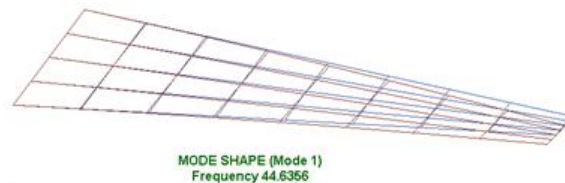
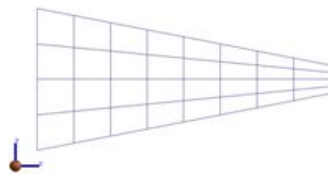
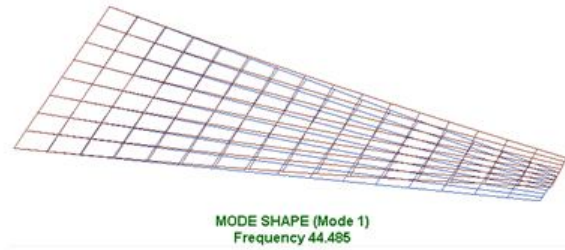
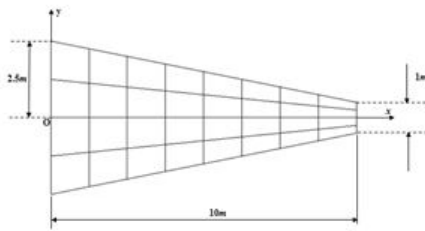


Free vibration analysis of cantilevered tapered membrane



Boundary condition: $U_z = 0$ at all nodes, $U_x = U_y = 0$ along y -axis

Material property : $E = 200 \text{ GPa}$, $\nu = 0.3$, Specific gravity = 8

Element type : Iso-parametric membrane element, thickness = 0.01 m

4 Node: 16×8

Mesh type :
8 Node: 8×4

Finite element statistics :

Number of elements	Number of nodes	Degrees of freedom
32	121	587

Mode	4 Node			8 Node		
	NAFEMS	FEAST ^{SMT}	NASTRAN [®]	NAFEMS	FEAST ^{SMT}	NASTRAN [®]
1	44.91	44.49	44.52	44.64	44.63	44.54
2	132.12	129.39	129.55	130.14	130.14	129.71
3	162.83	162.45	162.56	162.72	162.72	162.65
4	252.99	243.92	244.13	246.63	246.63	245.14
5	393.31	374.37	374.46	382.02	382.02	377.87
6	396.26	389.27	389.60	391.55	391.55	390.92