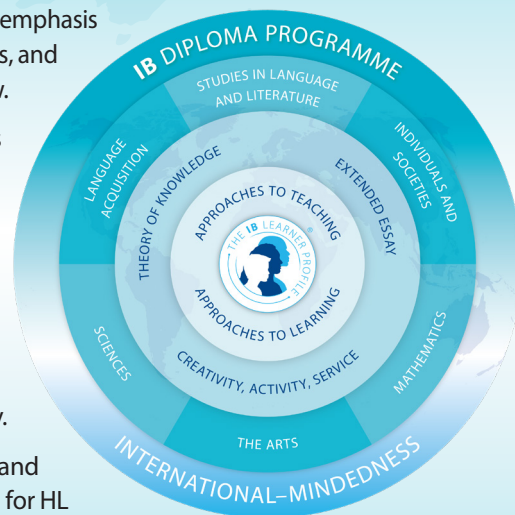# Sciences: DP Design technology

First assessment 2027

The Diploma Programme (DP) is a rigorous pre-university course of study designed for students in the 16 to 19 age range. It is a broad-based two-year course that aims to encourage students to be knowledgeable and inquiring, but also caring and compassionate. There is a strong emphasis on encouraging students to develop intercultural understanding, open-mindedness, and the attitudes necessary for them to respect and evaluate a range of points of view.

The course is presented as six academic areas enclosing a central core. Students study two modern languages (or a modern language and a classical language), a humanities or social science subject, an experimental science, mathematics and one of the creative arts. Instead of an arts subject, students can choose two subjects from another area. It is this comprehensive range of subjects that makes the Diploma Programme a demanding course of study designed to prepare students effectively for university entrance. In each of the academic areas students have flexibility in making their choices, which means they can choose subjects that particularly interest them and that they may wish to study further at university.

Normally, three subjects (and not more than four) are taken at higher level (HL), and the others are taken at standard level (SL). The IB recommends 240 teaching hours for HL subjects and 150 hours for SL. Subjects at HL are studied in greater depth and breadth than at SL. In addition, three core elements—the extended essay, theory of knowledge and creativity, activity, service—are compulsory and central to the philosophy of the programme.

I. Course description and aims

Diploma Programme (DP) design technology aims to develop internationally minded people whose enhanced understanding of design and the technological world can facilitate our shared guardianship of the planet and create a better world.

The DP design technology course is engaging, accessible, inspiring and rigorous. It has the following characteristics.

The course:

- draws on a wide spectrum of knowledge
- enables and empowers innovation, exploration and the acquisition of further knowledge
- actively promotes the act of learning by experience through topics designed for practical exploration
- raises ethical issues in design
- is underpinned by design thinking.

Design thinking involves the ability to:

- understand users, challenge one's own assumptions, redefine complex problems and create innovative solutions that can be modelled and tested
- utilize an experimental and inquiry-based approach to problem-solving
- engage with empathy, definition, ideation, prototyping and testing
- appreciate how theoretical and practical limitations affect the extent to which problems can be solved.

During the course students will develop a product design solution. This will involve the ability to:

- identify a problem or need
- design, model, test and develop a product design solution (performance testing)
- liaise with clients, target audiences and end-users to evaluate the success of the product design solution (user testing).

The course aims to enable students to:

- develop conceptual understanding that allows connections to be made between different areas of the subject, and to other DP science subjects
- acquire and apply a body of knowledge, methods, tools and techniques that characterize design technology
- develop the ability to analyse, evaluate and synthesize information and claims relating to technological systems
- develop the ability to approach unfamiliar situations and wicked problems with creativity and resilience
- design, model and implement solutions to local and global problems to meet the requirements of clients, users and systems
- develop an appreciation of the possibilities and limitations of design, technology and engineering systems
- develop the ability to evaluate the impact of products and technologies on a range of stakeholders
- develop the ability to communicate and collaborate effectively
- develop awareness of the ethical, environmental, economic, cultural and social impact of design technology
- develop an understanding of the role of the designer when engaging with changing products, processes, systems and technologies.

II. Curriculum model overview

The aim of the DP design technology syllabus is to integrate concepts, topic content and the nature of design through inquiry. Students and teachers are encouraged to personalize their approach to the syllabus according to what best fits their interests.

Syllabus component	Recommended teaching hours	
	Standard level (SL)	Higher level (HL)
Syllabus content	**90**	**180**
A: Design in theory	33	71
B: Design in practice	44	77
C: Design in context	13	32
Practical programme	**60**	**60**
Design project	50	50
Collaborative sciences project	10	10
Total teaching hours	**150**	**240**

	A: Design theory	B: Design in practice	C: Design in context
1. People	A1.1 Ergonomics	B1.1 User-centred design	C1.1 Responsibility of the designer C1.2 Inclusive design C1.3 Beyond usability (HL only)
2. Process	A2.1 User-centred research methods A2.2 Prototyping techniques	B2.1 The IB DP Design process B2.2 Modelling and prototyping	C2.1 Design for sustainability C2.2 Design for a circular economy
3. Product	A3.1 Material classification and properties A3.2 Introduction to structural systems (HL only) A3.3 Introduction to mechanical systems (HL only) A3.4 Introduction to electronic systems (HL only)	B3.1 Material selection B3.2 Structural systems application and selection (HL only) B3.3 Mechanical systems application and selection (HL only) B3.4 Electronic systems application and selection (HL only)	C3.1 Product analysis and evaluation C3.2 Life cycle analysis (HL only)
4. Production	A4.1 Manufacturing techniques (HL only)	B4.1 Production systems (HL only)	C4.1 Design for manufacture strategies (HL only)

III. Assessment model

Assessment objectives

The assessment objectives for design technology reflect those parts of the aims that will be formally assessed either internally or externally. It is the intention of this course that students are able to fulfil the following assessment objectives.

Assessment objective 1—Demonstrate knowledge of:

a.   facts, concepts, principles and terminology

b.   design methodology, techniques and technology

c.   methods of communicating and presenting ideas and technological information.

Assessment objective 2—Understand and apply knowledge of:

a.   facts, concepts, principles and terminology

b.   design methodology, techniques and technology

c.   methods of communicating and presenting ideas and technological information.

Assessment objective 3—Construct, analyse and evaluate:

a.   design briefs, problems, specifications and plans

b.   appropriate methods, techniques, models and products

c.   data, information and technological explanations.

Assessment objective 4—Demonstrate the appropriate research, development, experimentation, modelling and personal skills necessary to carry out innovative, insightful, ethical and effective design activities.

SL and HL assessment at a glance

Type of assessment	Format of assessment	Time (hours)		Weighting of final grade	
		SL	HL	SL	HL
External		**2.5**	**4**	**60**	**70**
Paper 1	Multiple-choice questions	1	1.5	20	25
Paper 2	Short answer and extended-response questions	1.5	2.5	40	45
Internal		**50**		**40**	**30**
Design project	Individual design project	50		40	30

For further information on the IB Diploma Programme, visit: **https://ibo.org/en/dp**.

Complete subject guides can be accessed through the Programme Resource Centre or purchased through the IB store: **https://www.ibo.org/new-store**.

For more on how the DP prepares students for success at university, visit: **https://ibo.org/en/university-admission**.