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Siemens PLM Software

Advanced engineering tools for student vehicle teams

www.siemens.com/plm

Category	Engineering software	Comments
Electrical system and wire-harness design	VeSys™ software (with select modules from Capital™ software)**	A popular electrical tool that has been adopted by student teams worldwide. Schematics to harness. Integrates with NX™ software, SolidWorks® software, other computer-aided design (CAD) chassis for 3D wire lengths. Use for lightweighting harness. No more wiring mistakes. Score points with judges.
3D CAD, mechanical analysis, additive manufacturing, computer-aided manufacturing (CAM), computer numerical control (CNC) support*	NX with Simcenter™ software, including finite element analysis (FEA) and computational fluid dynamics (CFD)* Simcenter Nastran® software* Additive manufacturing* Simcenter FLOEFD™ software plug-in**	Solid 3D CAD modeling, including many types of mechanical analysis such as FEA and CFD. Additive manufacturing software option, CAM for CNC machining support, kinematics and more.
Composite fiber design*	The Fibersim™ portfolio of software for composites engineering*	Composite fiber layout, simulation finds fabrication errors first, CNC-ply-cutter automation.

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Electrical circuits and simulation	SystemVision™ software (bundled with VeSys/Capital and PADS)**	Diagram and simulate electrical subsystems. Then co-simulate electrical behavior with control algorithms running in the Simulink® environment.
Mechatronics simulation and 1D CFD*	Simcenter Amesim™ software*	Simcenter Amesim offers multi-mode mechatronics system simulation, including vehicle dynamics and lap times.
3D CFD for aerodynamics, cooling, batteries, other fluids, thermal analysis	Simcenter STAR-CCM+™ software CFD Suite* Simcenter FLOEFD plug-in** for NX* SolidWorks	For a full CFD software suite, get Simcenter STAR-CCM+. It is a powerful but easy suite to learn/use. Simcenter FLOEFD has a fast, easy plugin inside NX, SolidWorks, F1 team – 7days > 1.5 hours.
Printed circuit board (PCB) design	PADS Pro™ software with HyperLynx™ software	Powerful, professional auto-router saves you time and refabrications, online training at no cost, plus HyperLynx verification, especially for electric vehicle (EV) high-current/high-voltage boards.
Cost tracking and reporting	Teamcenter® product costing solution*	Tracking and reporting for cost portion of design judging/competition. Easy to install package.
CAN network design, simulation	Volcano™ software**	Design and simulate CAN network, fix conflicts, run CAN simulation on laptop.
Embedded software code tools	CodeBench™ software, Analyzer™ software, Nucleus™ software**	For custom C code dev and debug, cross-compiler and real-time operating system (RTOS). Supports any ARM-core electronic control units (ECUs).
Team collaboration, versioning	Teamcenter*	Caveat: Very useful but needs effort from information technology (IT) staff and team to set up and learn.
Software configuration management, requirements, collaboration*	Polarion ALM™ software*	Cloud-based software configuration management, requirements tracing, issue/software bug-tracking, collaboration.
Virtual test track simulator environment for autonomous and connected vehicles*	Simcenter Prescan™ software*	Virtual test simulation environment for Formula Student Driverless, connected and autonomous vehicles, advanced driver-assistance systems (ADAS), plus vehicle-to-everything (V2X), vehicle-to-vehicle (V2V) communications. Tightly integrated with the MATLAB® environment and Simulink.
Electric motor design*	Simcenter Motorsolve™ software and EM simulators**	This software bundle has an electric motor design package plus electromagnetic simulators.

* For Siemens PLM Software grants, visit: www.plm.automation.siemens.com/en/academic/forms/partner-program-grant.cfm

** For Siemens-Mentor software grants, email: leigh.anderson@siemens.com