



UNIVERSITI TEKNOLOGI MARA

BCT472: INTRODUCTION TO STRUCTURE

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| Course Name (English) | INTRODUCTION TO STRUCTURE APPROVED |
| Course Code | BCT472 |
| MQF Credit | 2 |
| Course Description | This course deals with the principal of structural analysis and this is continuous topics which are studies during diploma. The course also covers the elastic methods of structural analysis and most commonly used when undertaking structural design |
| Transferable Skills | Ability to transfer the skill of understanding of structure principle in building construction or structure |
| Teaching Methodologies | Lectures, Tutorial |
| CLO | CLO1 Describe the structural theory of beams and frames for building structure. CLO2 Analyse forces and deflections for beams and frames in building structure. CLO3 Measure the design of beams and frames by using structural calculation for building structure. |
| Pre-Requisite Courses | No course recommendations |
| Topics | |
| 1. 1.0 Pin Jointed Frames 1.1) • Method of Sections for Pin-Jointed Frames 1.2) • Method of Joint for Pin-Jointed Frames | |
| 2. 2.0 Unit load Method to Determine the Deflection of Pin-Jointed Frames 2.1) • Deflection of a Pin-Jointed Truss | |
| 3. 3.0 Shear forces and bending moment 3.1) • Support reaction 3.2) • Shear force diagram 3.3) • Bending moment diagram 3.4) • Point of contra flexure and maximum bending moment | |
| 4. 4.0 McCaulay's Method for the Deflection of Beams 4.1) • Factors affecting deflection, Span/depth ratio 4.2) • Beam with Point Load and Beam with Combined Points Load and UDLs | |
| 5. 5.0 Shear Stress and Bending Stress Distribution 5.1) • Direct stress (tension, compression and shear) 5.2) • Shear Stress Distribution in a Rectangular Beam 5.3) • Bending Stress Distribution in a Rectangular Beam | |
| 6. 6.0 Moment Distribution 6.1) • Bending (rotational) Stiffness, carry-over moment, Pinned End, Free and Fixed Bending moment, Propped cantilever, Distribution factors, three span continuous beams. | |

| Assessment Breakdown | % |
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| Continuous Assessment | 40.00% |
| Final Assessment | 60.00% |

| Details of Continuous Assessment | Assessment Type | Assessment Description | % of Total Mark | CLO |
|----------------------------------|-----------------|------------------------|-----------------|------|
| | Assignment | n/a | 10% | CLO2 |
| | Assignment | n/a | 10% | CLO3 |
| | Final Test | n/a | 20% | CLO1 |

| Reading List | Recommended Text | <ul style="list-style-type: none"> Durka, F., Al Nageim, H., Morgan, W., & Williams, D 2010, <i>Structural Mechanics: Loads, Analysis, Materials and Design of Structural Elements</i>, Longman Landon |
|--------------|--------------------------|--|
| | Reference Book Resources | <ul style="list-style-type: none"> Arya, C. 2009, <i>Design of Structural Element, Concrete, Steelwork, Masonry, and Timber Design To British Standard and Eurocodes</i> (3rd Edition) Ed., Taylor and Francis. Draycot, T., et al. 2009, <i>Structural Elements Design Manual</i>, Jordon Hill, Oxford Landon Morrow, H., W., & Kokernak, P., P. 2007, <i>Statics and Strength of Materials</i>, 6tg edition Ed., Pearson Education International Hibbeler, R., C. 2005, <i>Structural Analysis</i>, Prentice Hall. |

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| Article/Paper List | This Course does not have any article/paper resources |
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| Other References | This Course does not have any other resources |
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