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Systems *Engineering: Design and Development*

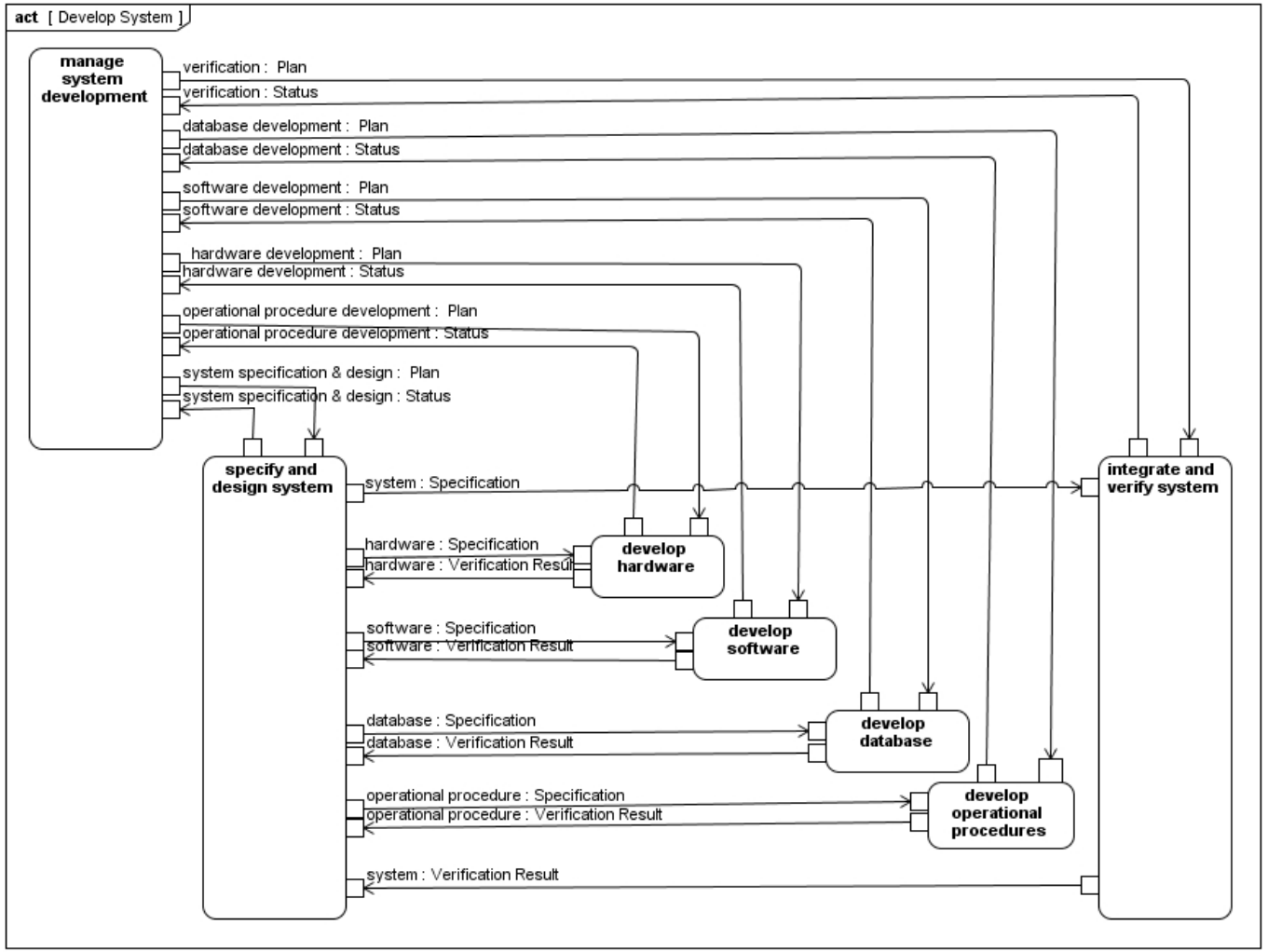
ENGR 387

Agenda

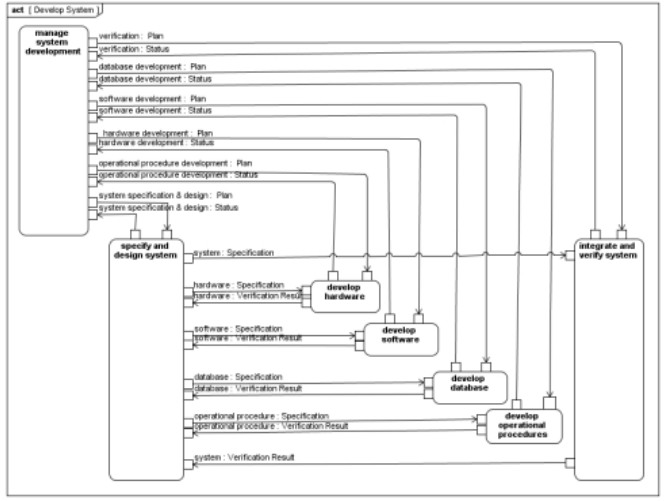
- **An Introduction to Integrate and Verify System activity in the OOSEM method**
- **An Introduction to the Develop System Process**

System Development Process Overview

- Includes:
  - Management Process
  - System Specification and Design
  - ‘Next-level’ Development Process
  - System Integration and Verification



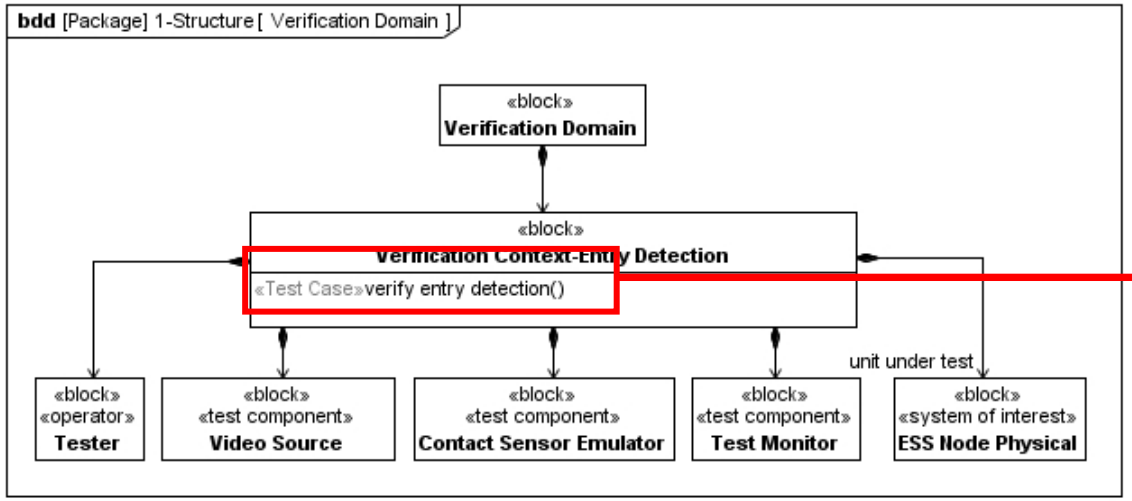
Define Specification Tree

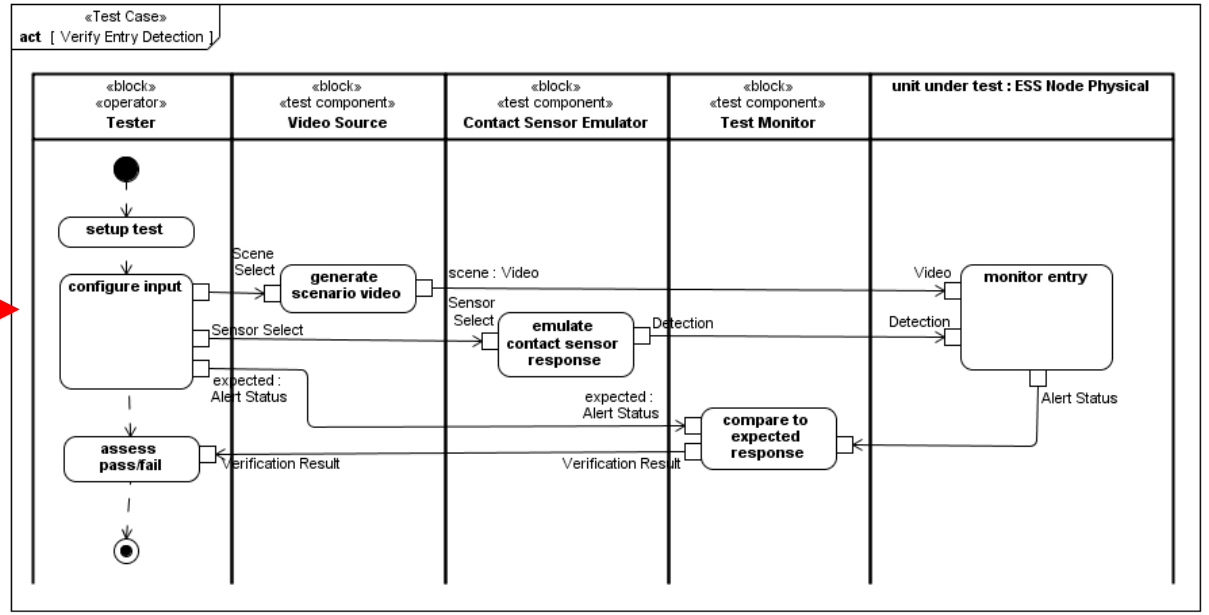


- Goal is to verify that the system satisfies its requirements
  - Verification is accomplished by a combination of:
  - Inspection
  - Analysis
  - Demonstration
  - Testing
- Includes:
  - Developing verification plans
  - Developing verification procedures
  - Conducting verifications
  - Analyzing results
  - Generating reports

OOSEM Support of Verification

- Test cases and verification procedures can be captured in the model and are developed based on model elements such as:
  - System level use cases
  - Scenarios
  - Requirements
- Test cases include specifications of a stimulus to the system and the expected response





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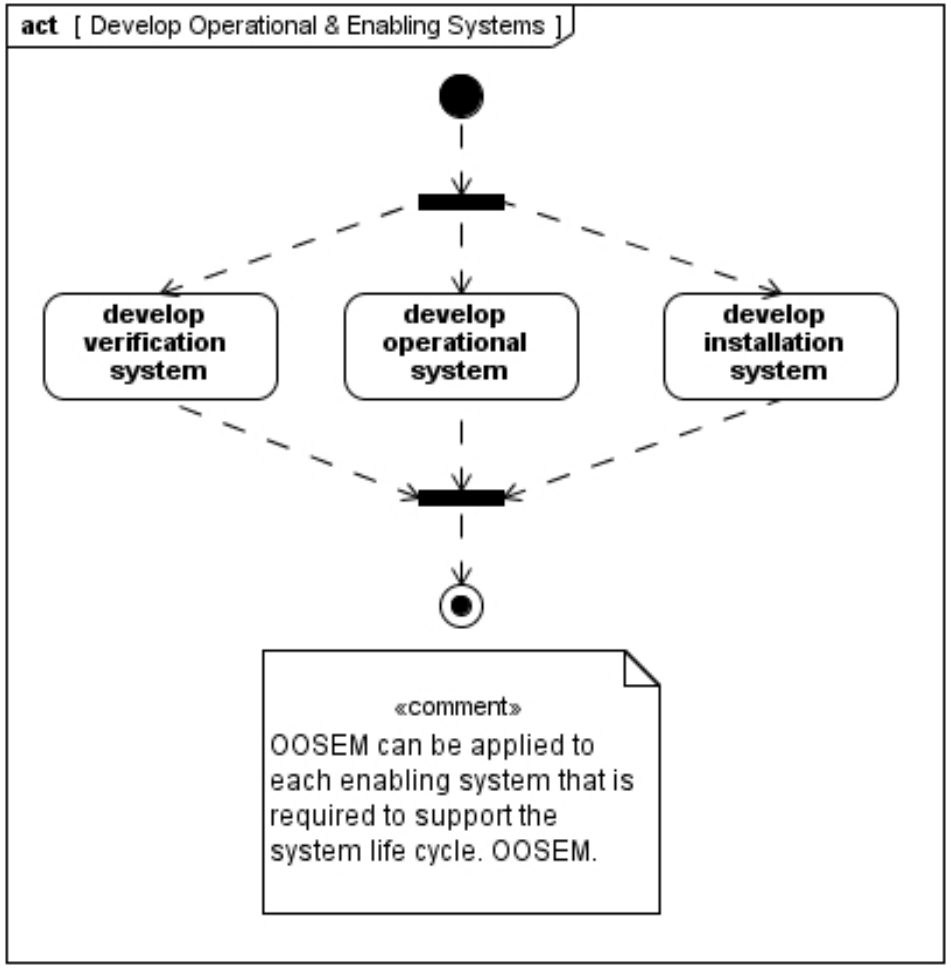
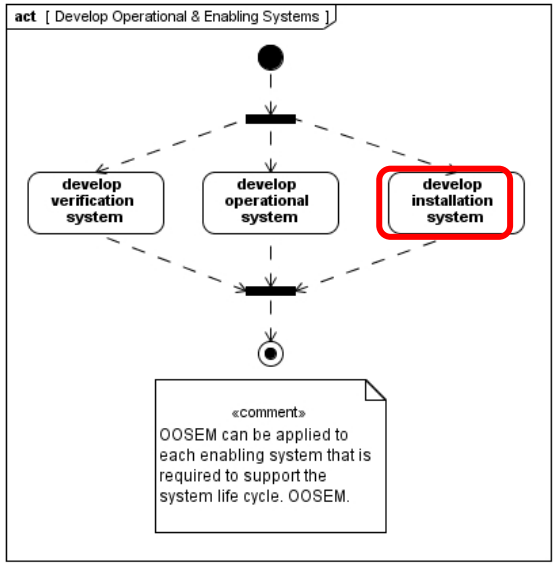
Develop System Overview

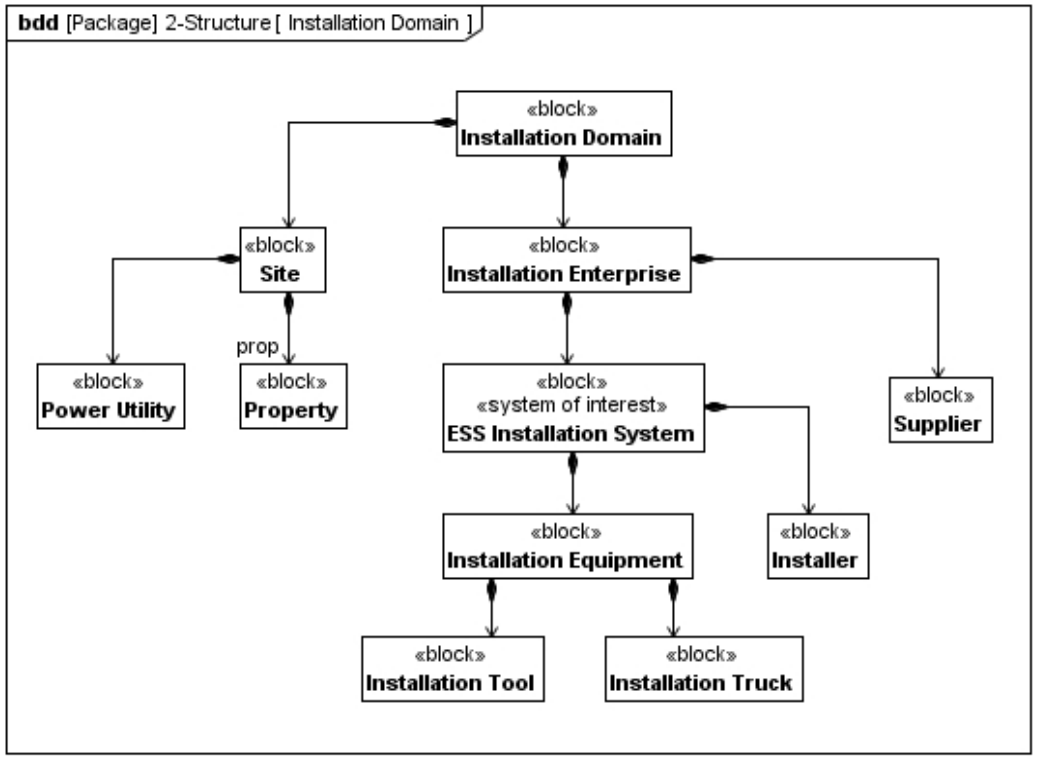
- Enabling Systems include:
  - Manufacturing System
  - Support Systems
  - Verification Systems
- Enabling systems need to be developed concurrently with the operational system
- The OOSEM methodology that was used to develop the operational system can be tailored and applied to specify and design the enabling systems as well.



Develop Installation System

- Installation Domain Model
- Follow the same process that was used to develop the Operational Domain





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Questions

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Summary

- System verification is part of the overall System Development process
- The goal of verification is to verify that the system satisfies its requirements
- Test cases and their results can be captured in the system model
- OOSEM can be used to develop the enabling systems

References

Additional information can be obtained by reviewing:

- SysML Distilled (Delligatti)
- A Practical Guide to SysML (Friedenthal)
  - Section 16.3.7 and 16.3.8