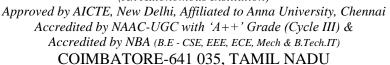


## SNS COLLEGE OF TECHNOLOGY

(An Autonomous Institution)





## DEPARTMENT OF AEROSPACE ENGINEERING

Faculty Name : Dr.M.Subramanian, Prof & Head/ Aerospace

Academic Year

2024-2025 (Odd)

Year & Branch

III Aerospace

Semester

 ${f V}$ 

Course

19ASB302 – Finite Element Method for Aerospace

Unit:

Weighted Residual Methods:

General Trial function:

 $u = a_0 + a_1 x + a_2 x^2 + a_3 x^3 + \dots$ 

Substitute the trial function in differential equation to get the residue function.

Paint Collo Cation Mathod

 $R(\infty) = 0$   $R(\infty) \rightarrow Residue function.$ 

Here the point of oc is between those limits, If the limit is 0 to 1

For two unknowns any two point between the sesse limits. For example

De Valuo is 1/4 oc value is 3/4

For three unknows any two point between those limits. For examp

2 value is 1/4 x value is 1/2 2 value is 3/4

Sub domain method:

J R(x). dx = 0

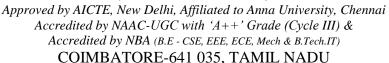
there the limit should be taken into two intorvals. If the limit is 0 to 1 The limit varies between 0-0.5 Secondars

The limits larger between 0.5-1 ° secondar 1/2



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19ASB302 - Finite Element Method for Aerospace

Unit:

Least Square method:  $\int_{R} (ac) \cdot \frac{\partial R}{\partial a_{i}} dac = 0 \quad \dot{c} = 0, 1, 2, 3...$ 

Differentiate the P(x) with respect

to a1, a2

Galerkin method:

JR(a). o ca). doc=0

\$ (ac) -> bleighting function

Function associated with unknown

trial function)

\$(ac) = \$0 + a2\$, + a3\$2