My Journey Option Subjects Info Sheet

Design & Technology

Option Subject: Design and Technology

D&T is offered as an Academic subject with a mixture of Learning by doing and assessment through projects by applying technology with design and make of projects that help foster 21st century thinking skills. D&T is generic and leads to take up further studies in both academic, (E.g. Electrical and Mechanical Engineering, Architecture, Innovation and Product design) applied and vocational (eg. MCAST: related to design, engineering and business development through product design), while helps anyone develop their design, communication and thinking capabilities for any future profession.

Kindly indicate route offered:
Applied: X
Academic: XX
Vocational: ____

General introduction to the subject:

D&T focuses on applied technology through designing physical solutions for human needs, creativity, Entrepreneurship and innovation. Learning is done through research about technology and human needs, solving design problems, proposing a technical solution through sketches and build prototypes. Students apply their knowledge and skills by constructing solutions in a workshop environment and critically evaluate each-other's work, self-development and product testing.

List topics studied:

[Please note, the below topics in the design aspect are offered concurrently (1 a,b,c) with part or all of the technology aspects (Spiral approach)]

1. *Design Aspect*
    a. *Design Process and Innovation*
    b. *Data and Research*
    c. *Critical Thinking & Sustainability*
2. *Technology Aspect*
    a. *Materials and Making (mainly Plastics, Wood, Metals, smart-Materials and fibres)*
    b. *Systems and Control (system design, electronics, Digital microcontrollers, mechanism, structures)*
    c. *Graphics (2D, 3D, CAD-CAM, Aesthetic & graphic design)*
3. *Health and Safety within the above aspects.*

Class activities involved:

- Practical tasks to explore technological principles.
- Short Design and make projects with electronics, materials, graphics, product design, 3D printing and CADCAM.
- Writing Design folio documentation.

- SEC final iterative project in year 10 and 11. (Proposal and Prototype)
- All sessions are held in a D&T Lab where students learn by doing.
- All project technical construction is done at school, using materials and equipment provided.

Homework assigned:

Most projects require students to research project information at home, design solutions through sketches, using CAD software, see related videos, compiling a design folio.

Assessment given:

Currently students are assessed 50% for their project work and 50% for their final examination. Half yearly exam is not done in Year 7 and 8, while in year 9, 10, 11 this is optional for each school. Thus, an ongoing component is always done through design and make projects, which is also used as part of the annual exam assessment.

List skills acquired studying the subject:

a) *Thinking skills, problem solving, entrepreneurship*
b) *Technical skills in applying project work.*
c) *Communication skills in presenting ideas*
d) *Research skills, etc.*

List skills required to study the subject:

a) *At year 7, students need to have a basic literacy and numeracy level.*
b) *At year 9 students need to have the basic course covered in year 7 and 8 (offered to all learners) as a prerequisite.*
c) *At year 10 students need to be creative and propose an idea of their own for the Sec proposal project.*
d) *Any learner with any learning or physical disability may still follow this course with success as long as they respect health and safety rules in the labs.*

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