Mechanical principles assignment

The factor of safety for the pins when subjected to shear stress. Grading criteria for PAL assignment 4 Grade Criteria Tip to pass grade Pl Calculate the magnitude, direction and position of the line of action of the resultant and equilibrate of a non-concurrent coplanar force system containing a minimum of four forces acting in different directions. The criterion Pl requires the solution of a single non-concurrent force system containing a minimum of four active forces. It will be expected that two of these forces will be set to act in directions other than the horizontal and vertical.

This will necessitate the resolution of forces in perpendicular directions, egg the use of Fax = F cosec and FYI = F sine, as the first step in the solution to the problem. You would be expected to produce space and free body diagrams, resolve forces horizontally and vertically and take moments of the forces about some suitable reference point. The magnitude and direction of the resultant force and the position of its line of action could then be found through vector addition, application of Pythagoras' theorem and consideration of the resultant turning moment.

PA calculate the support reactions of a simply supported beam carrying at least two concentrated loads and a uniformly distributed load. PA will use similar skills to those required for Pl but in this case you will be applied to a simply supported beam carrying two point loads, as a minimum, and a uniformly distributed load PA Calculate the induced direct stress, strain and dimensional change in a impotent subjected to direct unsocial loading and the shear stress and strain in a component subjected to shear loading.