ENMCC201A Advanced Mechanical & Civil Engineering Principle

PART (1)
CLASS LESSON NOTES FOR BASIC CONCEPTS AT FOUNDATION/ADVANCED DIPLOMA LEVEL

BAE 403

BAE403 Week 1 Lesson

BAE403 Week 2 Lesson

BAE403 Week 3 Lesson

WEEK (4) REVIEW + TEST & ASSESSMENT FOR BAE403

BAE 404

BAE404 Week 1 Lesson

BAE404 Week 2 Lesson

BAE404 Week 3 Lesson

WEEK (4) REVIEW + TEST & ASSESSMENT FOR BAE404

BAE 403 Engineering Mechanics (1 pt)

Subjects	Points	Competency Units
BAE 403 Engineering Mechanics	1	ME 301 Applied Mathematics (1 pt)

Part 1 Over all Knowledge of the subject

Engineering Mechanics

 Engineering Mechanics (Mechanical Engineering)

Part 2 Competency units of the subject

Engg Mechanics
Applied Mathematics
Applied Mathematics Exercises

Engineering Materials & Thermodynamics

Subjects	Points	Competency Units
Engineering Materials & Thermodynamics		Engineering Thermodynamics Wind Turbines Pneumatics

Part 1 Over all Knowledge of the subject

Engineering Materials & Thermodynamics

Part 2 Competency units of the subject

Thermodynamics+ Strength of Materials

Engineering Thermodynamics (1 pt)

Mechanical Engineering 1
Wind Turbines
Pneumatics

Engineering Mechanics

Folder		Engineering Mechanics
File		
		Instruction 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

File Name				Topics
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

Part (2) Competency Units

Applied Mathematics

Chapter	Page			Topics
Folder				Applied Mathematics
File				Applied Mathematics
				Instruction 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)

Engineering Materials & Thermodynamics

Part (1) Overview Knowledge of the subject

Heat Transfer

Folder		Engineering Mechanics –Mechanical Engineering
File		Heat Transfer. pdf
		Instruction 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)

Theory-of-waves-in-materials

Folder			Engineering Mechanics –Mechanical Engineering
File			Theory of waves in materials.pdf
			Instruction 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)

Engineering Thermodynamics

Folder				Engineering Thermodynamics
File				Engineering Thermodynamics
				Instruction 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)

Wind Turbines

Folder				Wind Turbines
File				Wind Turbines
				Instruction 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)

Pneumatics

Folder				Pnuematics
File				Pnuematics
				Instruction 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)

ME201 Part 1

ME201 Part 2

ME201 Part 3

ME202 Part 1

ME202 Part 2

ME202 Part 3

PART (2)
REFERENCE TEXT BOOKS & WEEKLY –LESSONS AT ASSOCIATE DEGREE LEVEL (SELF STUDY)

TEXT BOOK- Textbooks can be copied from USBs & DVD.

Prescribed texts:

Bansal, R.K, 2005, *Engineering Mechanics and Strength of Materials*, Laxmi Publications, ISBN 8170080940, 9788170080947