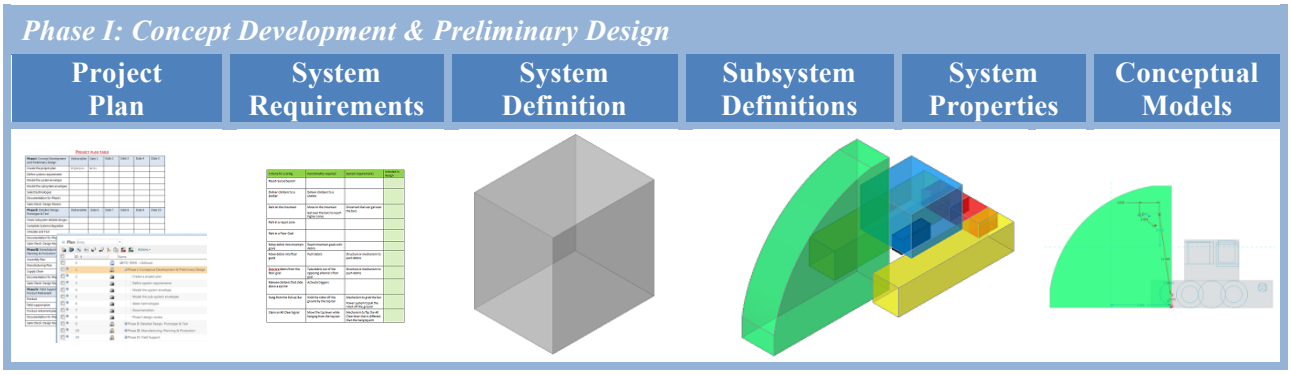
Let's break down the complexity of designing and building a robot through a product development process that allows you to engineer solutions to simpler tasks which, when taken together, form an integrated solution. That process has four phases that each contain a collection of deliverables and a gate check – giving you the chance to review and refine.

1. Concept development and preliminary design.
2. Detailed design, prototype, and test.
3. Manufacturing planning and production.
4. Field support and product retirement.



Project Plan

As you go through the steps of the product development process, you will create organizational charts, data tables, 3D models, physical prototypes, test results, and instructional guides. This guide refers to these outputs as deliverables. For example, in Phase I you create a 3D model of your robot system envelope. The Creo models you create are the deliverable for that exercise. Your project plan should outline the essential tasks you will need to complete and assign each task a due date and a team member owner.

The example project plan lists the steps of the product development process in the first column, the associated deliverable in the second, and lays out a timeline of due dates (they simple say "Date" currently) in the next set of columns. Ownership is assigned by putting the owner's name in the cell associated with the deliverable and the due date.

Phase I: Concept Development and Preliminary Design	Deliverables	Date 1	Date 2	Date 3	Date 4	Date 5
Create the project plan	Project plan	Brian				
Define system requirements	System Requirements Table					
Model the system envelope	System Envelope Model					
Model the subsystem envelopes	Subsystem Envelope Models					
Conceptual Models	Sketches of Subsystems					
Phase I Gate Check	Design Review					
Phase II: Detailed Design, Prototype & Test	Deliverables	Date 6	Date 7	Date 8	Date 9	Date 10
Create Subsystem detailed designs	Subsystem models					
Complete System integration	Robot system assembly model					
Simulate and Test	Analysis of simulated testing					
Revise the Robot Design	Revised model					
Phase II Gate Check	Design Review					
Phase III: Manufacturing Planning & Production	Deliverables	Date 11	Date 12	Date 13	Date 14	Date 15
Generate a bill of materials	Bill of materials					
Custom parts	Fabricated custom parts					
Phase III Gate Check	Design Review					

Phase IV: Field Support & Product Retirement	Deliverables	Date 16	Date 17	Date 18	Date 19	Date 20
Product	Robot					
Failure Modes and Effects Analysis	FMEA report					
Field support	Field support plan					
Phase IV Gate Check	Design Review					

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