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Years 11–12 Syllabus

SAMPLE



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Design and Technology Stage 6 Syllabus

Years 11–12 Syllabus

Syllabus Outcomes

Students will develop:

1. knowledge and understanding about design theory and design processes in a range of contexts;
2. knowledge, understanding and appreciation of the interrelationship of design, technology, society and the environment;
3. creativity and an understanding of innovation and entrepreneurial activity in a range of contexts;
4. skills in the application of design processes to design, produce and evaluate quality design projects that satisfy identified needs and opportunities;
5. skills in research, communication and management in design and production;
6. knowledge and understanding about current and emerging technologies in a variety of settings.



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Activities

Stage 6 (Years 11 -12) Activities

Objective 1: Design Theory and Processes

Activity: Design Theory with CO2 Lasers

- **Preliminary (P1.1):** Students examine CO2 laser technology in the context of design theory, exploring how laser cutting and engraving influence modern design practices and production.
- **HSC (H1.1, H1.2):** Students critically analyse the factors affecting design projects that incorporate laser technology, relating these to industry practices and the processes of designers and producers.

Objective 2: Interrelationship of Design, Technology, Society, and Environment

Activity: Lasers and Sustainable Design

- **Preliminary (P2.1, P2.2):** Identify and explain how CO2 lasers are used in various settings, discussing their environmental and social impacts through specific design projects.
- **HSC (H2.1, H2.2):** Evaluate the broader impact of laser technology on design and production trends, considering its influence on society and environmental sustainability.

Objective 3: Creativity and Innovation

Activity: Innovative Design Using Lasers

- **Preliminary (P3.1):** Students experiment with CO2 lasers to create innovative designs, employing collaborative and creative techniques in a workshop setting.
- **HSC (H3.1, H3.2):** Analyse and utilize CO2 lasers for producing creative and innovative products, evaluating the factors that influence the success of these innovations.

Objective 4: Application of Design Processes

Activity: Complete Laser Design Project



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- **Preliminary (P4.1, P4.2, P4.3):** Use CO2 lasers to design and produce solutions for identified needs, focusing on the effectiveness and safety of resource use during production.
- **HSC (H4.1, H4.2, H4.3):** Identify a market need or opportunity and develop a major design project using lasers, evaluating the processes and outcomes with an emphasis on resource selection and project impacts.

Objective 5: Research, Communication, and Management

Activity: Managing Laser Design Projects

- **Preliminary (P5.1, P5.2, P5.3):** Manage a design project using lasers from concept to completion, using various management techniques and research methods. Communicate ideas and solutions effectively across media.
- **HSC (H5.1, H5.2):** Develop and manage a major design project involving lasers, selecting and applying appropriate research and communication techniques throughout the project lifecycle.

Objective 6: Current and Emerging Technologies

Activity: Exploring Advances in Laser Technology

- **Preliminary (P6.1, P6.2):** Investigate and evaluate different manufacturing processes involving lasers and other related technologies, assessing their relevance to current and future design practices.
- **HSC (H6.1, H6.2):** Justify the use of lasers in a major design project by examining their application in industrial settings and critically assess the emergence of new laser technologies and their potential impacts.

These activities are designed to fulfil the curriculum objectives while providing hands-on experience with CO2 lasers, fostering a deep understanding of their application in design and production within various societal and environmental contexts.