BSME Capstone Activity for 2017-18

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Or, capstone in a nutshell

Phase-gate design process

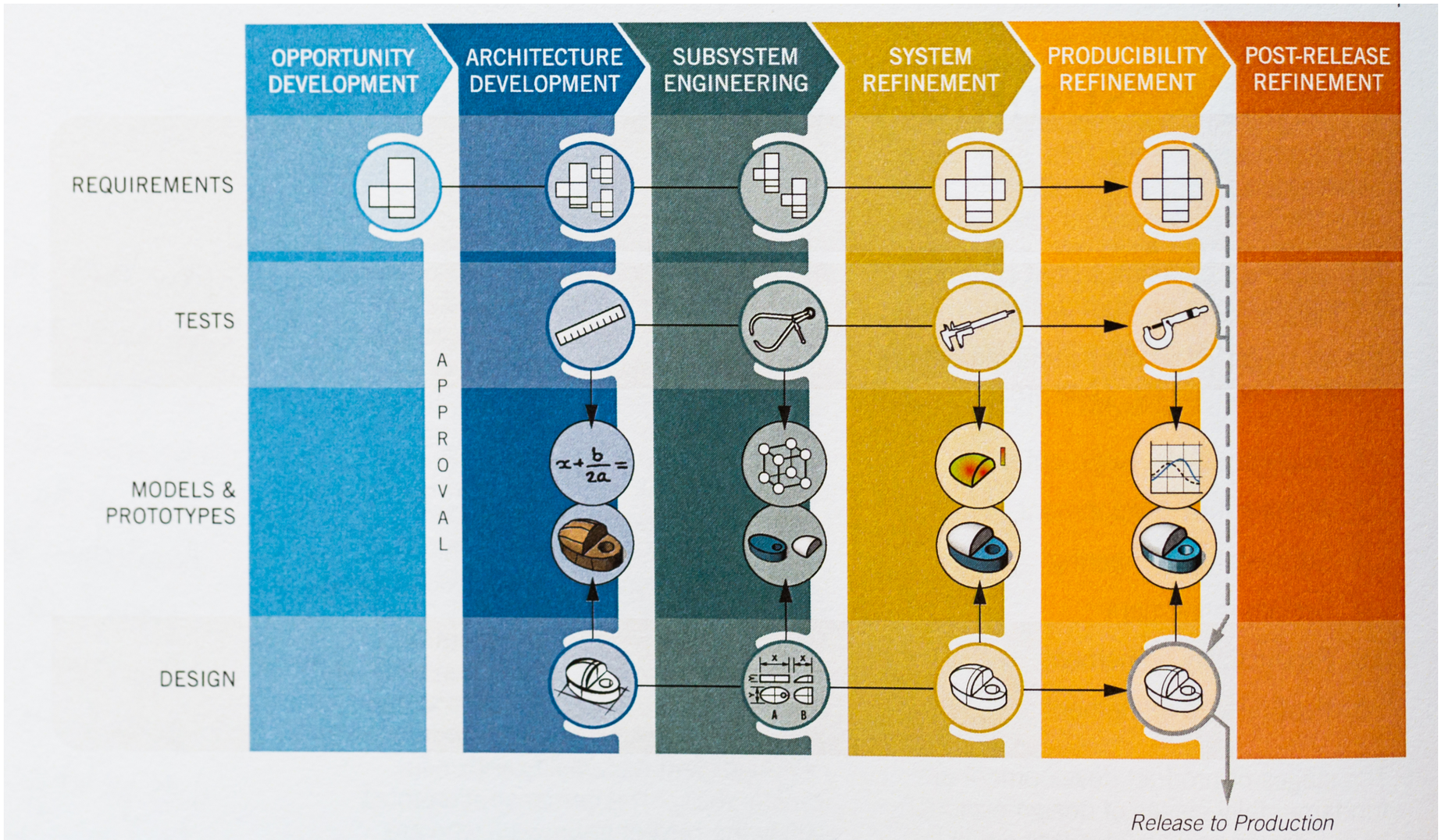

Figure A.1: The product requirements, tests, and design evolve through the stages of product development; the design is eventually used to manufacture the product. Prototypes and models are testable representations of the design used to determine the performance of the design at the current stage of evolution.

C.A. Mattson, C.D. Sorenson, *Fundamentals of Product Development,* 3rd edition, (c) 2015 Brigham Young University

Phases of design

1. Opportunity development
2. Concept development
3. Subsystem engineering
4. Engineering refinement
5. Producibility refinement
6. Post-release refinement

In Fall 2017 you will

1. Work in teams assigned by GWR
2. Design, fabricate and test a device to rescue a Lego mini figure
3. Use the design competition to practice the design process
4. Form teams to complete a 20-week design, fabricate and test project in ME 492-493
5. As a team, write a project proposal to a capstone sponsor, and get approval of GWR to work on that project in ME 492-493

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The basic goal is to give you experience with the phase-gate model in preparation for ME 492-493

In Winter 2017 you will

1. Work with your client to understand the needs of the design project
    - Establish client requirements
    - Translate client requirements to engineering requirements
2. Develop the conceptual design for solution
    - Create prototypes to test ideas against requirements
    - Verify design features that meet requirements
    - Get client feedback and approval of architecture
3. Begin subsystem engineering

In Spring 2017 you will

1. Complete subsystem engineering
    - Create subsystem prototypes to measure performance against engineering requirements
    - Document subsystem performance
    - Get final approval for engineering subsystem design

In Spring 2018 you will

2. Complete engineering system refinement
    - Finalize material selection and dimensions for integration of subsystems
    - Adjust subsystem designs to optimize performance
    - Document fabrication of the system
    - Document performance of the system
3. Make final presentations to sponsors, MME faculty, MME Students, MME Industrial Advisory Board and interested community members