

ENMCC 101A Foundation Mechanical and Civil Engineering Principle

PART (1)

CLASS LESSON NOTES FOR BASIC CONCEPTS AT FOUNDATION/ADVANCED DIPLOMA LEVEL

In this subject you will learn the basics about mechanical and civil engineering principles
You will develop knowledge and applied skills relating to:

- Reactions at beam supports
- Force couples
- Shear and bending in beams
- Analysis of trusses
- Axial tension and compression
- Direct shear
- Bolted connections
- Welded connections
- Concrete structures
- Torsion
- Thermal stresses
- Basic properties of fluids
- Fluid system components (friction and losses)
- Fluid statics (storage of energy)
- Fluid flow (hydro systems)
- Fluid power (wind and wave)
- Forces developed by flowing fluids (turbines).

ME 201 Introduction to Fluid Mechanics

http://www.filefactory.com/file/3ta6z6fteyh3/n/ME_201Introduction_to_Fluid_Mechanics_pdf

ME 204 Engineering Fluid Mechanics

http://www.filefactory.com/file/pi5q2ahlgzv/n/ME_204_Engineering_Fluid_Mechanics_pdf

ME201 Part 1

http://www.filefactory.com/file/23rjyg1cx50j/n/ME201_Part_1_zip

ME201 Part 2

http://www.filefactory.com/file/3fepjr47o1wz/n/ME201_Part_2_zip

ME201 Part 3

http://www.filefactory.com/file/5sct05zqfui3/n/ME201_Part_3_zip

ME204

http://www.filefactory.com/file/343m93h33fl3/n/ME204_zip

ME 102 Engineering Thermodynamics

http://www.filefactory.com/file/7b29zw3wf5sh/n/ME_101_applied-mathematics-by-example-theory_pdf

ME102 Part 1

http://www.filefactory.com/file/7avs422jp8vt/n/ME102_Part_1_zip

ME102 Part 2

http://www.filefactory.com/file/34zh8lrmfj5f/n/ME102_Part_2_zip

[CE112-Engineering Mechanics Instruction](#)

[CE112-Engineering Mechanics Notes](#)

[CE 113 Structure Part 1 Instruction](#)

[CE 113 Structure Part 1 Notes 1](#)

[CE 113 Structure Part 1 Notes 2](#)

[Structure Part 2 Instruction](#)

[CE114 Structure 2 Notes](#)

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

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

Recommended readings:

Ivanoff, Val 1996, *Engineering Mechanics and Strength of Materials*, McGraw Hill, ISBN: 0 07 4702394

Kinsky, Roger 1996, *Thermodynamics and Fluid Mechanics An Introduction* McGraw-Hill, ISBN: 0 07 470238 6

Tsutomu, K 2007, *Elementary Fluid Mechanics*, Hackensack, N.J ISBN: 9789812565976

WEEK NO:	TOPICS AND ACTIVITIES
Orientation Week	<p>Orientation activities Review of syllabus and assessment activities.</p>
Week 1	<p>Tutorial topic:</p> <ul style="list-style-type: none"> • Reactions at beam supports • Force couples <p>Reading List:</p> <p>Ivanoff, Val 1996, <i>Engineering Mechanics and Strength of Materials</i>, McGraw Hill, ISBN: 0 07 4702394, Chapter; 6,7</p> <p>Meriam, J and Kraige, L. 2012, <i>Engineering mechanics: Statics</i>, 7th edition ISBN: 978 0 470 61473 0, (use index to search for tutorial topics)</p>
Week 2	<p>Tutorial topic:</p> <ul style="list-style-type: none"> • Shear and bending in beams (Part 1) <p>Reading List:</p> <p>Ivanoff, Val 1996, <i>Engineering Mechanics and Strength of Materials</i>, McGraw Hill, ISBN: 0 07 4702394, Chapter; 28</p> <p>Meriam, J and Kraige, L. 2012, <i>Engineering mechanics: Statics</i>, 7th edition ISBN: 978 0 470 61473 0, (use index to search for tutorial topics)</p>
Week 3	<p>Tutorial topic:</p> <ul style="list-style-type: none"> • Shear and bending in beams (Part 2) <p>Reading List:</p> <p>Ivanoff, Val 1996, <i>Engineering Mechanics and Strength of Materials</i>, McGraw Hill, ISBN: 0 07 4702394, Chapter; 28</p> <p>Meriam, J and Kraige, L. 2012, <i>Engineering mechanics: Statics</i>, 7th edition ISBN: 978 0 470 61473 0, (use index to search for tutorial topics)</p>
Week 4	<p>Tutorial topic:</p> <ul style="list-style-type: none"> • Analysis of trusses (Part 1) <p>Reading List:</p> <p>Ivanoff, Val 1996, <i>Engineering Mechanics and Strength of Materials</i>, McGraw Hill, ISBN: 0 07 4702394, Chapter; 9</p> <p>Meriam, J and Kraige, L. 2012, <i>Engineering mechanics: Statics</i>, 7th edition ISBN: 978 0 470 61473 0, (use index to search for tutorial topics)</p>

WEEK NO:	TOPICS AND ACTIVITIES
Week 5	Tutorial topic: <ul style="list-style-type: none"> • Analysis of trusses (Part 2) Reading List: Ivanoff, Val 1996, <i>Engineering Mechanics and Strength of Materials</i> , McGraw Hill, ISBN: 0 07 4702394, Chapter; 9 Meriam, J and Kraige, L. 2012, <i>Engineering mechanics: Statics</i> , 7 th edition ISBN: 978 0 470 61473 0, (use index to search for tutorial topics)
Week 6	Tutorial topic: <ul style="list-style-type: none"> • Axial tension and compression • Direct Shear • Thermal Stresses Reading List: Ivanoff, Val 1996, <i>Engineering Mechanics and Strength of Materials</i> , McGraw Hill, ISBN: 0 07 4702394, Chapter; 25, 27, 26 Meriam, J and Kraige, L. 2012, <i>Engineering mechanics: Statics</i> , 7 th edition ISBN: 978 0 470 61473 0, (use index to search for tutorial topics)
Week 7	Examination Week A: Written examination 40%
Week 8	Tutorial topic: <ul style="list-style-type: none"> • Bolted connections • Welded connections • Concrete Structures • Torsion Reading List: Ivanoff, Val 1996, <i>Engineering Mechanics and Strength of Materials</i> , McGraw Hill, ISBN: 0 07 4702394, Chapter; 31, 27, Meriam, J and Kraige, L. 2012, <i>Engineering mechanics: Statics</i> , 7 th edition ISBN: 978 0 470 61473 0, (use index to search for tutorial topics) Online and library research: Design of concrete structures.
Week 9	Tutorial topic: <ul style="list-style-type: none"> • Practical Experiments 1 Reading List: Refer to the unit guide for instructions
Week 10	Tutorial topic

WEEK NO:	TOPICS AND ACTIVITIES
	<ul style="list-style-type: none"> • Basic properties of fluids • Fluid system components (friction and losses) <p>Reading List:</p> <p>Kinsky, Roger 1996, <i>Thermodynamics and Fluid Mechanics An Introduction</i> McGraw-Hill, ISBN: 0 07 470238 6 , Chapter 8, 9</p> <p>Tsutomu, K. 2007, <i>Elementary Fluid Mechanics</i>, Hackensack, N.J ISBN: 9789812565976 (use index to search for tutorial topics)</p>
Week 11	<p>Tutorial topic</p> <ul style="list-style-type: none"> • Fluid statics (storage of energy) • Fluid flow (hydro systems) <p>Reading List:</p> <p>Kinsky, Roger 1996, <i>Thermodynamics and Fluid Mechanics An Introduction</i> McGraw-Hill, ISBN: 0 07 470238 6 , Chapter 10, 11</p> <p>Tsutomu, K. 2007, <i>Elementary Fluid Mechanics</i>, Hackensack, N.J ISBN: 9789812565976 (use index to search for tutorial topics)</p>
Week 12	<p>Tutorial topic</p> <ul style="list-style-type: none"> • Fluid Power (wind and wave) • Forces developed by flowing fluids (turbines) <p>Reading List:</p> <p>Kinsky, Roger 1996, <i>Thermodynamics and Fluid Mechanics An Introduction</i> McGraw-Hill, ISBN: 0 07 470238 6 , Chapter 12, 13</p> <p>Tsutomu, K. 2007, <i>Elementary Fluid Mechanics</i>, Hackensack, N.J ISBN: 9789812565976 (use index to search for tutorial topics)</p>
Week 13	<p>Topic description:</p> <p>Spare week - Catch up / Study / Review / Practical work</p> <p>Reading List:</p> <p>Meriam, J and Kraige, L. 2012, <i>Engineering mechanics: Statics</i>, 7th edition ISBN: 978 0 470 61473 0</p> <p>Ivanoff, Val 1996, <i>Engineering Mechanics and Strength of Materials</i>, McGraw Hill, ISBN: 0 07 4702394</p> <p>Kinsky, Roger 1996, <i>Thermodynamics and Fluid Mechanics An Introduction</i> McGraw-Hill, ISBN: 0 07 470238 6</p>

WEEK NO:	TOPICS AND ACTIVITIES
	Tsutomu, K. 2007, Elementary Fluid Mechanics, Hackensack, N.J ISBN: 9789812565976
Week 14	Study Week
Week 15	Examination Week B: written examination - 40%