ENGR 310

Lecture 9

11 Feb 2008

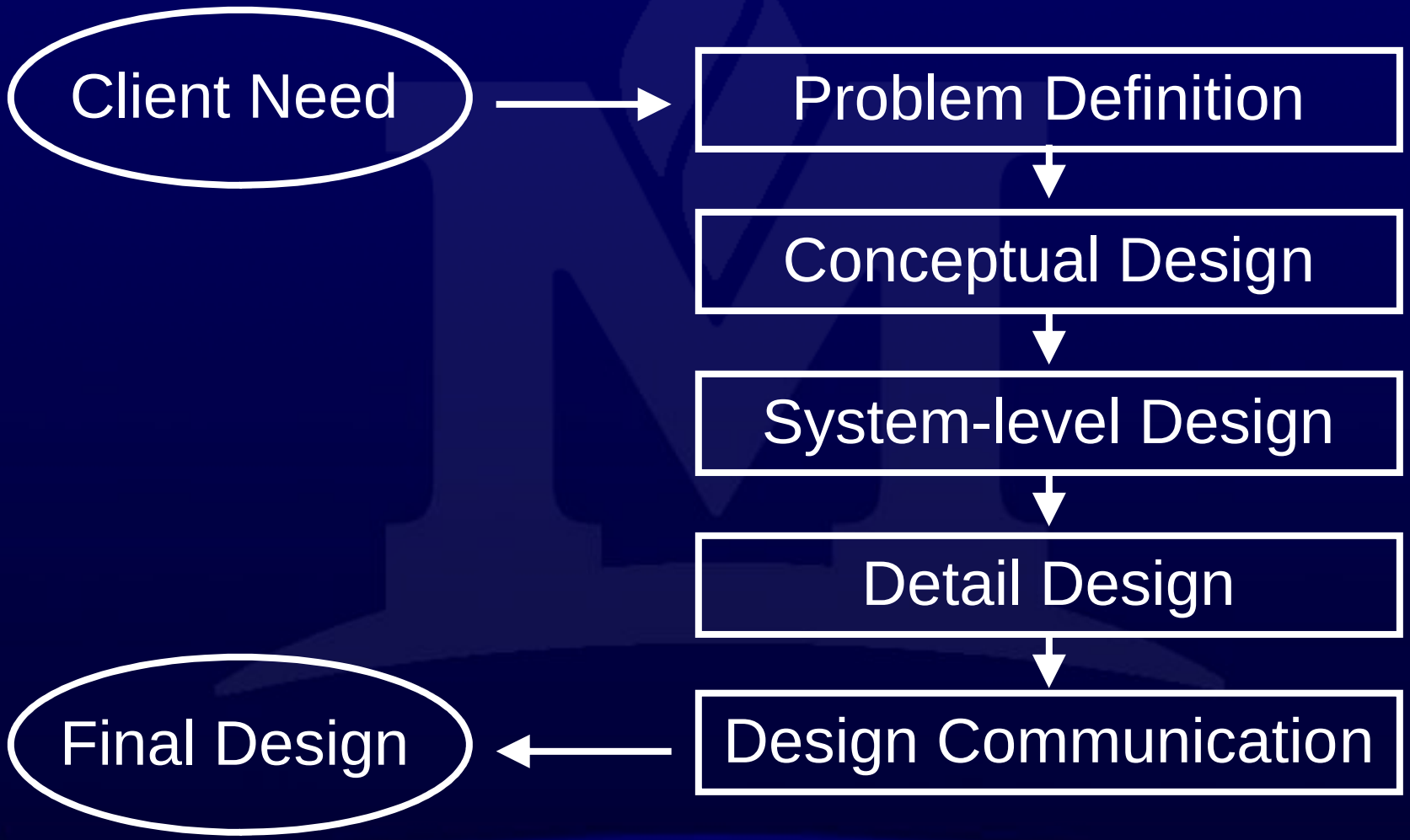
Announcements

- Assignment 2 due this week.
  - Turn in one-day prior to recitation
- Journal Check this week.
- Assignment 3 due next week.

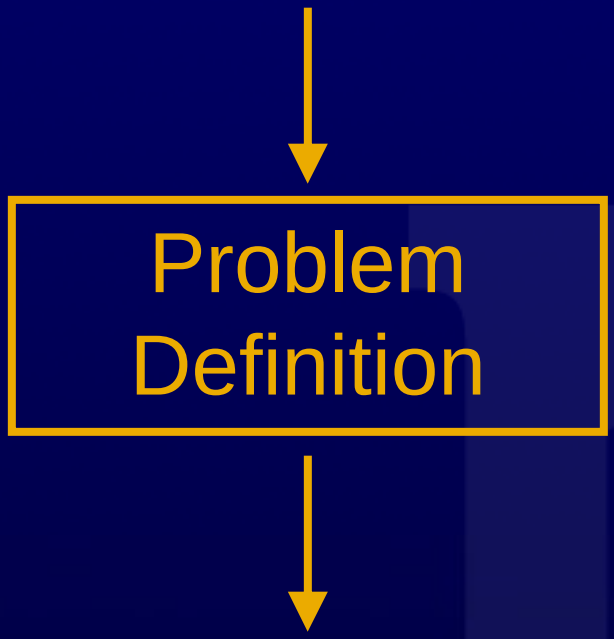
Last Time

- Teamwork success factors
- Stages of team development
- Effective meetings
- Managing conflict

An Engineering Design Process



client's statements



statement of:

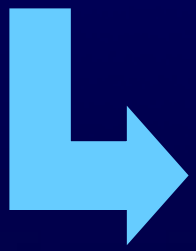
objectives
constraints
requirements
functions

Gather information to develop a statement of client wants in engineering terms:

1. Clarify objectives
2. Establish user requirements
3. Identify Constraints
4. Define desired functions

Process Review

Gather Lots of Information:
Observation, Interviews, Research



List of Desired Characteristics

List of Objectives

Objective Tree

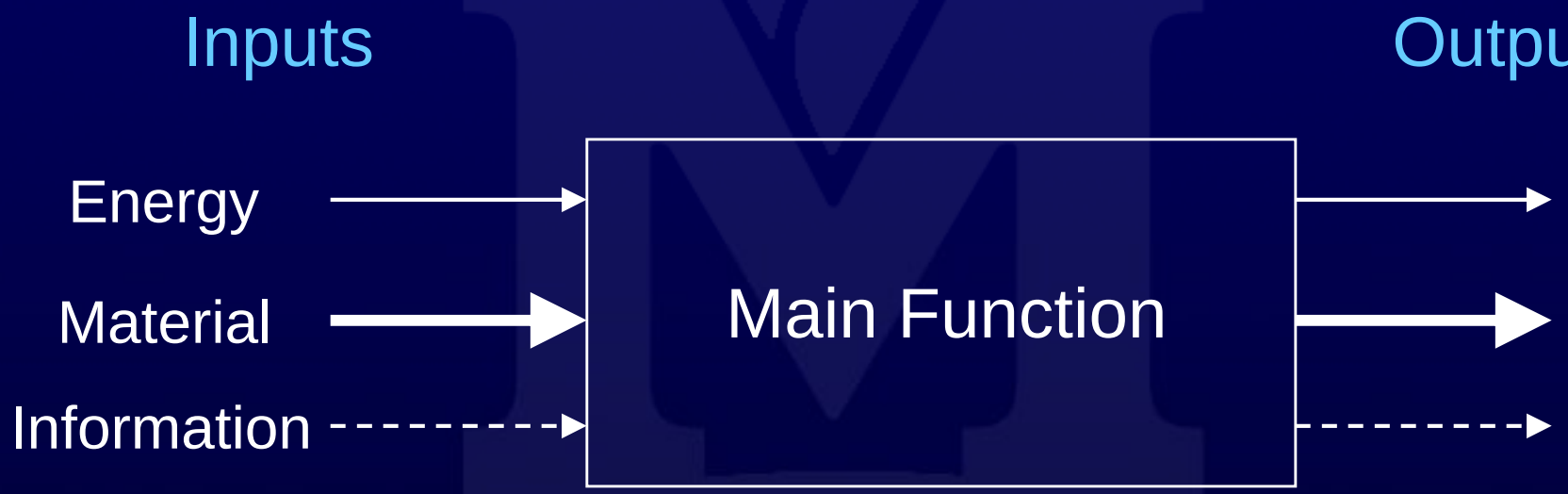
Functions & Specifications

Functions = what system must do to achieve objectives

Functional Specifications = how well system must do it

Also called “performance specifications” or “functional requirements”

Black Box Approach



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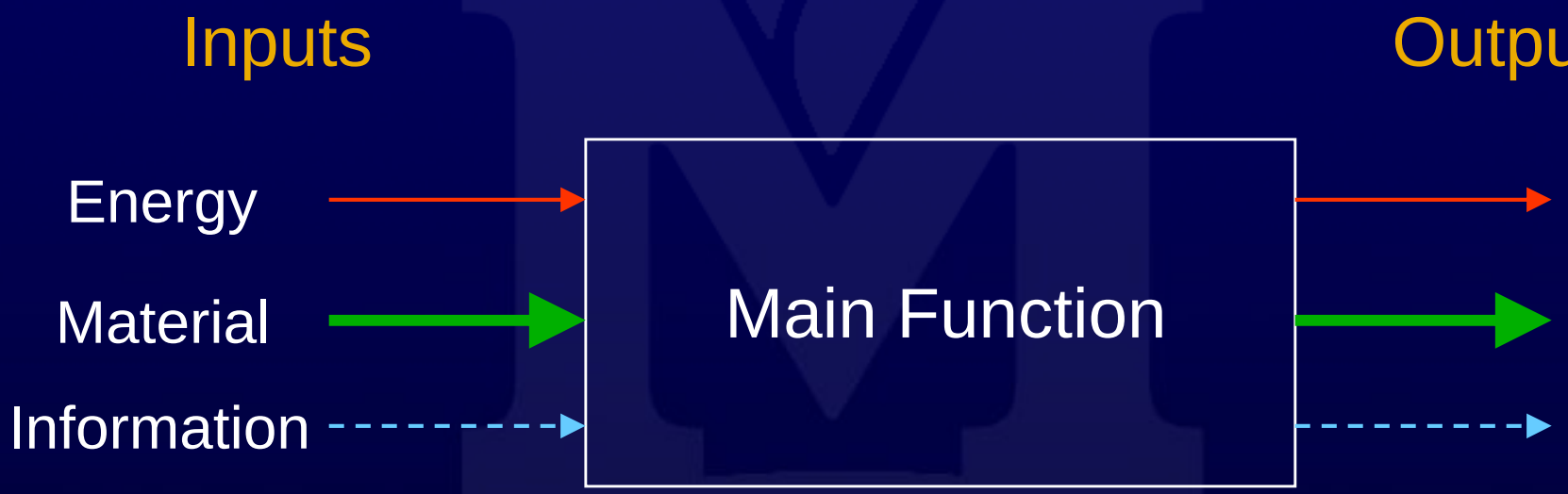
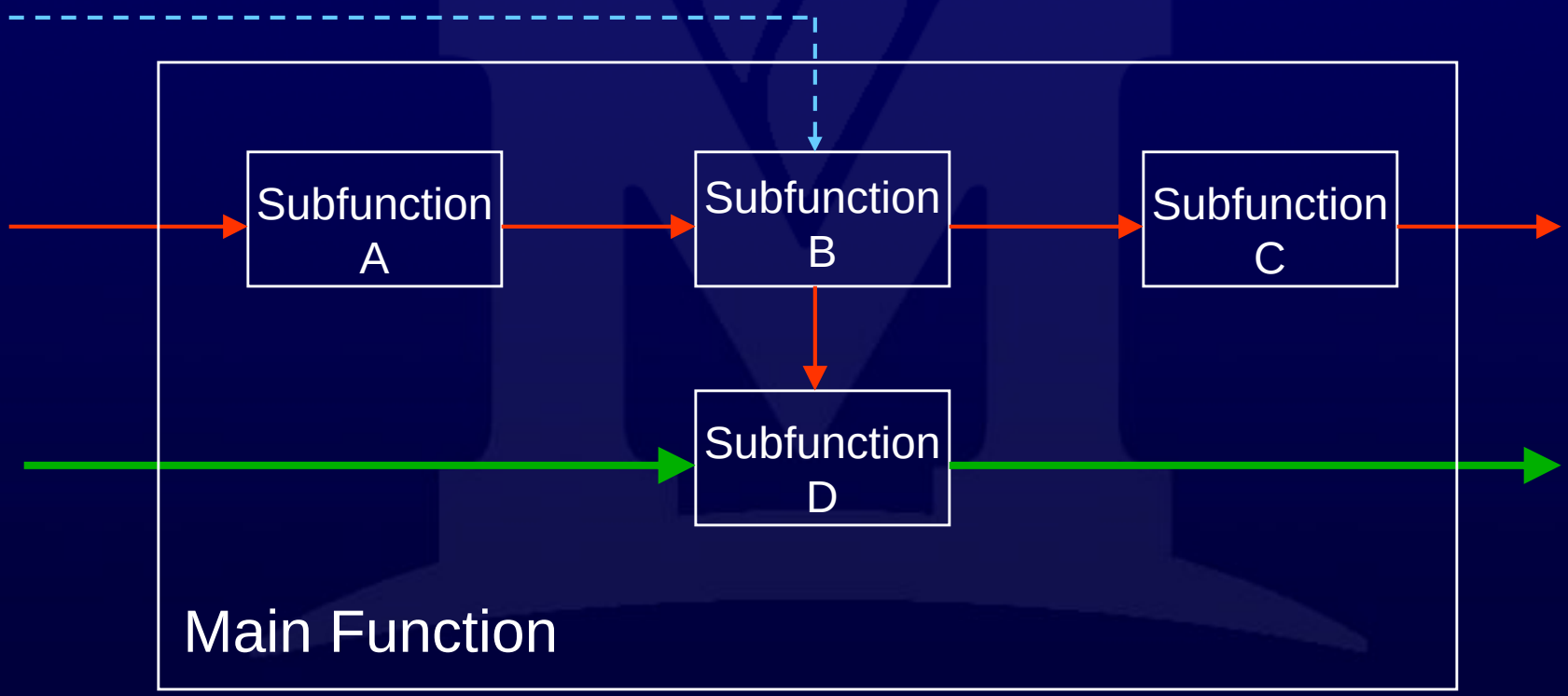


Divide Functions into Subfunctions



Tips

- Functions transform an input into an output.
- Define them as verb-object pairs.
  - E.g., convert energy, apply force, resist load
- Include primary and secondary functions.

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Unwanted

Required for primary

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- Define them as verb-object pairs.
  - E.g., convert energy, apply force, resist load
- Include primary and secondary functions.
- Be as general as possible.
  - E.g., support books vs. support load

Example

Exercise

With a neighbor:

Create a **Functional Model** of an overhead projector.