### Structures Linear

- Linear Statics
- Normal Modes
- Local Adaptive Mesh Refinement

### Structures Nonlinear

- Large Strain
- Large Displacement
- Nonlinear Materials
- Buckling
- Global Adaptive Meshing
- Structural Zooming

### Structures Dynamics

- Direct or Modal Frequency Response
- Direct or Modal Transient Response
- Direct or Modal Complex Eignevalues
- Linear or Nonlinear Transient
- Random
- Aeroelasticity I
- Aeroelasticity II
- Flightloads
- Rotordynamics

### Structures Explicit

- Crash, Drop Test and Impact
- Fluid Structure Interaction
- SPH
- LS/Dyna Solver

### Thermal

- Steady-state
- Transient
- Conduction
- Convection
- Radiation
- Radiation Super Element
- Orbital Heating
- Thermal Contact
- Coupled Advection
- Ablation
- Pyrolysis
- Thermo-electrical Coupling
- Thermo-mechanical Coupling
- Induction Heating
- Welding
- Curing

### Solver & User Interface Solutions

- MD Nastran
- MD Adams / MSC Adams
- Marc-Mentat
- MSC Dyna
- MSC/Easy5
- MSC Fatigue
- MSC Sinda
- MSC Patran (FE Pre/Post)
- Base Package (solver only)
- Structures Bundle
- Motion Bundle
- Structures + Motion Bundle
- Advanced Dynamics
- Advanced Structures
- Advanced Explicit
- Advanced Structures + Motion
<table>
<thead>
<tr>
<th>Fatigue</th>
<th>S-N, E-N</th>
<th>Fracture</th>
<th>Crack Growth</th>
<th>Vibration</th>
<th>Multi axial</th>
<th>Weld</th>
<th>Utilities</th>
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</thead>
<tbody>
<tr>
<td>Optimization</td>
<td>Design of Experiment (requires A/Insight)</td>
<td>Sizing</td>
<td>Shape</td>
<td>Topology</td>
<td>Topometry</td>
<td>Topography</td>
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<td>Assembly</td>
<td>Linear Contact</td>
<td>Nonlinear Contact</td>
<td>Glued Contact</td>
<td>Bolt Modelling</td>
<td>Spot Welds</td>
<td>Seam Welds</td>
<td>Gaskets</td>
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<td>Composites</td>
<td>Laminate</td>
<td>Honeycomb</td>
<td>Textile, Filament and UD Tape</td>
<td>Delamination</td>
<td>Failure Criteria (Standards and UD)</td>
<td>Fracture Mechanics</td>
<td>Virtual Crack Closure Technique (VCCT)</td>
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<td>2D Symetry to 3D Model</td>
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### Multiphysics
- Joule Heating
- Piezoelectric
- Electrostatics
- Electrodynamics
- Electromagnetics
- Electrostatics - Structural
- Magnetostatics - Structural

### Multibody Dynamics
- Quasi-static Analysis
- Kinematic Analysis
- Transient Analysis
- Non-linearities (Friction, Gap, Backlash, etc.)
- Linear Analysis (Eigenvalues, State Matrices)
- Vibration (Requires Adams)
- Rigid Body
- Rigid Body Contact
- Flexible Body
- Flexible Body Contact
- Clearance Analysis
- Stress Recovery
- Durability (Requires Adams)
- Controls
- Mechatronics
- Mechanism Plant Generation
- Easy5 DLL Integration
- Simulink DLL Integration
- Vehicle Dynamics (Road, Tire, etc.)

### Systems and Controls
- Steady-state Analysis
- Transient Analysis
- Linear Analysis (Eigen, FRF, Root-locus, PSD)
- Thermal Hydraulic Library
- Gas Dynamics Library
- Multiphase Fluid Library
- Aerospace Vehicle Library
- Ricardo Powertrain Library (3rd Party)
- Ricardo Engine Library (3rd Party)
- Ricardo Fuel Cell Library (3rd Party)
- Ricardo Electric Systems Library (3rd Party)
- Mechanism Plant Integration
- System DLL Generation
- Simulink S-Function Generation
- MAT EMX Generation
- Matrix Algebra Tool (Requires Easy5)
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<tr>
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</tr>
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<td>Contour Displays</td>
<td>Base Package (solver only)</td>
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<td>Multi-files attachment</td>
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