BFC 20903 Mechanics of Materials

That Spaghetti Incident

Guidelines

1.0 GENERAL INSTRUCTION

1.1 Each group consists of **5 members and group leader is appointed**.

1.2 Design and fabricate specific structural components (such as beam, column, etc.) by using raw dry spaghetti comprising of **more than 2 pieces (a bundle is preferable)**. Each group is free to choose the spaghetti that is going to be used [any size, brand, price, etc.]

1.3 The dimension of the structural component is shown in the table provided below. Each reports should include;

1.3.1 Group and members detail profiles.

1.3.2 Introduction of Mechanic of Materials.

1.3.3 Methodology and TEST PROPOSAL.

1.3.4 The details of the chosen material, fabrication method, structural component drawing (computerized) and construction cost.

1.3.5 Strength analysis calculations and material properties (compressive and tensile strength, ultimate strength, density, fabrication time, etc.)

1.3.6 Method of assembly (gluing, heating, etc, but please bear in mind that the laminate interlayer is the most crucial part because it is easy to break!)

1.3.7 Result and Conclusion

1.3.8 Recommendations (with engineering justifications).

Component	Height (mm)	Width (mm)
Beam	Not less than 50mm	Not less than 20mm
Column	Not less than 15mm	Not less than 15mm
Strut	Not less than 5mm	Not less than 15mm

1.4 Referring to **CLAUSE 1.3.3**, each group are required to perform at least three (3) different tests that are included in the syllabus of BFC20903 Mechanic of Materials (**EXCEPT TENSILE AND COMPRESSIVE TEST – THESE TESTS ARE COMPULSORY FOR EACH GROUP!!!**). This means that each group is free to choose what kind of test (three point bending, torsion, buckling, etc.) that shall be executed.

2.0 PROJECT REPORT

2.1 Each group is required to **present and submit a full report and video on the week 12th.**

2.2 Each group should discuss the TEST PROPOSAL to respective lecturers upon the **week 5th** and should conclude all test details before **week 7th**.

2.3 The fabricated model will be tested at **Materials Laboratory or Light Structures Laboratory , FKAAS** to obtain all experimental modulus values.

2.4 All groups should obtain the modulus and strength data from other group and discussion is made by comparing all the results data sets (**included** in the Result and Conclusion chapter). The production, fabrication and testing of the composite plate should be recorded using video camera and store it in a CD.

2.5 **Marks will be deducted for late submission.**

3.0 PRESENTATION

3.1 Each group will present their project through class presentation. Please prepare the **PowerPoint slides and video during the presentation.**