Modelon and Dynasim are proud to announce the world-wide launch of VehicleDynamics Library (VDL).

Dymola and VDL offers a complete solution for modeling and simulation of road vehicle dynamics for

- Chassis design and analysis including detailed suspension properties
- Complete vehicles system integration validation and verification
- Concept studies, active systems, and control design
- Performance tuning and optimization
- Real-time HIL/SIL simulation

VDL is easy-to-use yet powerful so that new users get started quickly and experienced users never feel limited by the tool. Modelica source code is available for almost all models, with a resulting unrivalled openness and flexibility. Users can easily customize models and add new components. A large set of examples, base models, and templates for models and experiments guide users in their work.

Highlights of this release includes:

Openness
- Model source code is viewable and possible to modify

Drivers
- Open loop
- Closed loop with perception, planning, and tracking
- Mixed longitudinal/lateral and open/closed loop
- Event-based instruction executing driver
- Physical interfaces to vehicle that allows for driver feedback

Roads and surroundings
- RoadBuilder to generate 3D roads
- Flat ground and table based roads
- Configurable friction characteristics
- Predefined maneuvers such as ISO double lane change, J-turn, etc.
- Atmosphere for aerodynamic effects and disturbances

Vehicles
- Full vehicle models including chassis, brakes, powertrain, and driver interactions
- On-road experiments including driver, vehicle, and environment
- Test rig experiments for constrained testing such as shaker rigs

Chassis
- Chassis models at various level of detailed spanning from detailed multi-body models to planar models
- Standard experiments such as handling-diagrams, standard maneuvers, and test rigs
- Bodies with aerodynamic properties

Wheels and Tyres
- Common knowledge models such as Pacejka and Rill
- Test rigs to isolate and verify tyre behaviour, e.g. pure slipand friction ellipse

Suspensions
- Detailed geometric multi-body implementations of a large set of suspensions
- Possible to define own suspension configurations by drag and dropping components
- Table based suspensions
- Test rigs for separate studies of suspension characteristics
- Automatic generation of tabular suspension data from geometric models

Powertrains • Basic engines with maps and throttle dynamics • Basic transmissions • Drivelines
Signal buses • Allow for convenient signal handling • Simulink interfaces
Utility packages • Large sets of new mechanics models for Rotational, Translational and MultiBody • **Rotational3D™**, a library dedicated to efficient representation e.g. drivelines in three dimensions • Complementary Math and Blocks packages
Interoperability • Simulink integration • Possible to import parameter sets from other tools • Combination with other Dymola model libraries such as SmartElectricDrives™, PowerTrain™ and FlexibleBodies™ is straightforward and enables powerful integrated system-level models for a very wide range of applications.
Templates and Interfaces • User-extensible base classes and templates for a large number of components and experiments • Physical interfaces • Compatible with Modelica Standard Library
Realtime simulation • Realtime-capable suspension, chassis, and vehicle models
Post-processing and Visualization • Unlimited variable availability for post-processing and plotting • Detailed animated 3D-visualization of simulation results • Custom body shapes from DXF-files

VDL is offered with the following options:

VDL/Cars	Base option for passenger cars.
Geometric Suspensions	Suspensions with geometric detail with accompanying templates and experiments.
PF Migration	Import vehicle models from other tools.

The current version is VDL 1.1