

Dynamic Varying Moving Load Script

This script creates and applies a varying dynamic point load. The default load variation is a sine wave, but this can be changed by editing the following section in the script and defining any user defined rule for the “loadFactor”.

```
166 ' =====  
167 ' Calculate loading factor using sine wave loading function  
168 ' Change this relation if any other variation is required.  
169 loadFactor = Sin (loadFrequency * 2 * Pi * ResponseTime)  
170     If Abs(loadFactor) < 1e-6 Then loadFactor = 1e-6  
171 ' =====
```

When the applied load is very small or nearly zero (if the absolute value of the load is smaller than 1.0E-06) the supplied script applies a small magnitude of load (1.0E-06) to force a solution at all steps.

As all the existing load cases will be deleted when running this script, the working model is saved with a new name ***_Dynamic.mdl** and moving varying load is assigned to this new model. The original model is left unchanged.

Instructions

1. If required, run a preliminary Eigenvalue frequency analysis to determine natural frequencies and then the time step to be used.
2. Ensure that a search area is assigned to the area of the model to be loaded. If more than one search area is assigned, you will be offered the choice of which to use.
3. Ensure appropriate material properties are assigned to the model, including damping parameters if damping is required.
4. Draw an unmeshed line to represent the path of the load. Select the line.
5. Click 'File – Script – Run Script' and locate the file *DynamicMovingLoad.vbs*
6. If you have more than one search area attribute, at this point you will be prompted to select one. If none are assigned a warning will be issued. If no search area is required, clicking OK will continue the script.
7. Enter the required dynamic parameters – load amplitude (i.e. maximum intensity), load speed, load frequency and time step. Click OK.
8. Loading will be assigned, and a spreadsheet summarising the applied loading at each time step will be created and opened.
9. The model will require solving after running of the script.

Notes

1. THIS SCRIPT IS NOT PART OF LUSAS SOFTWARE AND AS SUCH IS NOT QUALITY APPROVED OR SUPPORTED. IT IS PROVIDED ON AN AS IS BASIS FOR DEMONSTRATION PURPOSES ONLY.
2. All existing loads and loadcases will be deleted. A copy of the model file will automatically be created to prevent loss of information.