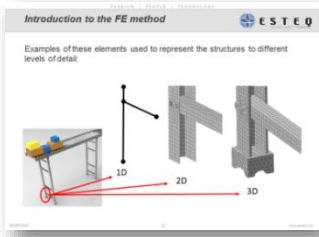


Finite Element Analysis Fundamentals Course

Linear static, Buckling and Modal analysis – a software product independent course

FEA101

ECSCA CPD approved course (5 credits) - SAIMechE-1026-12/19



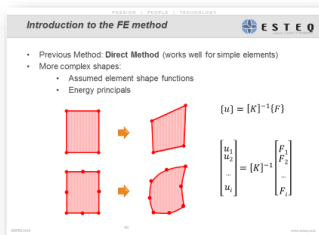
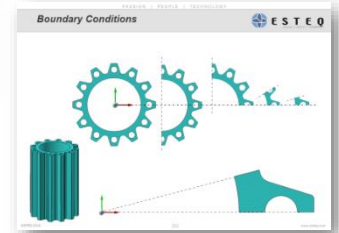
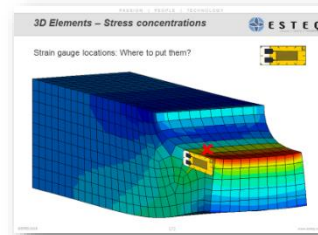
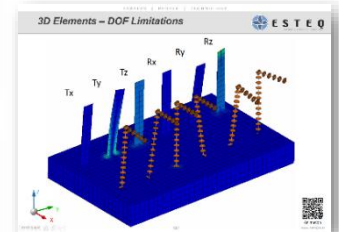
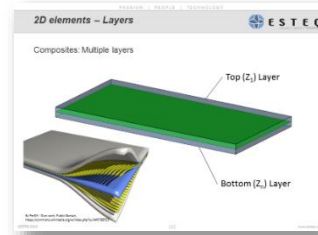
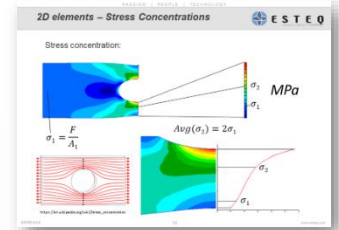
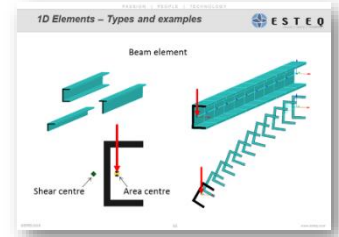
Finite Element Analysis (FEA) is the most popular technology today when it comes to analysing structures and components for strength and fatigue (amongst other things).

FEA101 is a practical introductory course into FEA that will accelerate your learning curve about using this technology in practise, with any software package.

All the fundamental aspects of FEA are covered with a large focus on the limitations and pitfalls of the method to emphasize the risks involved when using FEA *incorrectly*.

Topics covered:

- Introduction to the FE method
- Limitations of the Linear Static method
- 1D Elements
- 2D Elements
- 3D Elements
- Stress concentrations
- The use of strain gauges with FEA
- Connectors
- Contact
- Modal analysis
- Buckling analysis
- Coordinate systems
- Boundary Conditions
- Material models and properties
- Fields
- Result interpretation
- CAD Clean-up



The course was developed to be product independent and the practicals can be executed using any FEA software. Step-by-step tutorials are also available for new users to specific products. For licensed software not available at ESTEQ, delegates should bring their own computers with the licensed software installed. FEA software solutions available at ESTEQ are CivilFEM, FEMap, Marc & Mentat, MSC Apex, NX CAE, Patran & Nastran, SimCenter 3D, SimXpert & Solid Edge Simulation.

About the presenters:

Depending on the location and schedule, the course may be presented by any of these presenters below. The presenters are all graduate engineers from various internationally accredited universities in South Africa and are all employed at ESTEQ where they train and support clients from various industries using different technologies, ranging from Nuclear, Defence, Transportation to Manufacturing, Mining and even Consumer products.



Paul Naudé
B Eng (Civil) – UP, '96
M Eng (Mech) – UP, '04



Gerrit Visser
B Eng (Mech) – '96



Benja Van Der Walt
B Eng (Mech) – UP, '01



Andrew Berndt
B Eng (Mech) – UP, '07
B Eng Hons (Mech) – UP, '09



Lionel Dedekind
B Eng (Mech) – UP, '07
B Eng Hons (Mech) – UP, '09



Juan Coetzer
B Eng (Mech) – SUN, '13



Ruan Van Der Merwe
B Eng (Mech) – UP, '14



Danie Odendaal
B Eng (Mech) – UP, '15

About ESTEQ:

ESTEQ is the leading supplier of Engineering Simulation solutions in South Africa. Our primary focus is to empower our clients to become leaders in their respective industries through providing technology which can solve the most demanding engineering & scientific problems, in the shortest possible times.

www.esteq.co.za