

ABSTRACT

THE MAKING OF SHEAR FORCE AND BENDING MOMENT DIAGRAM ON THE BEAM USING COMPUTATION PROGRAM

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As the development of the technology that is increasing rapidly, the engineers using software to design the machines structure. The structure of machine consists a lot of beams. When the beam is loaded, then there will be shear force and bending moment on the beam. Shear force and bending moment will cause a deflection or broken on the beam. The shear force and bending moment diagram can be used to easily see the shear force and bending moment value on the beam. The purpose of this research is to make a beam analysis program to obtain the data of shear force and bending moment in the form of shear force and bending moment diagram.

The method used in this research is equilibrium method and using MATLAB software to make the program. The result obtained from the program is compared with the manual calculation and INVENTOR software. The data that used for calculation obtained from the case that the overhanging beam is loaded with the different load kinds and values.

The results showed that the values that calculated using the program that made by INVENTOR software and manual calculation is almost the same, because both of these methods are analytical methods. The calculations using computation program is faster and more efficient than the manual calculation.

Keywords : Statics, Shear force diagram, Bending moment diagram