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## Vehicle Electrification System Standards

### I. Vehicle Level Vehicle Electrification High Voltage System Architectures

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## I.c HEV, PHEV, BEV, and FCEV Powertrain Systems Operation

### Description:

Correctly articulate, through verbal and/or written communication, the operational modes of the vehicle electrification systems.

Provide animated graphic files or video on each architecture powertrain operation.

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### Tools:

Acquire animations or video from OEM to reduce cost. Will need copyright permissions

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## Hybrid Electric Vehicle (HEV)

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### OEM Acronyms:

HEV, BAS, FAS

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### Outcome:

Students will be able to identify and describe each of the HEV system sub-category derivative types and associated operational modes, including all sub-systems

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### Objective:

Students will be supplied vehicle diagrams and graphics, cite each HV component, and correctly articulate the primary operating modes of each HEV derivative.

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**Task:**

Students will utilize OEM vehicle service information, new model information, and online OEM or equivalent (i.e., Mitchell, Identifix) resources to complete the diagram and graphic assignments and modes of operation.

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## Plug-In Hybrid Electric Vehicle (PHEV)

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**OEM Acronyms:**

PHEV, FAS, EREV

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**Outcome:**

Students will be able to identify and describe each of the PHEV system sub-category derivative types and associated operational modes, including all sub-systems

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**Objective:**

Students will be supplied vehicle diagrams and graphics, cite each PHEV component, and correctly articulate the primary operating modes of each PHEV derivative.

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**Task:**

Students will utilize OEM vehicle service information, new model information, and online OEM or equivalent (i.e., Mitchell, Identifix) resources to complete the diagram and graphic assignments and modes of operation.

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## Battery Electric Vehicle (BEV)

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**OEM Acronyms:**

BEV

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**Outcome:**

Students will be able to identify and describe BEV operational modes, including all sub-systems.

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**Objective:**

Students will be supplied vehicle diagrams and graphics, cite each BEV component, and correctly articulate the primary operating modes.

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**Task:**

Students will utilize OEM vehicle service information, new model information, and online OEM or equivalent (i.e., Mitchell, Identifix) resources to complete the diagram and graphic assignments and modes of operation.

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## Fuel Cell Electric Vehicle (FCEV)

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**OEM Acronyms:**

FCEV

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**Outcome:**

Students will be able to identify and describe FCEV operational modes, including all sub-systems.

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**Objective:**

Students will be supplied vehicle diagrams and graphics, cite each FCEV component, and correctly articulate the primary operating modes.

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**Task:**

Students will utilize OEM vehicle service information, new model information, and online OEM or equivalent (i.e., Mitchell, Identifix) resources to complete the diagram and graphic assignments and modes of operation.

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**Governing Standards (Safety, Testing, Diagnostics or Repair):**

J1715 - HEV & EV Terminology

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**Industry Resource Organization:**

- Society of Automotive Engineers (SAE)
- Institute of Electrical & Electronic Engineers (IEEE)



- International Electrotechnical Commission (IEC)
  - American Society for Testing and Materials (ASTM)
  - Occupational Safety & Health Administration (OSHA)
  - National Fire Protection Association (NFPA)
  - Underwriters Laboratories (UL)
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