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**FINAL YEAR PROJECT REPORT
BECHELOR OF MECHANICAL ENGINEERING
(HONS.)**

TITLE:

BUCKLING CHARACTERISTIC OF C-COLUMN

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Content	Page
Acknowledgement	i
Content	ii-iii
1.0 Background	1
1.1 Objective	4
1.2 Methodology	5
1.3 Report content	7
2.0 Buckling of column	9
2.1 Introduction	9
2.2 Euler's column theory	11
2.3 Assumption of Euler column theory	12
2.4 Critical load of Euler column theory	12
2.5 Condition of column: both ends hinge	18
2.6 Limitation of Euler formula	21
2.7 Critical stress: Classification of column	23
2.7.1 Long column	23
2.7.2 Short column	24
2.7.3 Intermediate column	25
2.8 Inelastic buckling	27
2.9 Local instability	28
2.10 Crippling stress	30
2.11 Euler Johnson formula	32
3.0 Design specimen	35
3.1 Introduction	35
3.2 Plate material determination	35
3.3 Determine the dimension of C column	36
3.4 Design for support	36
3.5 Fabrication process	37
3.5.1 Fabrication for tensile test	38
3.5.2 Fabrication the column specimen for buckling analysis	39
3.5.3 Fabricating the support	41
3.6 Strain gage installation and soldering technique	45
4.0 Theoretical calculations	55
4.1 Introduction	55
4.2 The second moment area	55
4.3 Calculation for slenderness ratio	58
4.4 Boundary of Euler curve determination	60
4.5 Buckling load determination	62
5.0 Set-up the experiment	65
5.1 Set-up the experiment for tensile test	65

5.2 Set-up the buckling experiment for buckling test without strain gage	66
5.3 Set-up the buckling experiment for buckling test with strain gage	68
6.0 Result	70
6.1 Result for tensile test	70
6.2 Result specimen without strain gage	75
6.3 Result specimen with strain gage	81
7.0 Analysis	84
7.1 Buckling analysis without strain gage	84
7.2 Buckling with strain gage	88
8.0 Conclusion	89
9.0 References	91
Appendix	

1.0 BACKGROUND

The instability of a structure essentially means the instability of its unequilibrium configuration or state. In practical sense, a system is said to be unstable if accidental forces, shocks vibration, eccentricities, imperfection, inhomoginities or other probable irregularities do cause the system to depart excessively or disastrously from the state.

In designing structures, care should be taken that the stresses developed do not exceed certain limits, which may otherwise lead to failure; two kinds of failure can be associated with structure.

1. Failure with respect to material behavior
2. Form failure

In the first case, stresses exceed the given safe limits resulting in the formation of cracks that cause failure. In the second case, the stresses need not cross the safe values but the structure does not fail physically but it may deform to some other shape (due to external disturbances), which are not tolerable. For most thin-walled structural members loss of stability is in the elastic range, which slightly thick bodies inelastic stability investigations may be needed. Also, load on the structure could be tensile and/or compressive. The loss of stability due to tensile loads falls in the broad category of material instability, whereas the stability under compressive load is usually termed structural (or geometrical or form) instability, commonly known as 'Buckling'. When a slender member is subjected to an axial compressive load, it may not so fail by a buckling condition. Buckling is not so much a failure of material (as is yielding and fracture) but an instability caused by system geometry.