



EcoCAR2
 PLUGGING IN TO THE FUTURE
 Year Three Fall Workshop Agenda – Version FINAL

Wednesday, September 25

5 PM – 8 PM

Registration

Lobby, The Verve

Teams – find out time slot for Waiver Office Hours/ESS Office Hours and team photo

Thursday, September 26

7 AM

Buses depart from The Verve for MathWorks

Old Cafeteria, MathWorks

7:15 AM

Breakfast

Time	Track 1: Plenary Session Atlantis + IIT Room	Track 2 & 3: Communications & Business Managers Stanford Room	Track 4: MathWorks Beginning Training Dartmouth Room	Track 5: MathWorks Advanced Training Millis Room, 2 nd FL	Track 6: Freescale Center Stack Session Milford Room, 2 nd FL	Track 7: Vector CANtech Training Tshinghua Room, 1 st
8 AM	Welcome Remarks <ul style="list-style-type: none"> • <i>Kristen De La Rosa, ANL</i> • <i>Connie Bezanson, U.S. Department of Energy</i> • <i>John Haraf, General Motors</i> • <i>Paul Smith, MathWorks</i> 					
8:30 AM	Year 3 Overview <i>Kristen De La Rosa, ANL</i> <ul style="list-style-type: none"> • Year 3 Philosophy/Goals • Swim Lanes • Multidisciplinary Team Leadership • Key Dates <ul style="list-style-type: none"> ○ Emissions Testing Event ○ Year Three Competition • Year 3 Organizers 					

Time	Track 1: Plenary Session Atlantis + IIT Room	Track 2 & 3: Communications & Business Managers Stanford Room	Track 4: MathWorks Beginning Training Dartmouth Room	Track 5: MathWorks Advanced Training Millis Room, 2 nd FL	Track 6: Freescale Center Stack Session Milford Room, 2 nd FL	Track 7: Vector CANtech Training Tshinghua Room, 1 st
8:50 AM	Safety Presentation <i>Jim Kolhoff, General Motors</i>					
9 AM	Break – Split into Freescale/MathWorks training tracks					
9:15 AM	First Steps in Year 3 <i>Nicole Lambiase & Dana Bubonovich, ANL</i> <ul style="list-style-type: none"> SharePoint and Mailing List Overview Back to School Checklist 		Simulink for System and Algorithm Modeling <i>Laura Proctor, MathWorks</i> <ul style="list-style-type: none"> Creating and modifying Simulink models and simulating system dynamics Modeling continuous-time, discrete-time, and hybrid systems Modifying solver settings for simulation accuracy and speed 	Model Based Design Fundamentals Building Model Architecture for Working in Teams <i>Kerry Grand & Sebastian Castro, MathWorks</i> <ul style="list-style-type: none"> Partitioning models using Simulink subsystems, libraries, and model references Determining Simulink file and data dependencies Setting up project environments for collaborative development of Simulink models Managing data in Simulink models 	Freescale Hardware, QT and Linux Session	Vector CANtech Tools Training <i>Mike Alexander, Vector</i>
9:30 AM	Applied Automotive Engineering Content <i>Patrick Walsh, ANL</i> <ul style="list-style-type: none"> Overview How to get access 					
9:45 AM	EcoCAR Vehicle Development Process <i>John Haraf, GM</i> <ul style="list-style-type: none"> Refinement & Optimization 99% Buyoff <ul style="list-style-type: none"> Fit & Finish Drive Quality Calibration & Software Readiness 					
10:15 AM	Break – Communications & Business Managers Split into Separate Track					
10:30 AM	Year 3 Rules Updates <i>Jesse Alley, ANL</i>	Introduction to AVTCs <i>Connie Bezanson, U.S. DOE</i>	Simulink for System and Algorithm Modeling Cont. <i>Laura Proctor, MathWorks</i>	Model Based Design Fundamentals Building Model Architecture for Working in Teams Cont. <i>Kerry Grand & Sebastian Castro, MathWorks</i>	Freescale Hardware, QT and Linux Session Continued	Vector CANtech Tools Training <i>Mike Alexander, Vector</i>
10:45 AM		Introduction to Clean Cities <i>Connie Bezanson, U.S. DOE</i>				

Time	Track 1: Plenary Session Atlantis + IIT Room	Track 2 & 3: Communications & Business Managers Stanford Room	Track 4: MathWorks Beginning Training Dartmouth Room	Track 5: MathWorks Advanced Training Millis Room, 2 nd FL	Track 6: Freescale Center Stack Session Milford Room, 2 nd FL	Track 7: Vector CANtech Training Tshinghua Room, 1 st
11 AM	Progress Reports Lessons Learned and Q&A Session <i>Brian Benoy & Jesse Alley, ANL</i> <ul style="list-style-type: none"> Lessons Learned Helpful Hints Y3 Changes Open Q&A (teams to bring questions about new content) 	Clean Cities Resources <i>Amanda McAlpin, ANL</i> <ul style="list-style-type: none"> Clean Cities Workforce Development Program How Clean Cities can help your swimlane 				Vector CANtech Tools Training Cont. <i>Mike Alexander, Vector</i>
11:30 AM		Hybrid 101 <i>Patrick Walsh, ANL</i> <ul style="list-style-type: none"> Basics of Vehicle Fuel Consumption What is a Hybrid Advantages of Hybrids Resources 				

12 PM Lunch

Old Cafeteria, MathWorks

Time	Track 1: Plenary Session Atlantis + IIT Room	Track 2: Communications Managers MIT Room	Track 3: Business Managers Stanford Room	Track 4: MathWorks Beginning Training Dartmouth Room	Track 5: MathWorks Advanced Training Millis Room, 2 nd FL	Track 6: Freescale Center Stack Session Milford Room, 2 nd FL	Track 7: GKN Office Hours Old Cafeteria
1 PM	Lessons Learned from Safety Tech in Year 2 <i>Jesse Alley, ANL</i>	Communications Program Overview & Year Three Deliverables	Business Program Overview & Year Three Deliverables <i>Cindy Svestka, GM and Nicole Lambiase, ANL</i>	Simulink for System and Algorithm Modeling Cont. <i>Laura Proctor, MathWorks</i>	Model Based Design Fundamentals Building Model Architecture for Working in Teams	QNX CAR 2	UW

Time	Track 1: Plenary Session Atlantis + IIT Room	Track 2: Communications Managers MIT Room	Track 3: Business Managers Stanford Room	Track 4: MathWorks Beginning Training Dartmouth Room	Track 5: MathWorks Advanced Training Millis Room, 2 nd FL	Track 6: Freescale Center Stack Session Milford Room, 2 nd FL	Track 7: GKN Office Hours Old Cafeteria
		<i>Kimberly DeClark, ANL</i>			Cont. <i>Kerry Grand & Sebastian Castro, MathWorks</i>		
1:30 PM	Emissions Testing Event & Pre-Competition Safety Tech Inspections <i>Patrick Walsh & Jesse Alley, ANL</i>	Communications Resources <i>Kimberly DeClark, ANL</i>					ERAU
2 PM	<ul style="list-style-type: none"> • Overview • Timing • Safety Tech Inspections • Scoring • Logistics • Facilities • Intro to Dyno Testing • Test Plan 	Communications Success Model <i>Dana Bubonovich, ANL</i> <ul style="list-style-type: none"> • How to build your comm. team • Working with your technical team • Successes/Life Lessons 			Model Based Design Fundamentals Verification and Validation and Regression Testing <i>Sebastian Castro, MathWorks</i>		
2:30 PM		Blog Posts 101 <i>Seth Popinchalk, MathWorks and Dana Bubonovich, ANL</i> <ul style="list-style-type: none"> • Content & Formatting • Blogging Do's and Don'ts • Writing for Your Audience 	Business Success Model <i>Shawn Midlam-Mohler, The Ohio State University</i>				
3:00 PM	BREAK						

3:15 PM Waiver Office Hours
ESS Office Hours

Old Cafeteria, MathWorks
Old Cafeteria, MathWorks

Time	Track 1: Plenary Session Atlantis + IIT Room	Track 2: Communications Managers MIT Room	Track 3: Business Managers Stanford Room	Track 4: MathWorks Beginning Training Dartmouth Room	Track 5: MathWorks Advanced Training Millis Room, 2 nd FL	Track 6: Freescale Center Stack Session Milford Room, 2 nd FL	Track 7: GKN Office Hours Old Cafeteria
3:15 PM	System Safety Levels <i>Jesse Alley, ANL</i> <ul style="list-style-type: none"> Overview On-Road Testing 	Communications Round Table	Business Career Panel <ul style="list-style-type: none"> Cindy Svestka, GM Jim Kolhoff, GM Gen Sasaki, MathWorks Jeff Sprague, TRC Steve Russell, Boston Clean Cities 	Simulink for System and Algorithm Modeling Cont. <i>Laura Proctor, MathWorks</i>	Model Based Design Fundamentals Verification and Validation and Regression Testing Cont. <i>Sebastian Castro, MathWorks</i>	QNX CAR 2 Cont.	
3:45 PM	Emissions & Energy Consumption <i>Patrick Walsh, ANL</i> <ul style="list-style-type: none"> Refresher Changes to Event Rules MPG Specific Logistics 	Influence Through Brand Journalism <i>Dora Smith, Siemens</i>		Stateflow for Logic Driven System Modeling <i>Paul Smith, MathWorks</i>			
4:00 PM				<ul style="list-style-type: none"> Modeling complex logic flows Modeling state machines 			
4:30 PM	Electrical Track in Y3 <i>Mike Kearney, GM</i> <ul style="list-style-type: none"> Progress report content/Q&A Competition presentation 	Communications Plan Writing <i>Kimberly DeClark & Dana Bubonovich, ANL</i> <ul style="list-style-type: none"> Formatting & Structure Research & Analysis Target Audiences Goals & Objectives Messaging Strategies & Tactics Measurement 	Business Round Table				

5 PM Conclude Day 1

5:15 PM Buses Depart MathWorks

7 – 9 PM Sponsor Social Networking & Recruiting Event

Apollo Ballroom, The Verve

Friday, September 27

7 AM Buses depart from The Verve for MathWorks

7:15 AM Breakfast

Old Cafeteria, MathWorks

8 AM Waiver Office Hours (see sign up slot for time)
ESS Office Hours (see sign up slot for time)

Old Cafeteria, MathWorks
Old Cafeteria, MathWorks

Time	Track 1: Mechanical Atlantis + ITT Room	Track 2: Freescale Center Stack Lab Milford Room, 2 nd FL	Track 3: Communications MIT Room	Track 4: Project Management Stanford Room	Track 5: MathWorks Beginning Training Dartmouth Room	Track 6: MathWorks Advanced Training Millis Room, 2 nd FL	Track 7: Magna Office Hours, Old Cafeteria
8 AM	ESS Y3 Activities <i>Jesse Alley, ANL</i> <ul style="list-style-type: none"> • Deadlines • Procedure for Refinement 	Center Stack Lab & Development Session	Video Training <i>Phil Swantek, MCCI</i>	Taking Over a Project that is Underway <i>Rich Maltzman & Dave Shirley, Earth PM</i>	Stateflow for Logic Driven System Modeling <i>Paul Smith, MathWorks</i> <ul style="list-style-type: none"> • Modeling complex logic flows • Modeling state machines 	Parameter Estimation and Design Optimization <i>Sebastian Castro, MathWorks</i> <ul style="list-style-type: none"> • Using measured data to estimate the values of a Simulink model's parameters • Optimizing the values of a Simulink model's parameters to meet system 	CSULA
8:15 AM	Structural Analysis Fundamentals <i>Jesse Alley, ANL</i> <ul style="list-style-type: none"> • Problem setup fundamentals • Layered approach to structural analysis • FEA solver Mechanics 						

9:00 AM	Half Shaft 101 <i>Joe Palazzolo, GKN</i> <ul style="list-style-type: none"> Constant Velocity Joints 101 					response requirements	NCSU
10 AM	Break						
10:15 AM	Half Shaft 101, cont'd <ul style="list-style-type: none"> Technology for CO2 Reduction Recommendations for EcoCAR2 Participants 	Center Stack Lab & Development Session	Video Training Cont. <i>Phil Swantek, MCCI</i>	Taking Over a Project that is Underway Cont. <i>Rich Maltzman & Dave Shirley, Earth PM</i>	Stateflow for Logic Driven System Modeling Cont. <i>Paul Smith, MathWorks</i>	Parameter Estimation and Design Optimization Cont. <i>Sebastian Castro, MathWorks</i>	PSU
10:45 AM						Development of Subsystem Models from Measured Data: Motor/ Inverter Example <i>Scott Furry, MathWorks</i>	
11:15 AM						<ul style="list-style-type: none"> Test-Plan Definition Design Of Experiments Response Surface Model Development Model Export to System Level Model 	

12 PM **Lunch**
Team Photos (wear team polos/gear)

Old Cafeteria, MathWorks
1 Apple Hill Lobby, MW

1 PM **Waiver Office Hours (see sign up slot for time)**
ESS Office Hours – Open Q&A

Old Cafeteria, MathWorks
Old Cafeteria, MathWorks

Time	Track 1: Technical Track Atlantis + ITT Room	Track 2: Freescale Center Stack Milford Room, 2 nd FL	Track 3: Communications MIT Room, 1 st Fl	Track 4: Project Management Stanford Room, 1 st FL	Track 5: MathWorks Beginning Training Dartmouth Room, 1 st FL	Track 6: MathWorks Advanced Training Millis Room, 2 nd FL	Track 7: Magna Office Hours, Old Cafeteria
1 PM	High Voltage Safety <i>Brian Benoy, ANL</i> <ul style="list-style-type: none"> • Safety Procedures • Best Practices 	Center Stack Lab & Development Session	Video Training Cont. <i>Phil Swantek, MCCI</i>	Closing a Project <i>Rich Maltzman & Dave Shirley, Earth PM</i>	Stateflow for Logic Driven System Modeling Cont. <i>Paul Smith, MathWorks</i>	Development of Subsystem Models from Measured Data: Motor/ Inverter Example Cont. <i>Scott Furry, MathWorks</i>	Uvic
2 PM	Mechanical Track in Year Three <i>Jesse Alley, ANL</i> <ul style="list-style-type: none"> • Y3 Expectations • Y3 Presentation 					Physical Modeling for Multi-domain Systems with Simscape <i>Sebastian Castro, MathWorks</i> <ul style="list-style-type: none"> • Creating models in various physical domains, such as electrical, mechanical, and hydraulic • Modeling energy transfer between different physical domains • Combining Simulink models and Simscape models 	
2:30 PM	Modeling & Simulation in Y3 <i>Brian Benoy, ANL</i>						

Time	Track 1: Technical Track Atlantis + ITT Room	Track 2: Freescale Center Stack Milford Room, 2 nd FL	Track 3: Communications MIT Room, 1 st Fl	Track 4: Project Management Stanford Room, 1 st FL	Track 5: MathWorks Beginning Training Dartmouth Room, 1 st FL	Track 6: MathWorks Advanced Training Millis Room, 2 nd FL	Track 7: Magna Office Hours, Old Cafeteria
					<ul style="list-style-type: none"> • Creating user-defined Simscape components 		
3 PM	Break						
3:15 PM	GM Support <i>Dan Mehr & Mike Kearney, GM</i> <ul style="list-style-type: none"> • Blue Dollars • Subject Matter Experts • Mentor Updates MPG overview 	Center Stack Lab & Development Session	PR Career Panel <ul style="list-style-type: none"> • <i>Len Dieterle, MathWorks</i> • <i>Jen Eccelstone, General Motors</i> • <i>Karen Drake, Zipcar</i> 	Closing a Project Cont. <i>Rich Maltzman & Dave Shirley, Earth PM</i>	Physical Modeling for Multi-domain Systems with Simscape Cont. <i>Sebastian Castro, MathWorks</i>	Development of Subsystem Models from Measured Data: Motor/Inverter Example <i>Pete Maloney, MathWorks</i> <ul style="list-style-type: none"> • Test-Plan Definition • Design Of Experiments • Response Surface Model Development • Model Export to System Level Model 	
3:45 PM	Electrical Integration Best Practices <i>Brian Benoy, ANL</i> <ul style="list-style-type: none"> • Lessons Learned from Y2 • Refining LV System • Wire Sizing & Fusing • Connectors • HVIL • Junction Boxes 						
4:15 PM	Data at Competition <i>Patrick Walsh, ANL</i> <ul style="list-style-type: none"> • Lessons Learned from Y2 • Y3 Requirements 						

5 PM **Conclude Day 2**
5:15 PM **Buses Depart MathWorks & Evening on Your Own**

Saturday, September 28

7 AM Buses depart from The Verve for MathWorks

7:15 AM Breakfast New Cafeteria, MathWorks

8 AM Waiver Office Hours (see sign up slot for time) New Cafeteria, MathWorks

Time	Track 1: Siemens NX Training Atlantis Room	Track 2: Controls IIT Room	Track 3: MathWorks Session Milford Room, 2 nd FL	Track 4: Media Training MIT Room	Track 5: Communications Managers 1on1 Old Cafeteria	Track 6: Business Managers 1on1 Medway Room, 2 nd FL	Track 7: Presentation Skills Training Sherborn Room, 2 nd FL
8 AM	Siemens Training <ul style="list-style-type: none"> Assemblies Deformable components 	Achieving Optimization through SIL and HIL <i>Brian Benoy, ANL</i>			CSULA	WSU	UTK
8:45 AM	<ul style="list-style-type: none"> Weight management FEA simulation fundamentals FEA – solid elements FEA – shell elements FEA – beam elements FEA – symmetrical modeling Analysis solutions and techniques 	Diagnostic Response vs. Remedial Action & Control System Response <i>Jim Kolhoff, GM</i> <ul style="list-style-type: none"> DFMEA review Diagnostics definition Diagnostic applications Diagnostic example Remedial action definition Remedial action strategy 		PSU & VT	CSU	Washington	UVic

9:30 AM		GM LAN <i>Jim Kolhoff, GM</i> <ul style="list-style-type: none"> • CAN information recap • CAN bus loading • How to predict • How to measure 	Low Cost Hardware for Project Based Learning <i>Brian McKay and Sumit Tandon, MathWorks</i> <ul style="list-style-type: none"> • Learning how to easily connect Simulink to hardware • Designing, simulating and testing algorithms in Simulink • Programming low cost hardware with auto-generated code • Real-time parameter tuning with hardware-in-the-loop simulations 	Purdue	ERAU	Waterloo	WSU
10:15 AM Break							
10:30 AM	Siemens Training <ul style="list-style-type: none"> • Topics cont'd 	Controls in Y3 <i>Brian Benoy, ANL</i> <ul style="list-style-type: none"> • PR content/Q&A • Competition presentation 	Low Cost Hardware for Project Based Learning Cont. <i>Brian McKay and Sumit Tandon, MathWorks</i>	RHIT & UTK	MSU	VT	CSULA
11:15 AM		Getting Back on the V-Diagram <i>Brian Benoy, ANL & Jim Kolhoff, GM</i>			NCSU	UVic	CSU

12 PM Lunch

New Cafeteria, MathWorks

Time	Track 1: Siemens Training Atlantis Room	Track 2: dSPACE Training Dartmouth Room	Track 3: dSPACE Training Milford Room, 2 nd FL	Track 4: Faculty Round Table Stanford Room	Track 5: Media Training MIT Room	Track 6: Communications Managers 1on1 Old Cafeteria	Track 7: Business Managers 1on1 Medway Room, 2 nd FL	Track 8: Presentation Skills Training Sherborn Room, 2 nd FL
1 PM	Siemens Training • Topics cont'd	Control Desk & Creating Calibrations <i>Santhosh Jogi, Donald Saldano, dSPACE</i>	TBD dSPACE Training <i>Santhosh Jogi, Donald Saldano, dSPACE</i>	Each Advisor to present on their team's accomplishments and struggles	UVic & Waterloo	Purdue	UTK	ERAU
1:45 PM						PSU	RHIT	MSU
2:30 PM					OSU & MSU	OSU	Purdue	NCSU
3:15 PM	Break							
3:30 PM	Siemens Training	Controls/MabX Q&A <i>Santhosh Jogi, Donald Saldano, dSPACE</i>	TBD dSPACE Training <i>Santhosh Jogi, Donald Saldano, dSPACE</i>	Organizer Presentations • Year 2 Lessons Learned • Applied Automotive Engineering Curriculum • MBDCP Update • Business Impact Report • Emissions Testing Event • Administration participation at Y3 Comp. • Sharing Proposal	NCSU & CSULA	RHIT	PSU	Purdue
4:15 PM						UTK	OSU	VT

5 PM Conclude Day 3
5:15 PM Buses Depart for Downtown Boston
6-9 PM Dinner
9 PM 1st Round of Buses Depart
9 PM – 11 PM Teams on their own
11 PM Remaining Buses Depart

Cheers, Faneuil Hall

Sunday, September 29

7 AM Buses depart from The Verve for MathWorks

7:15 AM Breakfast New Cafeteria, MathWorks

Time	Track 1: Siemens NX Training Atlantis Room	Track 2: dSPACE Training Dartmouth Room	Track 3: AVL DRIVE Training IIT Room	Track 4: Media Training MIT Room	Track 5: Communications Managers 1on1 Old Cafeteria	Track 6: Business Managers 1on1 Medway Room, 2 nd FL	Track 7: Presentation Skills Training Sherborn Room, 2 nd FL
8 AM	Siemens Training <ul style="list-style-type: none"> Topics cont'd 	Automated Testing <i>Santhosh Jogi, Donald Saldano, dSPACE</i>	AVL DRIVE Training <i>Phil Shaw, Jen Durfy, Martin Steinbacher; AVL</i> <ul style="list-style-type: none"> Refresh on vehicle configuration How to import data into DRIVE How to navigate in DRIVE Data analysis Using Report Generator Data plotting Data exporting 	Washington	UVic	NCSU	OSU
8:45 AM				Waterloo	VT	MSU	PSU
9:30 AM				ERAU	Waterloo	ERAU	Washington
10:15 AM	Break						
10:30 AM	Siemens Training	Automated Testing Cont. <i>Santhosh Jogi, Donald Saldano, dSPACE</i>	AVL DRIVE Training Continued	WSU & CSU	Washington	CSU	Waterloo
11:15 AM					WSU	CSULA	RHIT

12 PM **Grab & Go Lunch**
 12:15 PM **Teams to Depart for Airport**

Atrium, Apple 3, MathWorks