Inventor FEA & Dynamic 2-3 Day** Training Course

Overview
Autodesk® Inventor® software delivers the best integrated simulation tools in the industry. Tools for calculations, stress, deflection, and motion simulation enable engineers to optimize and validate digital prototypes before a product is built. The comprehensive simulation environment in Autodesk® Inventor® Professional provides support for motion simulation and static and modal finite element analysis (FEA) at both the part and assembly level. Dynamic simulation results enable engineers to use FEA more effectively.

Duration
Day 1 & 2 - FEA & Simulation
Day 3 - Routed Systems

Prerequisites
• It is recommended that delegates are Microsoft Windows proficient.
• Completion of an Autodesk Inventor Essentials class and working knowledge of the following: the Autodesk Inventor user interface and working environments; parametric, solid modelling concepts and mechanical engineering or design principles; and Microsoft Windows.

What’s Included?
• Course Notes & Stationery*
• Computer and software for the duration of course*
• Coffee, Tea & Delicious Lunch*
• WiFi Access*
• Autodesk Certified Instructor
• Internationally recognized Autodesk Authorized Training Certificate

* Pertains to in-class training only
** In-class training typically occurs over a 2-3 day period, customised training may differ

Course Outlines

FEA COURSE OUTLINE
• Preparing and running a simulation
• Viewing results
• Analyzing Assemblies
• Performing a parametric design study
• Mesh Control and convergence
• Performing a modal analysis

DYNAMIC SIMULATION COURSE OUTLINE
• Creating Joints
• Defining Loads and Joint Properties
• Running Simulations and Analysing Results
• Building Non redundant Models
• Sharing Dynamic Simulation Results with Stress Analysis
• Solving Design Problems
AFTER THE FEA AND DYNAMIC SIMULATION COURSE YOU WOULD BE ABLE TO
• Optimize the strength and weight of your designs to minimize material usage.
• Set up tests you can feel confident about, based on real-world constraints.
• Check designs for high stress concentrations and modify part geometry to meet safety factors.
• Size motors and actuators to reduce energy consumption and costs.
• Identify and reduce unwanted vibrations to improve product quality.
• Improve product performance by investigating dynamic behaviour of mechanisms.
• Design cams and grooved paths by specifying the motion of followers.
• Balance rotating components to reduce internal stresses.

TUBE AND PIPE ROUTED SYSTEMS COURSE OUTLINE
• Introduction
• Content Center File Locations
• Introduction to Routed Systems
• Intro to Tube and Pipe Styles
• BOMs and Routed Systems
• Adopting a Structured Process
• Copying Tube and Pipe Styles
• Custom Tube and Pipe Styles
• Tube and Pipe Style Rules
• Dimensioning Autoroutes
• BOM Consolidation
• Import Export Styles
• Tube and Pipe Templates
• 3D Route Tool Rigid Pipe
• Stock Pipe and Deleting Nodes
• Tube and Pipe Authoring
• Engagement Range Settings
• Inline Authored Components
• Replacing Fittings
• Connecting Fittings
• Inserting Fittings
• Custom iPart Requirements
• Custom Pipe iPart Styles
• Custom Coupling iPart Styles
• Description
• Custom Elbow iPart Styles
• Custom Reducer iPart Styles
• Custom Valve iPart Styles
• Batch Publishing iParts
• Testing Published iParts
• Setting Up Custom iPart Styles
• Preparing Assemblies
• Strategy for Editable Routes I
• Strategy for Editable Routes II
• Updating Styles
• Constraining Autoroutes
• Modifiable Assemblies
• Derived Routes
• Autoroutes vs Derived Routes
• Phantom Route Guide
• Updating BOMs
• System Defined Levels of Detail
• Flexible Hose Styles
• Flexible Hose Routes
• Editing Hose Routes
• Mastering Tubing Routes I
• Mastering Tubing Routes II
• Conclusion
Custom courses are available if the dates do not fall within your required date. Custom courses and dates are available to companies. Please contact us to find out more about our custom course options. Kindly note that the ETA for manuals once ordered is 3-5 days and 3-4 weeks if there is no stock at the time of placing the order, pricing is subject to change.

Dates indicated are subject to change. Above courses only presented if minimum requirements are met.

---

**Course Registration Form**

Please complete, sign and return together with proof of payment to mgfxsales@mgfx.co.za or fax 086 694 9404

---

### Student Details

<table>
<thead>
<tr>
<th>Name</th>
<th>Cell No</th>
<th>Email address</th>
<th>Dietary requirements</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

---

### Course Attending

<table>
<thead>
<tr>
<th>Course Name</th>
<th>Mark Course Type &amp; Venue with X</th>
</tr>
</thead>
<tbody>
<tr>
<td>Inventor FEA &amp; Dynamic</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Course Days</th>
<th>Course Venue</th>
<th>Course Date</th>
<th>Course Duration</th>
</tr>
</thead>
<tbody>
<tr>
<td>Day 1</td>
<td>Cape Town</td>
<td>Course Duration</td>
<td>2-3 Days</td>
</tr>
<tr>
<td>Day 2</td>
<td>Port Elizabeth</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Day 3</td>
<td>Durban</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

---

### Invoicing Details

<table>
<thead>
<tr>
<th>Invoice Date</th>
<th>Vat no.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Company Name</th>
<th>Telephone</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Physical Address</th>
<th>Fax</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Account Contact</th>
<th>E-mail</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Micrographics SA (Pty) Ltd

Band Details

<table>
<thead>
<tr>
<th>Micrographics SA (Pty) Ltd</th>
<th>ABSA Newton Park</th>
<th>Branch: 632005</th>
<th>Account: 4093 847 926</th>
<th>Reference: invoice number</th>
</tr>
</thead>
</table>

---

**Terms & Conditions:**

1. Above Pricing Excludes VAT.
2. Students are to be at the training venue by 08h00 in preparation for a 08h30 start time.
3. Bookings can only be considered confirmation on receipt of payment.
4. Bookings may be changed up to three weeks in advance of the course. A fee of 20% will be levied to cover charges.
5. For full day courses, we will supply you with the relevant training material. A desktop computer to use for the training (where applicable) tea/coffee and a full lunch for full day InClass training hosted at the training center only. Catering is not included for OnSite training and laptop is available for hire at an additional cost if required.
6. Cancellation or rescheduling requests must be in writing and reach us at least 3 (five) working days prior to the course commencement date. Full course fees may be retained for no shows or requests within 5 working days prior to commencement.
7. Although we go to great lengths to ensure that all training proceeds as scheduled, we reserve the right to cancel or postpone dates if we require to do so and undertake to inform clients in writing and telephonically of these changes.
8. We suggest clients wait until a week prior to course commencement that a course has been confirmed to go ahead as scheduled before booking flight and accommodation. We are NOT responsible for cost associated with cancellation of classes such as flight and accommodation for clients.
9. Full training fees will apply if the above condition is not complied with.

---

Signed & Accepted

Name

Location

---

Custom courses are available if the dates do not fall within your required date. Custom courses and dates are available to companies. Please contact us to find out more about our custom course options. Kindly note that the ETA for manuals once ordered is 3-5 days and 3-4 weeks if there is no stock at the time of placing the order, pricing is subject to change.

Dates indicated are subject to change. Above courses only presented if minimum requirements are met.