

Task name	Assigned	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	01	02	03	04	05	06	07	08	09	10	11	12
1	Concept Design																																																																							
1.1	Project Plan																																																																							
1.1.1	Breakdown all deliverables and identify sequence																																																																							
1.1.2	Create Responsibility assignment matrices																																																																							
1.1.3	Draft a schedule																																																																							
1.1.4	Create Gantt chart																																																																							
1.1.5	Approve of Project Plan																																																																							
1.2	Market Analysis																																																																							
1.2.1	Perform preliminary Market Analysis																																																																							
1.2.2	Create Financial Estimates																																																																							
1.2.3	Perform Detailed Market Analysis																																																																							
1.2.4	Approve Market Analysis Report																																																																							
1.3	Overall Product Concept																																																																							
1.3.1	Creating Requirements List																																																																							
1.3.2	Abstract the Problem and Identify Functions																																																																							
1.3.3	Approve Key Functions																																																																							
1.3.4	Developing Working Structures and Morphological Box																																																																							
1.3.4.1	Adjust Solution according to Market Analysis																																																																							
1.3.4.2	Adjust Solution according to FMEA																																																																							
1.3.5	Drawing Concept Sketch																																																																							
1.3.6	Compile preliminary bill of materials																																																																							
1.3.7	Approve Overall Product Concept																																																																							
1.4	Functional Structure																																																																							
1.4.1	Create preliminary product FSD																																																																							
1.4.2	Adjust FSD according to FMEA																																																																							
1.4.3	Approve product FSD																																																																							
1.5	Human Machine Interface																																																																							
1.5.1	Create table of I/O Interactions																																																																							
1.5.2	Define and Arrange Control Elements																																																																							
1.5.3	Adjust HMI according to FMEA																																																																							
1.5.4	Approve HMI																																																																							
1.6	D-FMEA																																																																							
1.6.1	Create Basis for Failure Analysis																																																																							
1.6.2	Identify Preliminary Failure Modes																																																																							
1.6.3	Create Draft of D-FMEA Table																																																																							
1.6.4	Create Final D-FMEA Report																																																																							
1.6.5	Approve D-FMEA Report																																																																							
1.7	Concept Design Close-out																																																																							
2	Product Design																																																																							
2.1	Complete 3D Model																																																																							
2.1.1	Design the Housing and Internal Structure																																																																							
2.1.2	Approve of General Structure																																																																							
2.1.3	Integrate PCB and Connectors into 3D Model																																																																							
2.1.4	Perform Assembly & Interference Check																																																																							
2.1.5	Adjust 3D Model based on results of Assembly test																																																																							
2.1.6	Assign Material																																																																							
2.1.7	Adjust 3D Model According to Manufacturability																																																																							
2.1.8	Adjust 3D Model According to Part Availability																																																																							
2.1.9	Approve 3D Model																																																																							
2.2	Measurement Chain																																																																							
2.2.1	Identify necessary Signal Conditioning																																																																							
2.2.2	Design Schematics for Signal Condition																																																																							
2.2.3	Adjust Signal Conditioning according to Feedback from Circuit Design																																																																							
2.2.4	Create detailed Measurement Chain FSD																																																																							
2.2.5	Approve the Measurement Chain Design																																																																							
2.3	Circuit Diagram																																																																							
2.3.1	Draw Electrical System Block Diagram																																																																							
2.3.2	Create Draft Circuit Schematic																																																																							
2.3.3	Integrate Signal Processing Schematics																																																																							
2.3.4	Design Detailed Circuit Schematic																																																																							
2.3.5	Design PCB																																																																							
2.3.6	Perform Electrical Safety Checks																																																																							
2.3.7	Adjust PCB according to Manufacturability																																																																							
2.3.8	Adjust PCB according to Availability																																																																							
2.3.9	Create Final Electrical Documentation Package																																																																							
2.3.10	Approve Final Circuit Diagram																																																																							
2.4	Technology Selection for "Make" Parts																																																																							
2.4.1	Identify all necessary "make" parts																																																																							
2.4.2	Approve list of "Make" + "Buy" parts																																																																							
2.4.3	Assess Manufacturability of Parts																																																																							
2.4.4	Select Manufacturing Process and Materials for each part																																																																							
2.4.5	Approve of material and manufacturing processes of "make" parts																																																																							
2.4.6	Define the Assembly Technology (Area by Area)																																																																							
2.4.7	Approve Manufacturing and Assembly Guide Package																																																																							
2.5	Requirements Manual for "Buy" Parts																																																																							
2.5.1	Identify all necessary "buy" parts																																																																							
2.5.2	Assess availability of "buy" Parts																																																																							
2.5.3	Create part requirements sheets for each "buy" part																																																																							
2.5.4	Approve requirement sheets																																																																							
2.6	Product Design Close-out																																																																							
3	Project Documentation																																																																							
3.1	Technical Drawings for Main Assembly																																																																							
3.1.1	Create Assembly Drawing with Section and Detail Views																																																																							
3.1.2	Verify drawings for electrical components																																																																							
3.1.3	Verify Compliance with DIN 406 Drawing Standards																																																																							
3.1.4	Approval of technical drawing																																																																							
3.2	Program Flow Chart																																																																							
3.2.1	Draw Main structural flowchart																																																																							
3.2.2	Draw User interaction flowchart																																																																							
3.2.3	Draw Calibration menu flowchart																																																																							
3.2.4	Draw Data handling flowchart																																																																							
3.2.5	Draw Error and Internal Interrupt handling flowchart																																																																							
3.2.6	Approve program flowcharts																																																																							
3.3	Bill of Material																																																																							
3.3.1	Create master BOM spreadsheet																																																																							
3.3.2	Itemize all Mechanical Components																																																																							
3.3.2.1	Identify norm spec for each standard mechanical component																																																																							
3.3.2.2	Verify all specifications of all mechanical components																																																																							
3.3.3	Itemize all Electrical Components																																																																							
3.3.3.1	Add technical specs for all electrical components																																																																							
3.3.3.2	Verify all specifications of all electrical components																																																																							
3.3.4	Add cost to all components																																																																							
3.3.5	Verify Part Numbers according to Drawings																																																																							
3.3.6	Approve final BOM																																																																							
3.4	Production Planning																																																																							
3.4.1	Estimate Number of Required Machines																																																																							
3.4.2	Estimate Manufacturing and Assembly Time per Part																																																																							
3.4.3	Create Assembly Sequence and Flowchart																																																																							
3.4.4	Estimate Workforce Requirements																																																																							
3.4.5	Optimize Assembly Sequence Costs																																																																							
3.4.6	Approve of Assembly Sequence and Flowchart																																																																							
3.4.7	Create Production Planning Summary																																																																							
3.4.8	Approve Production Plan																																																																							
3.5	Cost Calculation																																																																							
3.5.1	Estimate Fixed Costs																																																																							
3.5.2	Estimate Variable Costs																																																																							
3.5.2.1	Perform Initial Variable Cost Estimation																																																																							
3.5.2.2	Perform Final Variable Cost Estimate																																																																							
3.5.3	Estimate Overheads and Miscellaneous																																																																							
3.5.4	Summary Costs and Revenue Projection																																																																							
3.5.5	Approve Cost Calculation Report																																																																							
3.6	Specification sheet																																																																							
3.6.1	Outline Functional specifications																																																																							
3.6.2	Outline Physical and Mechanical Specifications																																																																							
3.6.3	Outline Electrical Specifications																																																																							
3.6.4	Adjust Specification on Final Design																																																																							
3.6.5	Approve specifications sheet																																																																							
3.7	User manual																																																																							
3.7.1	Write Safety Disclaimers																																																																							
3.7.2	Write Functional Instructions																																																																							
3.7.3	Explain troubleshooting steps																																																																							
3.7.4	Approve user manual																																																																							
3.8	Interactive brochure																																																																							
3.8.1	Create first draft of Brochure																																																																							
3.8.2	Create Interactive Media for brochure																																																																							
3.8.3	Design Final Brochure																																																																							
3.8.4	Approve brochure																																																																							
3.9	Project Documentation Closeout																																																																							
4	Project Close-out																																																																							