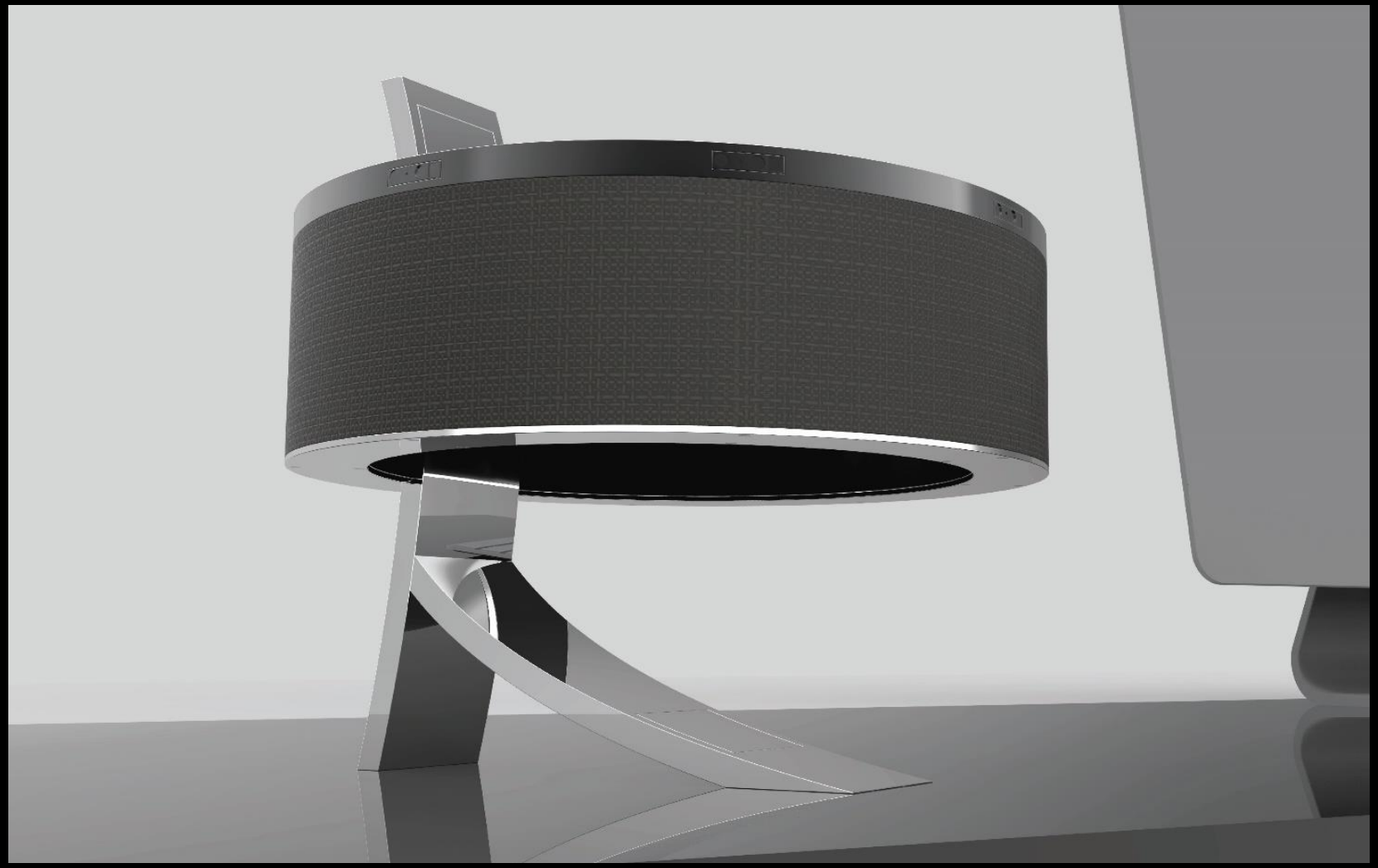
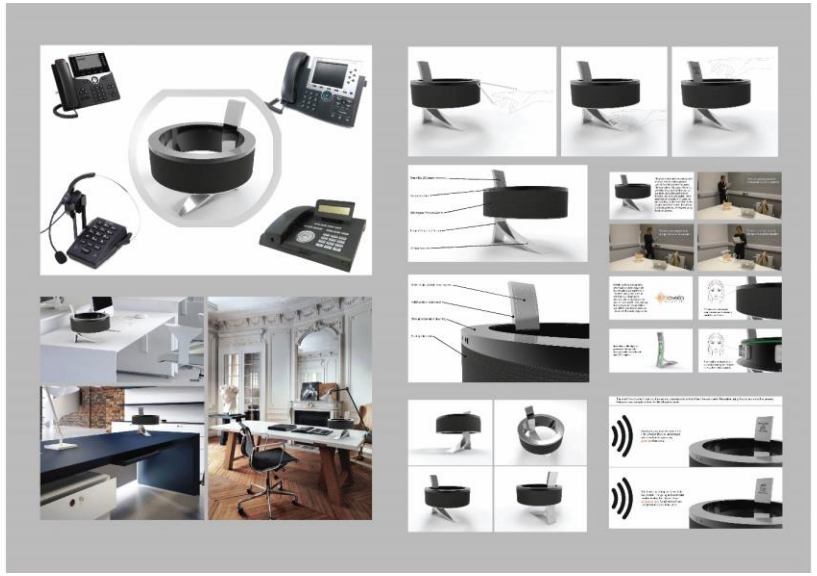
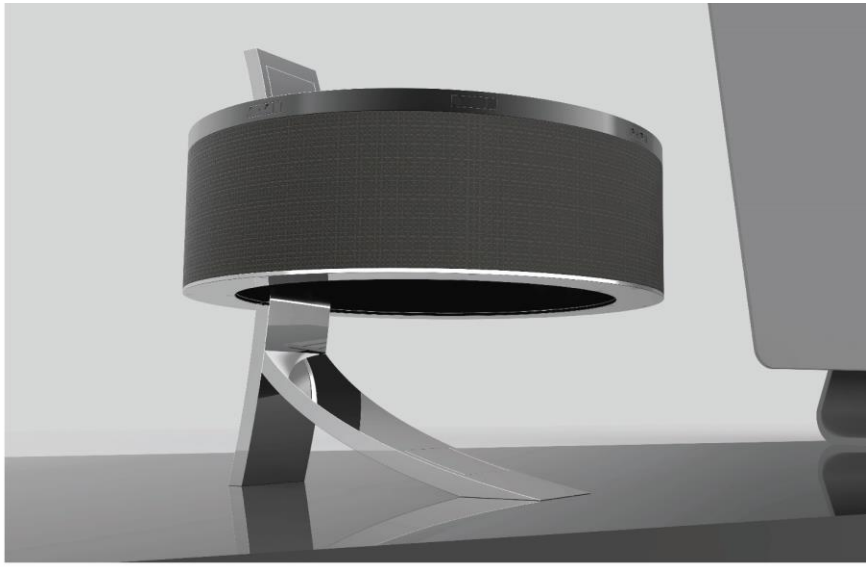
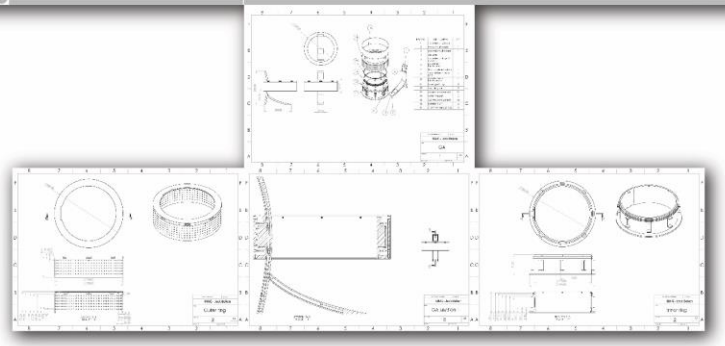


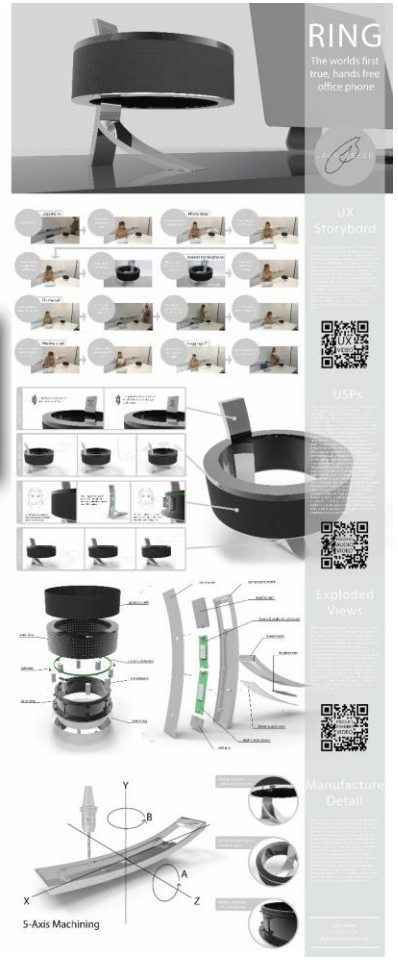
Logging in
User walks in
Sits down and scans face
Phone rings
Phone listens to surroundings
Focus audio notifies user
User silences the phone by looking at it
Call info is displayed
Answering the phone
Phone uses 3 different control systems
TOUCH
VOICE
GESTURE
User uses a gesture to answer
On the call
Focus audio is used on the call
Tracks user through 360 degrees
Gesture used to change to loud speaker
Touchscreen used to end call
Making a call
Voice command used to make a call
Focused audio is automatically used
Logging off
User gets ready to leave the office
Voice command used to log off

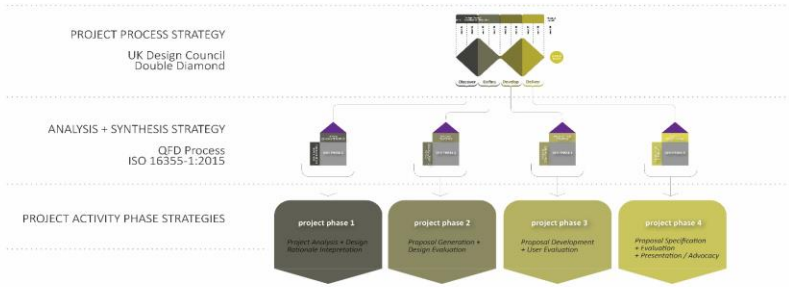


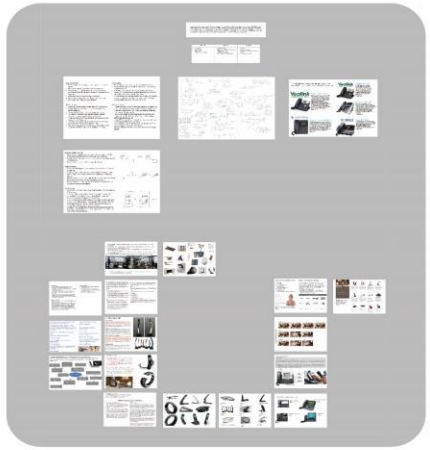


Concept 1
Concept 2
Concept 3

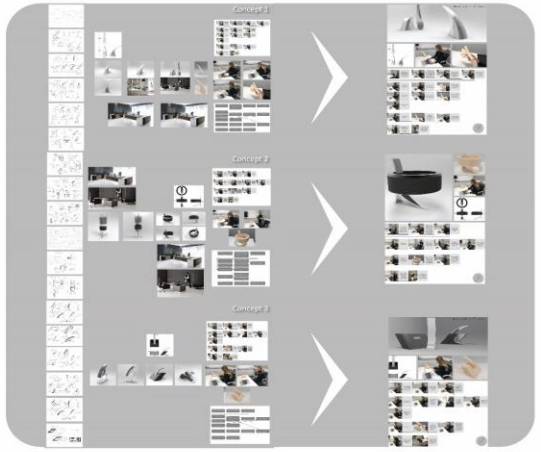



RING
The worlds first true, hands free office phone
UX Storybord
USPs
Exploded Views
Manufacture Detail
5-Axis Machining



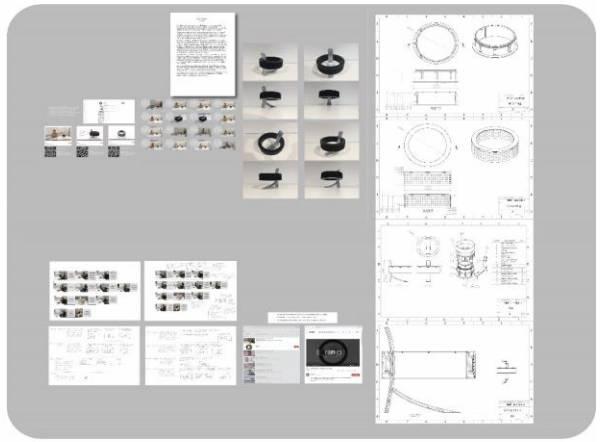


PROJECT SPECIFICATION

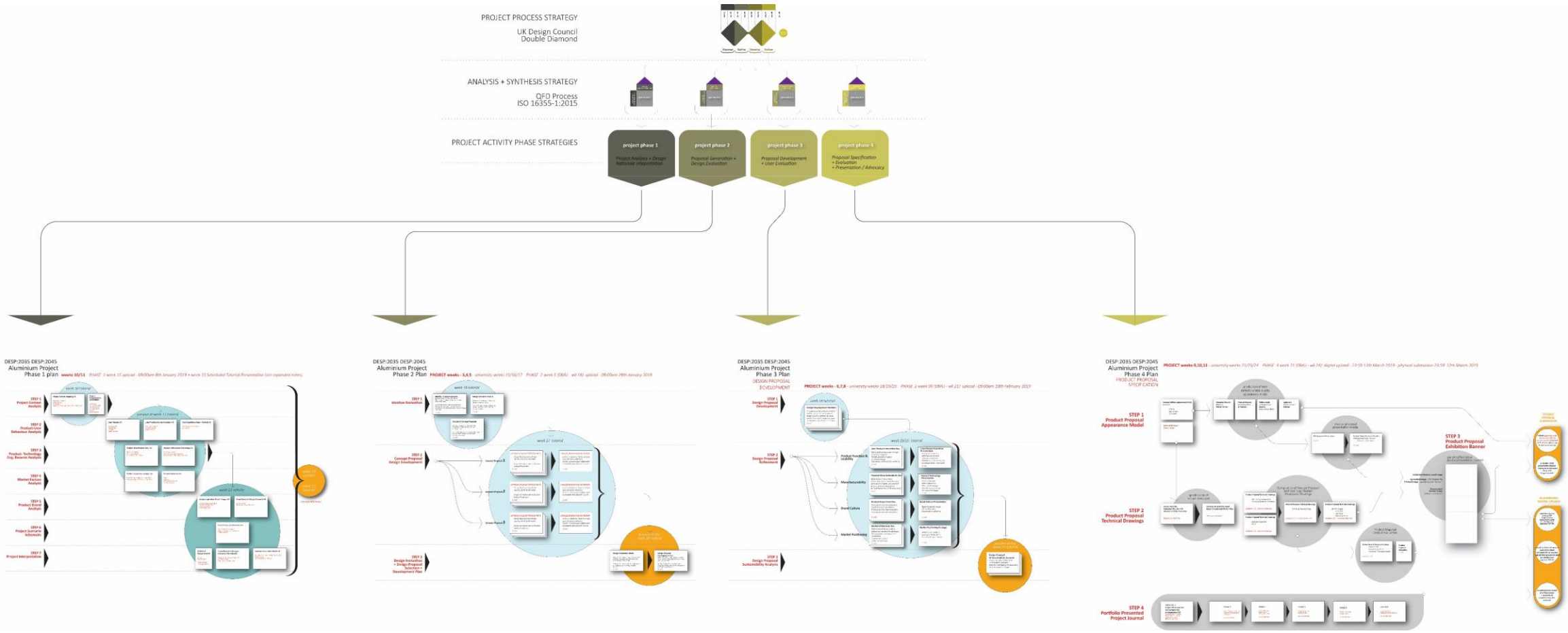


PROPOSAL GENERATION

PROPOSAL DEVELOPMENT

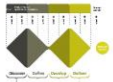


PROPOSAL SPECIFICATION


PROJECT PROCESS STRATEGY
UK Design Council
Double Diamond
ANALYSIS + SYNTHESIS STRATEGY
QFD Process
ISO 16355-1:2015
PROJECT ACTIVITY PHASE STRATEGIES
project phase 1
Project Analysis + Design Rationale Interpretation
project phase 2
Proposal Generation + Design Evaluation
project phase 3
Proposal Development + User Evaluation
project phase 4
Proposal Specification + Evaluation + Presentation / Advocacy
DESP:2035 DESP:2045
Aluminium Project
Phase 1 plan
DESP:2035 DESP:2045
Aluminium Project
Phase 2 Plan
DESP:2035 DESP:2045
Aluminium Project
Phase 3 Plan
DESP:2035 DESP:2045
Aluminium Project
Phase 4 Plan
STEP 1
Product Proposal
Appearance Model
STEP 2
Product Proposal
Technical Drawings
STEP 3
Product Proposal
Exhibition Banner
STEP 4
Portfolio Presented
Project Journal

PROJECT PROCESS STRATEGY

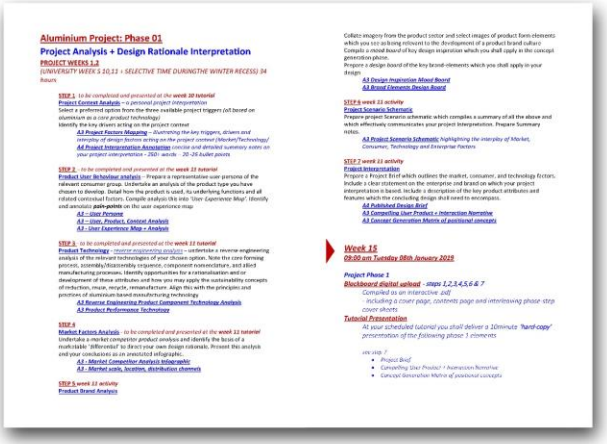
UK Design Council
Double Diamond



ANALYSIS + SYNTHESIS STRATEGY

QFD Process
ISO 16355-1:2015

PROJECT ACTIVITY PHASE STRATEGIES



Aluminium Project: Phase 01

Project Analysis + Design Rationale Interpretation

PROJECT WEEKS 1,2

(UNIVERSITY WEEK 5 10,11 + SELECTIVE TIME DURINGTHE WINTER RECESS) 34 hours

STEP 1 - *to be completed and presented at the* ***week 10 tutorial***

Project Context Analysis – *a personal project interpretation*

Select a preferred option from the three available project triggers (*all based on aluminium as a core product technology*)

Identify the key drivers acting on the project context

A3 Project Factors Mapping – *illustrating the key triggers, drivers and interplay of design factors acting on the project context (Market/Technology/ Consumer, Technology and Enterprise Factors*

A4 Project Interpretation Annotation *concise and detailed summary notes on your project interpretation - 250 - words - 20-26 bullet points*

STEP 2 - *to be completed and presented at the* ***week 11 tutorial***

Product User Behaviour analysis – Prepare a representative user persona of the relevant consumer group. Undertake an analysis of the product type you have chosen to develop. Detail how the product is used, its underlying functions and all related contextual factors. Compile analysis this into 'User Experience Map'. Identify and annotate **pain-points** on the user experience map

A2 – User Persona

A3 – User, Product, Context Analysis

A3 - User Experience Map + Analysis

STEP 3 - *to be completed and presented at the* ***week 11 tutorial***

Product Technology – *reverse engineering analysis* – undertake a reverse-engineering analysis of the relevant technologies of your chosen option. Note the core forming process, assembly/disassembly sequence, component nomenclature, and allied manufacturing processes. Identify opportunities for a rationalisation and/or development of these attributes and how you may apply the sustainability concepts of reduction, reuse, recycle, remanufacture. Align this with the principles and processes of aluminium-based manufacturing technology

A3 Reverse Engineering Product Component Technology Analysis

A3 Product Performance Technology

STEP 4

Market Factors Analysis - *to be completed and presented at the* ***week 11 tutorial***

Undertake a *market competitor product analysis* and identify the basis of a marketable 'differential' to direct your own design rationale. Present the analysis and your conclusions as an annotated infographic.

A3 - Market Competitor Analysis Infographic

A3 - Market scale, location, distribution channels

STEP 5 *week 11 activity*

Product Brand Analysis

Collate imagery from the product sector and select images of product form elements which you see as being relevant to the development of a product brand culture. Compile a *mind board* of key design inspiration which you shall apply in the concept generation phase.

Prepare a design board of the key brand-elements which you shall apply in your design.

A3 Design Inspiration Mood Board

A3 Brand Elements Design Board

STEP 6 *week 11 activity*

Project Scenario Schematic

Prepare project Scenario schematic which compiles a summary of all the above and which effectively communicates your project interpretation. Prepare Summary notes.

A3 Project Scenario Schematic *highlighting the interplay of Market, Consumer, Technology and Enterprise Factors*

STEP 7 *week 11 activity*

Project Interpretation

Prepare a Project Brief which outlines the market, consumer, and technology factors. Include a clear statement on the enterprise and brand on which your project interpretation is based. Include a description of the key product attributes and features which the concluding design shall need to encompass.

A4 Published Design Brief

A3 Compelling User Product + Interaction Narrative

A3 Concept Generation Matrix of positional concepts

Week 15

09:00 am Tuesday 08th January 2025

Project Phase 1

Blackboard digital upload - ***steps 1,2,3,4,5,6 & 7***

Compiled as an interactive .pdf

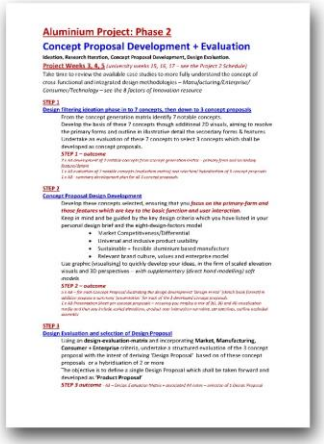
- Including a cover page, contents page and intermissing phase -step cover sheets

Tutorial Presentation

*At your scheduled tutorial you shall deliver a 10minute '**hard-copy**' presentation of the following phase 1 elements*

via .ppt /

- *Project Brief*
- *Compelling User Product + Interaction Narrative*
- *Concept Generation Matrix of positional concepts*



Aluminium Project: Phase 2

Concept Proposal Development + Evaluation

Ideation, Research Iteration, Concept Proposal Development, Design Evaluation.

Project Weeks 3, 4, 5 *(university weeks 10, 11, 12 - see the Project 2 Schedule)*

Take time to review the available case studies to more fully understand the concept of cross functional and integrated design methodologies – *Manufacturing/Enterprise/ Consumer/Technology – see the 8 factors of innovation resource*

STEP 1

Design Filtering ideation phase in to 7 concepts, then down to 3 concept proposals

from the concept generation matrix identify 7 notable concepts.

Develop the basis of these 7 concepts through additional 2D visuals, aiming to resolve the primary forms and outline in illustrative detail the secondary forms & features.

Undertake an evaluation of these 7 concepts to select 3 concepts which shall be developed as concept proposals.

STEP 1 – outcome

7 x A3 development of 7 notable concepts (evaluation criteria) see courtyard hybridisation of 5 concept proposals

1 x A3 - summary development plan for all 3 concept proposals

STEP 2

Concept Proposal Design Development

Develop these concepts selected, ensuring that you ***focus on the primary form and those features which are key to the basic function and user interaction.***

Keep in mind and be guided by the key design criteria which you have listed in your personal design brief and the eight-design-factors model

- Market Competitiveness/Differential
- Universal and inclusive product usability
- Sustainable + flexible aluminium based manufacture
- Relevant brand culture, values and enterprise model

Use graphic (visualising) to quickly develop your ideas, in the form of scaled elevation visuals and 3D perspectives - *with supplementary (direct hand-modelling) soft models*

STEP 2 – outcome

1x A4 – 3D Perspective Proposal illustrating the design development 'design arena' (which book-ends the 3 concept proposals in a cohesive 'presentation' for each of the 3 developed concept proposals

1 x A3 Presentation plan per concept proposal – incorporating Product + Use (P & U) and the evaluation media and their key criteria, aerial elevations, product use interaction narrative, perspectives, coffee-table model assembly

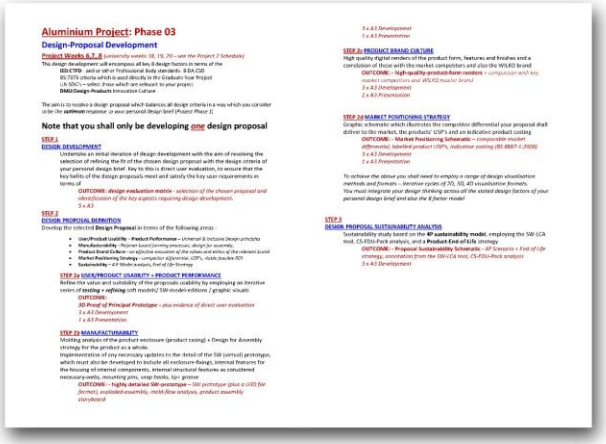
STEP 3

Design Evaluation and selection of Design Proposal

Using an **design-evaluation-matrix** and incorporating **Market, Manufacturing, Consumer + Enterprise** criteria, undertake a structured evaluation of the 3 concept proposal with the intent of devising 'Design Proposal' based on of these concept proposals or a hybridisation of 2 or more

"the objective is to define a single Design Proposal which shall be taken forward and developed as: **'Product Proposal'**

STEP 3 outcome *1x – Design Evaluation Matrix + associated A4 notes – selection of 1 Design Proposal*



Aluminium Project: Phase 03

Design-Proposal Development

Project Weeks 6,7,8 *(university weeks 13, 14, 15 – see the Project 2 Schedule)*

This design development will encompass all key 8-design factors in terms of the

IED/CTID - and or other Professional Body standards. 8-DA-CSD

(8.7270 criteria which is used directly in this Graduate Year Project

LN: SDG's – select those which are relevant to your project.

DMU:Design-Produces Innovation Culture

The aim is to resolve a design proposal which balances all design criteria in a way which you consider to be the **optimum** response *to your personal design brief (Project Phase 1).*

Note that you shall only be developing *one* design proposal

STEP 1

DESIGN DEVELOPMENT

Undertake an initial iteration of design development with the aim of resolving the selection of refining the fit of the chosen design proposal with the design criteria of your personal design brief. Key to this is direct user evaluation, to ensure that the key traits of the design proposals meet and satisfy the key user requirements in terms of

OUTCOME: ***design evaluation matrix*** *- selection of the chosen proposal and identification of the key aspects requiring design development.*

5 x A3

STEP 2

DESIGN: PROPOSAL DEFINITION

Develop the selected **Design Proposal** in terms of the following areas -

- **User/Product Usability** – **Product Performance** – *Universal & Inclusive Design principles*
- **Manufacturability** - *Polymer based forming processes, design for assembly.*
- **Product Brand Culture** - *an objective evaluation of the values and ethos of the relevant brand*
- **Market Positioning Strategy** - *competitor differential, USP's, niche/broker POV*
- **Sustainability** – *4 P Model + values, End of Life Strategy*

STEP 2a USER/PRODUCT USABILITY + PRODUCT PERFORMANCE

Refine the value and suitability of the proposals usability by employing an iterative series of **testing + refining** soft models/ SW-model-editions / graphic visuals

OUTCOME:

3D Proof of Principal Prototype *– plus evidence of direct user evaluation*

3 x A3 Development

1 x A3 Presentation

STEP 2b MANUFACTURABILITY

Modelling analysis of the product enclosure (product casing) + Design for Assembly strategy for the product as a whole.

Implementation of any necessary updates to the detail of the SW (virtual) prototype, which must also be developed to include all enclosure-fixings, internal features for the housing of internal components, internal structural features as considered necessary-webs, mounting pins, snap hooks, lip+ groove

OUTCOME: – **highly detailed SW-prototype** – *SW prototype (plus a USB file format), exploded-assembly, mold-flow analysis, product assembly storyboard*

3 x A3 Development

1 x A3 Presentation

STEP 2c PRODUCT BRAND CULTURE

High quality digital renders of the product form, features and finishes and a compilation of these with the market competitors and also the WILKO brand

OUTCOME: – **high-quality-product-form renders** + *comparison with key market competitors and WILKO Hoover brand*

3 x A3 Development

1 x A3 Presentation

STEP 2d MARKET POSITIONING STRATEGY

Graphic schematic which illustrates the competitor differential your proposal shall deliver to the market, the products' USP's and an indicative product costing

OUTCOME: – **Market Positioning Schematic** – *comparable market differential, tabulated product USP's, indicative costing (BS 8887-1:2008)*

3 x A3 Development

1 x A3 Presentation

To achieve the above you shall need to employ a range of design visualisation methods and formats – iterative cycles of 2D, 3D, 4D visualisation formats.

You must integrate your design thinking across all the stated design factors of your personal design brief and also the 8 factor model

STEP 3

DESIGN: PROPOSAL SUSTAINABILITY ANALYSIS

Sustainability study based on the **4P sustainability model**, employing the SW-LCA tool, CS-FEM-Pack analysis, and a **Product End-of-Life** strategy

OUTCOME: – **Proposal Sustainability Schematic** – *4P Scenarios + End-of-Life strategy, annotation from the SW-LCA tool, CS-FEM-Pack analysis*

3 x A3 Development

Aluminium Project: Phase 04

Product-Proposal-Specification

During this project phase you shall undertake the completion of a detailed Product Proposal Specification developing detail in the solid-works model, undertaking SW based performance and manufacturing analytical process, compile a full set of technical drawings and produce a high quality appearance model.

Project Weeks 9,10,11 *(University Weeks 21, 22,24) - 34 HOURS*

STEP 1

PRODUCT PROPOSAL APPEARANCE MODEL

Prepare a high quality Appearance Model which effectively illustrates the product, product (brand) form, key features user interaction.

This model shall encompass the application of key prototyping processes based on a combination of hand-based techniques, CNC processes, 3D printing, high-quality surface finishing

OUTCOME:

Professional Quality (High Definition= High Quality) 'Appearance Prototype', Photographed Hero-image, Photographed user-interaction-narrative

STEP 2

PRODUCT PROPOSAL TECHNICAL DRAWING

Prepare a set of technical drawings, which will include General Assembly, Exploded Assembly, Part Drawings for each, Feature Sections, ROM/SW-FEA + LCA processes

OUTCOME:

Full set of technical drawings as itemised above compiled as a PDF document + 3D-PDF's and SW part drawings for of each component, general assembly, Feature Sectional Elevations.

STEP 3

PRODUCT PROPOSAL SUMMARY PRESENTATION

Based on a A1 portrait format prepare a summary presentation of the Product Proposal which must include 'Hero' Images, User Product storyboard, Annotated Product USP's, Reinforced Exploded Assembly

OUTCOME:

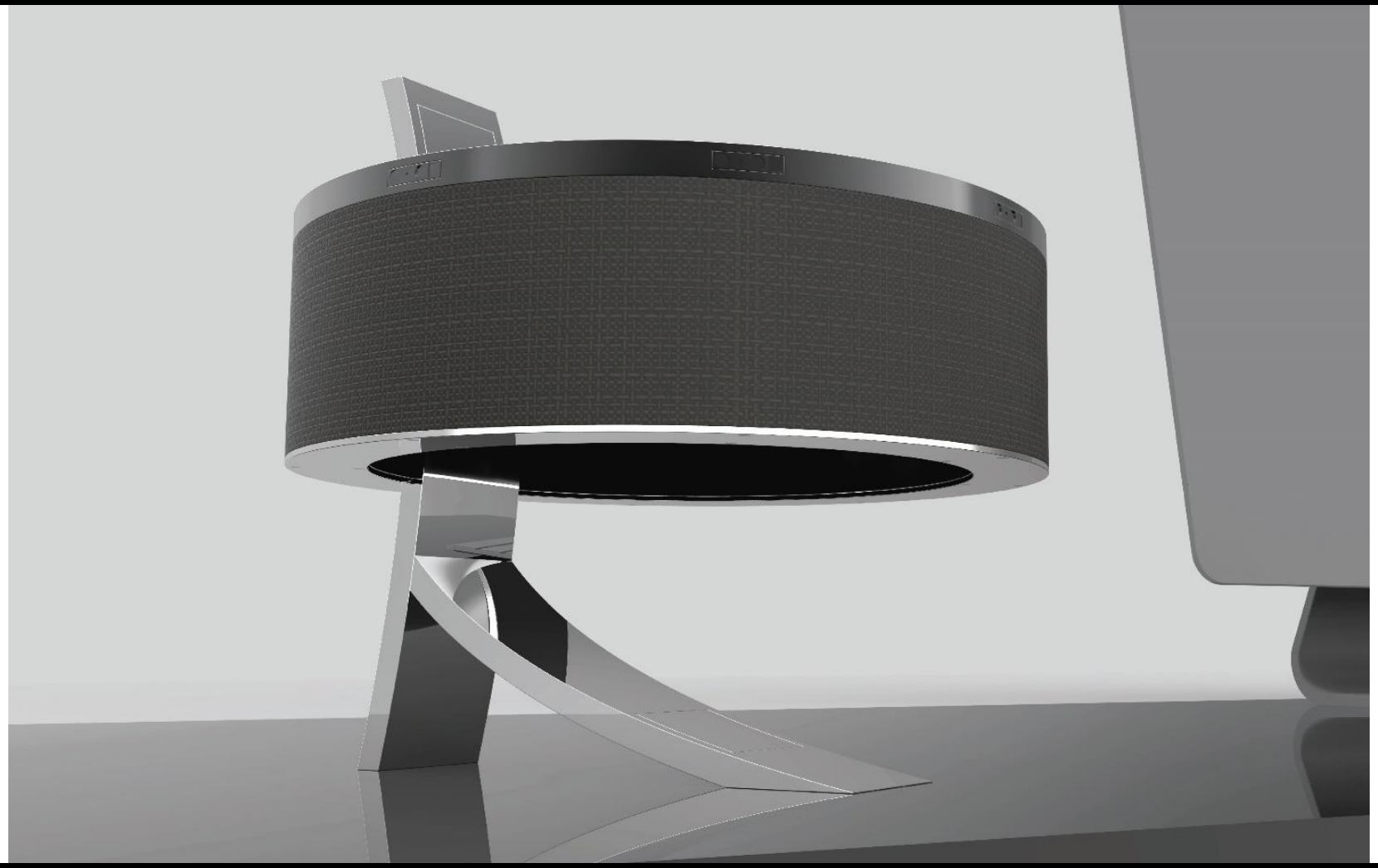
Printed Project Proposal Summary Presentation - Banner Print format - 600 x 1500 - 300dpi jpeg file format – see schematic for amplified detail on the content requirements

STEP 4

SUMMARY PROJECT SUBMISSION

Collate the summary outcomes for each project phase and prepare a collation these in the format of a single *PDF Project Portfolio-Format-Presentation of Project Phases* – additionally compile all developmental materials from each stage and collate these into a single *PDF Project 'Folio-journal' of developmental materials*

OUTCOME:

Project Portfolio-Format Presentation of Project Phases 1,2,3,4 – outcomes

Project Folio-Journal of all supporting developmental materials