**COE-C3005 Finite Element and Finite difference methods**

**BAR-STRING MODELS**

  and   

 or   ,

 and   

**PARTICLE SURROGATE METHOD**

**** 

 or  and  or  

 and  

**FINITE DIFFERENCE METHOD**

**** or  **** 

 or  and  or  

 and  

**FINITE ELEMENT METHOD**

 

 or ,

 or ,

 and .

**MEMBRANE MODEL**

  

 or   

 and   

**FINITE DIFFERENCE METHOD**

  

  

 and   

**FINITE ELEMENT METHOD**



  

 and   

**SOLUTION METHODS**

**FOURIER SINE SERIES**



   

**MODAL ANALYSIS AND MODE SUPERPOSITION**

, 



,  and .

**MODAL ANALYSIS AND MODE SUPERPOSITION**





, , 

**CRANK-NICOLSON**

,  where 

****,  ****

**DISCONTINUOUS-GALERKIN**

,  where 

, ****