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/ 3			Basic circuits Examples 2.2, 2.3, 3.1, 3.2, 3.3, 3.4, 3.5, 3.6, 3.7, 3.8, 3.9, 3.10, 3.11, 3.12
4			Basic Nodal and Mesh analysis Example 4.1, 4.2, 4.3, 4.4, 4.5, 4.6, 4.7, 4.8, 4.9, 4.10, 4.11, 4.12
5			Linear and Superposition/ Source Transformation Example 5.1, 5.2, 5.3, 5.4, 5.5, 5.6, 5.7, 5.8, 5.9, 5.10, 5.11
8			RL/ RC Circuits Example 8.1, 8.2, 8.3, 8.4, 8.5, 8.6, 8.7, 8.8, 8.9, 8.10, 8.11
9			RLC Circuits Example 9.1, 9.2, 9.3, 9.4, 9.5, 9.6, 9.7, 9.8, 9.9
10			Sinusoidal steady state analysis Example 10.1, 10.2, 10.3, 10.4, 10.5, 10.6, 10.7, 10.8
11			AC Power Circuit Analysis Example 11.1, 11.2, 11.3, 11.4, 11.5
12			Polyphase Circuits Example 12.1, 12.2, 12.3, 12.4, 12.5, 12.6
13			Magnetically coupled circuits Example 13.1, 13.2, 13.3, 13.4, 13.5, 13.6, 13.7, 13.8

14				Complex Frequency / Laplace Transform Example 14.1, 14.2, 14.3, 14.4, 14.5, 14.6, 14.7, 14.8, 14.11
				Laplace Transform Table 14.1, 14.2
15				Circuit analysis in " S " domain Example 15.1, 15.2, 15.3, 15.4, 15.5, 15.6, 15.7 Pole/ Zero constellation Example 15.12, 15.13
16				Frequency Response Example 16.1, 16.2
17				Two ports network Example 17.1, 17.2, 17.3, 17.4, 17.5
18				Fourier Circuit Analysis Example 18.1 Use of symmetry theory Table 18.1 Example 18.2, 18.3
<b>Exercise</b> Q328 to Q367 of Assignment Number (23)				

Folder		EE404 Electrical Measurement ( 1 pt )		
File		EE404 Electrical Measurement		
<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	197			Measurement of inductance and capacitance
7	270			Measurement of resistance
9	352			Magnetic measurement
11	437			High voltage measurement and tesating
12	480			Location of cable fault
20	730			Measurement of power
21	771			Measurement of energy
Exercise Q368 to Q371 of Assignment Number (24)				

## BAE 406 Electro-mechanics ( 2 pt )

### Part (1) Overview Knowledge of the subject

Folder		BAE 401 Advanced Engineering Mathematics		
File		Elementary linear algebra		
		<b>Instruction</b> 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
<b>Theory</b>				
chap01_emd.pdf			All	Electro-mechanic -1.0.1 Scope of application  1.1 Electro-magnetic theory  1.1.1a Magnetic field system, Table 1.1  1.1.1.b Electric field system Table 1.2
chap02_emd.pdf			All	Lumped electro-mechanical elements
chap03_sec_emd.pdf			All	Lumped parameter-electro-mechanic
chap04_sec_emd.pdf			All	Rotating machines
chap05_sec_emd.pdf			All	Lumped parameter-electro mechanical dynamics
<b>Problems</b>				
chap02_prb_emd.pdf			All	Example problems
chap03_prb_emd.pdf			All	Example problems
chap04_prb_emd.pdf			All	Example problems
chap05_prb_emd.pdf			All	Example problems
emdsoln_01.pdf			All	Solutions for all example problems
<b>Exercise</b>	Q378	to	Q400	of Assignment (25)

**Part (2) Competency Units**

EE 502 Electrical Machines ( 1 pt)

ME 301 Machine Principle ( 1 pt)

Folder		EE 502 Electrical Machines ( 1 pt)	
File		EE 502 Electrical Machines	
<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
	45		DC Generator, Example problems
	58		DC Motors, Example problems
	121		Efficiency & heating of electrical machines, Example problems
	131		Three phase transformer, Example problems
	142		Three phase induction motors, Example problems
	177		Synchronous generators, Example problems
	194		Synchronous motors, Example problems
	229		Basic of industrial motor control, Example problems
<b>Exercise</b> Q401 to Q430 of Assignment Number (26)			

## BAE 408 Analogue & Digital Electronics ( 5 pt )

Folder		BAE 408 Analogue & Digital Electronics	
File		Electrical & Electronic Engineering.zip / Introduction to Electronic Engineering	
<u><b>Instruction</b></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
	17	to	63
			Semi conductor devices
	128	to	135
			Digital circuits
<b>Exercise</b> Q459 to Q467 of Assignment (30)			

Folder		BAE 408 Analogue & Digital Electronics	
File		Electrical & Electronic Engineering.zip / Introduction to Power Electronics	
<u><b>Instruction</b></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
	14	to	101
			Power Electronics Converters
<b>Exercise</b> Q468 to Q476 of Assignment (30)			

**Part (2) Competency Units**

EE 403 Introduction to Electronic Engineering ( 1 pt)

EE 524 Power Electronics & Applied Electronics ( 1 pt)

EE 405 Digital System ( 1 pt)

EE 526 Digital Signal Processing ( 1 pt)

EE 527 Digital Image Processing 1/ 2 ( 1 pt)



Folder	EE403 Introduction to Electronic Engineering ( 1 pt )			
File	EE403 Introduction to Electronic Engineering			
<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	128	Electronics Circuits
<b>Exercise</b>	Q477	to	Q488	of Assignment Number (31)

<b>Folder</b>				EE524 Introduction to Power Electronics ( 1 pt )
<b>File</b>				EE524 Introduction to Power Electronics
<b><u>Instruction</u></b>				
Study the notes, calculate the example problems then do the exercises numbers as indicated				
<b>Chapter</b>	<b>Page</b>			<b>Topics</b>
				Note- PDF File page number and the page number of the scanned document may be different. The student need to check both as necessary
	76	to	117	Power Electronics Control
<b>Exercise</b> Q489 to Q493 of Assignment Number (32)				

## References

EE524 Applied Electronics

Book 1-Electronics Companion

Book 2-Electronics Design

Folder		EE405 Digital System ( 1 pt )		
File		EE405 Digital System Design		
<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
	9	to	15	Number system basics
	19	to	32	Introduction to logic gates
	33	to	43	Combinational logic
	47	to	51	Karnaugh map
	67	to	84	Arithmetic circuit
	98	to	111	Coders/ Multiplexers
	114	to	123	Counters
<b>Exercise</b> Q494 to Q511 of Assignment Number (33)				

Folder		EE526 Digital Signal Processing ( 1 pt )		
File		EE526 Digital Signal Processing		
<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	to	13	Signal system representation
	14	to	26	Fourier/ Z Transform
	27	to	34	Discrete Fourier Transform
	43	to	51	Principle of filter design
	52	to	58	FIR filter design
<b>Exercise</b> Q512 to Q517 of Assignment Number (34)				

<b>Folder</b>				EE527 Digital Image Processing ( 1 pt )
<b>File</b>				EE527 Digital Image Processing Part 1
				<p><b><u>Instruction</u></b></p> <p>Study the notes, calculate the example problems then do the exercises numbers as indicated</p>
<b>Chapter</b>	<b>Page</b>			<b>Topics</b>
				Note- PDF File page number and the page number of the scanned document may be different. The student need to check both as necessary
	9	to	19	Introduction
	21	to	36	Intensity transformation & spatial filtering
	38	to	40	Filtering in frequency domain
	43	to	44	Discrete Fourier Transform
	49			Butterworth Low Pass Filter
	51			Butterworth High Pass Filter
	58			Image restoration / Noise analysis
<b>Exercise</b>	Q518	to	Q524	of Assignment Number (35)

## BAE 502 Linear System ( 1 pt )

### Part (1) Overview Knowledge of the subject

<b>Folder</b>		BAE 502 Linear System+ BAE 503 Control System 1		
<b>File</b>		Coron-book.pdf		
<u><b>Instruction</b></u> Study the notes, calculate the example problems then do the exercises numbers as indicated				
<b>Chapter</b>	<b>Page</b>			<b>Topics</b>
				Note- PDF File page number and the page number of the scanned document may be different. The student need to check both as necessary
Part 1				Controllability of linear control system
1	1	to	12	Finite dimensional linear control system
2	24	to	26	Linear partial differential equations
<b>Exercise</b> Q615 to Q617 of Assignment Number (40)				

<b>Folder</b>		BAE 502 Linear System+ BAE 503 Control System 1			
<b>File</b>					
<u><b>Instruction</b></u> Study the notes, calculate the example problems then do the exercises numbers as indicated					
<b>File name</b>		<b>Chapter</b>	<b>Page</b>		<b>Topics</b>
					Note- PDF File page number and the page number of the scanned document may be different. The student need to check both as necessary
Ch 1		1		All	Introduction to intelligent control system with high degrees of autonomy
Control 02_Ch2.pdf		2		All	Overview of field
<b>Exercise</b>		Q618	to	621	of Assignment (40)

Folder		BAE 502 Linear System+ BAE 503 Control System 2
File		Control system.pdf
<p style="text-align: center;"><u><a href="#">Instruction</a></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
Introduction to control system		
	All	System identification
		Digital and analog
		System metrics
		System modelling
Classical control		
	All	Transform
		Transfer functions
		Sampled data system
		System delays
		Poles and zeros
	All	Modern control
		State space equation
		Linear system solution
Exercise Q622 to Q638 of Assignment Number (40)		

**Part (2) Competency Units**

EE 304 Computer Mathematics ( 1 pt)



## BAE 503 Control System ( 4 pt )

### Part (1) Overview Knowledge of the subject

Folder		BAE 502 Linear System+ BAE 503 Control System 2
File		Control system.pdf
<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
<b>System Representation</b>		
	All	Gain
		Block diagram
		Feedback control loop
		Bode plot
		Nichol chart
<b>Stability</b>		
	All	Stability
		Routh Hurwitz Criterion, Root Locus
		Nyquist Criterion
		State Space Stability
<b>Controllers &amp; Compensators</b>		
	All	Controllability & Observability
		System Specifications
		Controllers, Compensators
<b>APPENDIX</b>		Z - Transform
<b>Exercise</b>	Q648 to Q671	of Assignment Number (42)

**Part (2) Competency Units**

EE 601 Non Linear Control Applications ( 1 pt)

EE 601 Control Engineering , Feedback and Control System , PID\_Control ( 1 pt)

EE 624 Process Control ( 1 pt)

ME 534 Numerical Control Part 2 ( 1 pt)

## BAE 507 Electro-mechanical Energy Conversion ( 2 pt )

### Part (1) Overview Knowledge of the subject

Folder		BAE 507 Electro-mechanical Energy Conversion		
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
Chapter 1.pdf			All	Basic semiconductor physics
Chapter 2.pdf			All	PN Junction semiconductor
Chapter 3.pdf			All	Power switching devices
Chapter 4.pdf			All	Electrical rating of switching devices
Chapter 5.pdf			All	Cooling
Chapter 6.pdf			All	Load/ switch communication
Chapter 7.pdf			All	Driving semiconductor & thyristor
Chapter 8.pdf			All	Protecting diode / Thyristor/ Transistors
Chapter 9.pdf			All	Switching circuit energy recovery
Chapter 10.pdf			All	Series , parallel devices operation protection
Chapter 11.pdf			All	Naturally commutating converter
Chapter 12.pdf			All	AC Voltage Regulator
Chapter 13.pdf			All	DC choppers
Chapter 14.pdf			All	Power inverters
Chapter 15.pdf			All	Switched mode & resonant DC-DC power supplies
Chapter 16.pdf			All	Capacitors
Chapter 17.pdf			All	Soft magnetic materials

Chapter 18.pdf			All		Resistors
<b>Exercise</b>	Q881	to	Q903		of Assignment (55)

## References

All others

**Part (2) Competency Units**

EE 602 Motor Control Electronics ( 1 pt)

ME 434 Mechtronics & Robotics ( 1 pt)

Folder		EE 502 Motor Control Electronics ( 1 pt )		
File		EE 502 Motor Control Electronics		
<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	12			AC Induction motor control
10	89			Motor control MCU
11	113			Networking for motor control system
3	183			DC motor control design
4	207			Motor control electronic devices
13	217			Power semi conductors
<b>Exercise</b> Q904 to Q911 of Assignment Number (56 A)				

## 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 602 Computer Network ( 1 pt )

### Part (1) Overview Knowledge of the subject

<b>Folder</b>		BAE 602 Computer Network		
<b>File</b>				
		<u>Instruction</u> Study the notes, calculate the example problems then do the exercises numbers as indicated		
<b>File name</b>	<b>Chapter</b>	<b>Page</b>		<b>Topics</b>
				Note- PDF File page number and the page number of the scanned document may be different. The student need to check both as necessary
Presentation 1			All	Computer Network
Presentation 2			All	Peer to peer networking
Presentation 3			All	Client server networking
Presentation 4			All	Network hardware
Presentation 5			All	Network cable
Presentation 6			All	Hub
Presentation 7			All	Wired network
Presentation 8			All	Wireless network card
Presentation 9			All	Firewall
Presentation 10			All	Wiring the network
Presentation 11			All	Wiring the network
Presentation 12			All	Running the network program
Presentation 13			All	Viewing network connection
Presentation 14			All	Network set up on additional computers
Presentation 15			All	Viewing network connection
Presentation 16			All	Necessary hardware software
Presentation 17			All	Server operating system
<b>Exercise</b>	Q	to		of Assignment

Folder		Networking Lesson Powerpoints		
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
Ch1_V1			All	Introduction
Ch2_V1			All	Network model
Ch3_1_V1			All	Data and signals
Ch3_2_V1			All	Data and signals
Ch3_4_V1			All	Data rate limit
Ch3_5_V1			All	Performance
Ch4_1_V1			All	Digital transmission
Ch4_2_V1			All	Digital transmission
Ch5_1_V1			All	Analog transmission
Ch5_2_V1			All	Analog transmission
Ch6_1_V1			All	Bandwidth utilization/ Multiplexing/ Spreading
Ch6_2_V1			All	Bandwidth utilization/ Multiplexing/ Spreading
Ch7_1_V1			All	Transmission media
Ch10_1_V1			All	Error detection & correction
Ch10_2_V1			All	Error detection and correction
<b>Exercise</b>	Q933	to	936	of Assignment (68)

**Part (2) Competency Units**

ICT 202 Information Systems Principles and Networking ( 1 pt)

## ICT 202 Information Systems Principles and Networking ( 1 pt)

ICT 202 Network D016 Study Guide.pdf

- Follow the instruction in the guide
- Study ICT 202 IT Network D016 Network Theory Part 1 Zip folder

D016 Theory Notes

D016 Theory Notes ( 2.4.30 Network Infrastructure)

- Study ICT 202 IT Network D016 Theory Notes Part 2 .zip

D016 Theory Notes

2.4.31 Directory Service

<b>Folder</b>		<b>ICT 203 Information System Analysis &amp; Design ( 1 )</b>		
<b>File</b>				
<b><u>Instruction</u></b>				
Study the notes, calculate the example problems then do the exercises numbers as indicated				
<b>Lesson</b>	<b>Page</b>			<b>Topics</b>
				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	1			Defining needs
2	4			Area covered
3	6			Organization information requirement
6	14			System VS Procedure

7	15			Types of systems
8	18			What are the systems?
9	22			Infrastructure
10	25			Support system
11	28			Data mart
13	37			Organizational structure
17	50			Planning for system development
19	58			System design
29	81			Security of information system
36	100			Risk management
<b>Exercise</b> Q948 to Q962 of Assignment Number (69)				

It also completes ICT 203 competency unit of BAE 603 Software Engineering

## BAE 603 Software Engineering ( 2 pt )

### Part (1) Overview Knowledge of the subject

Folder		BAE 603 Software Engineering		
		ICT 106 Software Engineering ( 1 pt)		
		<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
Lecture 1			All	Introduction
Lecture 2			All	Software process
Lecture 3			All	Feasibility study
Lecture 4			All	Project management
Lecture 5			All	Documentation, Requirement analysis
Lecture 6			All	Requirement specification
Lecture 7			All	Business/ Legal aspect
Lecture 8			All	Source code management
Lecture 10			All	Formal specification
Lecture 11			All	Object oriented design 1
Lecture 12			All	Object oriented design 2
Lecture 13			All	Object oriented design 3
Lecture 14			All	System Architecture 1
Lecture 15			All	System Architecture 2
Lecture 16			All	System Architecture 3
Lecture 17			All	Design for utility
Lecture 19			All	Performance of computer system

Lecture 20			All		Coding standard/ Tools for designing 1
Lecture 21			All		Dependable system 1 Reliability
Lecture 22			All		Dependable system 2 Validation
Lecture 24			All		Law aspect
Lecture 26			All		Risks in software engineering
Lecture 27			All		Software engineering as engineering
<b>Exercise</b>	Q963	to	Q973		of Assignment (70)



**Part (2) Competency Units**

ICT 106 Software Engineering ( 1 pt)

ICT 203 Information Systems, Analysis and Design ( 1 pt)

EE 626 Nano Technology ( 1 pt)

Folder		EE 626 Nano Technology ( 1 pt )		
File		EE 626 Nano Technology		
<b><u>Instruction</u></b>				
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	16			What is Nano technology?
2	20			Motivation for Nano technology
3	28			Scaling laws
4	38			Nano technology
<b>Exercise</b> Q974 to Q983 of Assignment Number (71)				

**References**

Chapter (5) Raw materials for Nano Technology

Chapter (6) Nano Devices

<b>Folder</b>				EE 525 Data Communication ( 1 pt )
<b>File</b>				EE 525 Data Communication
<b><u>Instruction</u></b>				
Study the notes, calculate the example problems then do the exercises numbers as indicated				
<b>Chapter</b>	<b>Page</b>			<b>Topics</b>
				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	to	14	Overview of data communication
	15	to	28	Data terminals
	31	to	40	Message and transmission channels
	41	to	60	Asynchronous modems and interfaces
	61	to	75	Synchronous modem and digital transmission
	88	to	101	Protocol and error control
<b>Exercise</b>	Q1027	to	Q1034	of Assignment Number (72B)

## **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)

#### **Dip/ Adv Dip in Mechanical Engineering**

#### **Mgt 503 Production & Operation Management**

#### **Production & Operation Management**

#### **Mgt 505 Quality Management and Manufacturing Engineering**

#### **Quality Management and Manufacturing Engineering**

#### **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

<b>Folder</b>				BAE 606 Building Service Electrical & Mechanical Engineering
<b>File</b>				Building Construction 1
<u><b>Instruction</b></u>				
Study the notes, calculate the example problems then do the exercises numbers as indicated				
<b>Chapter</b>	<b>Page</b>			<b>Topics</b>
				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

<b>Folder</b>				<b>BAE 606 Building Service Electrical &amp; Mechanical Engineering</b>			
<b>File</b>				<b>Air-conditioning &amp; Refrigeration</b>			
<b><u>Instruction</u></b>							
Study the notes, calculate the example problems then do the exercises numbers as indicated							
<b>Chapter</b>	<b>Page</b>			<b>Topics</b>			
				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			

<b>Folder</b>				<b>BAE 606 Building Service Electrical &amp; Mechanical Engineering</b>			
<b>File</b>				<b>Sanitation &amp; Water Supply</b>			
<b><u>Instruction</u></b>							
Study the notes, calculate the example problems then do the exercises numbers as indicated							
<b>Chapter</b>	<b>Page</b>			<b>Topics</b>			
				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			
<b>Exercise</b>	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)

## **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.
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