

Summary

Topic 5 - Innovation and Design

Subject	Year	Start date	Duration
Design Technology	IB1	Week 1, November	5 weeks 13 hours

Course Part

Description

The areas of study within this topic are:

- Invention
- Innovation
- Strategies for innovation
- Stakeholders in invention and innovation
- Product life cycle
- Rogers' characteristics of innovation and consumers
- Innovation, design and marketing specifications

Inquiry & Purpose

? Inquiry / Higher Order Questions

Type

Inquiry Questions

Content-based

How might an innovation be championed within a company?

Curriculum

⊕ Aims

Enable students, through the overarching theme of the nature of design, to develop:

A sense of curiosity as they acquire the skills necessary for independent and lifelong learning and action through inquiry into the technological world around them

An ability to explore concepts, ideas and issues with personal, local and global significance to acquire in-depth knowledge and understanding of design and technology

◇ Objectives

Demonstrate knowledge and understanding of


facts, concepts, principles and terminology

Apply and use

facts, concepts, principles and terminology

Construct, analyse and evaluate

data, information and technological explanations

 Syllabus Content

Core

5. Innovation and design

5.1 Invention

Drivers for invention

The lone inventor

Intellectual property (IP)

Strategies for protecting IP: patents, trademarks, design protection, copyright.

First to market

Shelved technologies

5.2 Innovation

Invention and innovation

Categories of innovation: sustaining innovation, disruptive innovation, process innovation

Innovation strategies for design: architectural innovation, modular innovation, configurational innovation

Innovation strategies for markets: diffusion and suppression

5.3 Strategies for innovation

Act of insight

Adaptation

Technology transfer

Analogy

Chance

Technology push

Market pull

5.4 Stakeholders in invention and innovation

The inventor, the product champion, the entrepreneur

The inventor as a product champion and/or entrepreneur

A multidisciplinary approach to innovation

5.5 Product life cycle

Key stages of the product life cycle: launch, growth, maturity, decline

Obsolescence: planned, style (fashion), functional, technological

Predictability of the product life cycle

Product versioning/generations

5.6 Rogers' characteristics of innovation and consumers

Diffusion and innovation

The impact of Rogers' characteristics on consumer adoption of an innovation

Social roots of consumerism

The influence of social media on the diffusion of innovation

The influence of trends and the media on consumer choice

Categories of consumers in relation to technology adoption

5.7 Innovation, design and marketing specifications

Target markets

Target audiences

Market analysis

User need

Competition

Research methods

Design specifications

Concepts

- Drivers for invention
- The lone inventor
- Intellectual property (IP)
- Strategies for protecting IP: patents, trademarks, design protection, copyright.
- First to market
- Shelved technologies
- Invention and innovation
- Categories of innovation: sustaining innovation, disruptive innovation, process innovation
- Innovation strategies for design: architectural innovation, modular innovation, configurational innovation
- Innovation strategies for markets: diffusion and suppression
- Act of insight
- Adaptation
- Technology transfer
- Analogy
- Chance
- Technology push
- Market pull
- The inventor, the product champion, the entrepreneur

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- The inventor as a product champion and/or entrepreneur
- A multidisciplinary approach to innovation
- Key stages of the product life cycle: launch, growth, maturity, decline
- Obsolescence: planned, style (fashion), functional, technological
- Predictability of the product life cycle
- Product versioning/generations
- Diffusion and innovation
- The impact of Rogers' characteristics on consumer adoption of an innovation
- Social roots of consumerism
- The influence of social media on the diffusion of innovation
- The influence of trends and the media on consumer choice
- Categories of consumers in relation to technology adoption
- Target markets
- Target audiences
- Market analysis
- User need
- Competition
- Research methods
- Design specifications

ATL Skills

Approaches to Learning



Thinking

- In this unit, we will
 - reward a new personal understanding, solution or approach to an issue
 - include a reflection activity



Social

- In this unit, we will
 - have students work in small groups



Research

- In this unit, we will
 - give students advice on (or provide an opportunity for students to practise) narrowing the scope of a task to make it more manageable

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Developing IB Learners

☆ Learner Profile



Open-minded



Risk-takers (Courageous)



Assessment



Assessment criteria

SL Criteria

External Assessment

Paper 2

A: Data-based and short-answer questions on the core material

B: Extended-response question on the core material

HL Criteria

External Assessment

Paper 2

A: Data-based and short-answer questions on the core material

B: Extended-response question on the core material

Description