

LURE DAVIES, 05/02/2021, TIME: 2PM
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ADVANCED STEPS + FEA M6X00420

Q2

a) The pre processing stage of designing in FEA model is fundamental to the accuracy and success of the finished design. There are many process steps to consider to achieve the desired outcome. Prior to consideration is required to what the outcome is to achieve with the analysis and also what type of analysis will be undertaken. For example is the purpose of the FEA to identify the stresses under load of certain features or optimisation of the overall model.

Selection of the element type within your model will impact the number of nodes and dof's within your model. Although, historically computing power would impact the choice of element used, therefore the use of 1D elements would be time saving, however as we as accurate. However, this isn't the situation with modern computer capabilities today. However, this method can still be employed when evaluating the design. Such as using 2D elements for critical features only to reduce unnecessary ~~analysis~~ additional running time. Additionally, review of the critical features and reduced areas of high stress for example, therefore reducing the number of ~~elements~~ consideration to the number of elements required per feature, i.e. critical or not.

The size of the element must also be considered. With smaller elements generating greater accuracy. However, the complete use of small elements would be unnecessary if the objective was to analyse certain features. However, checks for ~~excessive~~ large difference in stress with neighbouring elements must be considered. (post 8)