BETA School of Simulation

Training	BETA School of Simulation
Duration	15 days (120 hours)
Level	Basic & Intermediate
Who should attend	Mechanical/Automotive Engineers who would like to pursue a career in Computer Aided Engineering [CAE]. This training program for Engineers will explore an opportunity to pre-process, analyze and post-process the Engineering workflow in CAE.
Training description and objectives	This course introduces participants to the CAE world with ANSA, EPILYSIS & META. The covered topics include: – CAD translation and import, – geometry handling, – middle surface extraction – surface and volume mesh generation and improvement, – model assembly – solver entities. – solution with Epilysis – results loading, – animating and managing field data, – plots, calculations on field results, – advanced filtering and communication of results, – output options and reporting. Upon course completion, the participant will become familiar with the ANSA & META interface and be able to accomplish the essential steps needed to deliver an assembly that can be used for structural analysis applications and follow the necessary steps for post-processing results and creating reports. To complete this training, participants will have the opportunity to put the obtained knowledge into practice through a project. Some of the most frequently CAE tasks that users will deal with during this project are: – Geometry healing & reconstruction, – Middle surface extraction

	– surface & solid mesh generation and improvement, – connections handling and assembly, – model checking and – common solver entities definition – reading and viewing results, – animating and managing field data, – 2d plots handling – statistics & reports creation
Prerequisites	Participants should have an engineering background. Basic knowledge of FEA is necessary.
Language	English

Suggested topics
Day 1
– About BETA CAE Systems – Objective of CAE – Industrial Requirements in CAE – Basic Presentation on FEA – ANSA [pre-processor] Introduction – Introduction to Topo and Mesh Menu
Day 2
– Live Demo of Industrial models – Strategies used in the industry for Preprocessing activities – Mesh Parameters, checks, improvement tools and techniques, thickness handling, tips & tricks – Geometry Clean up and handling geometry – Middle Surface extraction
Day 3
– Batch mesh and Feature Manager – Mesh Generation, Shell mesh, Elements, clearing errors – Penetration checks
Day 4
– Game changing functionality for plastics - Casting – Align Manager – Handling of stamped parts: prerequisites, options, variable thickness parts, – checks, improvement, examples
Day 5
– Handling of intricate casted parts 1st approach: prerequisites, options, examples – Handling of extruded parts
Day 6
– Handling of intricate casted parts 2nd approach – Introduction, parameters, checks, improvement tools and techniques, thickness – Handling FE model with tips & tricks

Day 7
– Introduction to Solid Meshing and Hexa Block – Improvement of results – Quality checks
Day 8
– Assembly – Managing of assemblies: part manager – Connection Manager
Day 9
– Introduction to solver decks – Introduction to EPILYSIS [Solver] – Introduction to load cases Static, Modal and topology optimization
Day 10
– Introduction to META [Post-processor] – Loading a model and handling geometry – Reading and viewing results – Identification – Advanced filter
Day 11
– Statistics – Annotations – Part manager – 2d plot handling
Day 12
– Model comparison – Exporting files – Reporting

Day 13
– Project day 1
Day 14
– Project day 2
Day 15
– Conclusion of Simulation activity with an overview of full workshop

Course content is subject to change without notice.
Course content may be adjusted to audience requirements or background.