



MILLENNIUM
ROOTS SCHOOLS

2016

-17

Course Catalog



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The IB Diploma Programme

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Core Components

International Baccalaureate Diploma Programme

The IB Diploma Programme (DP) is a rigorous, academically challenging and balanced two-year programme of education designed to prepare students aged 16 to 19 for success at university and in life beyond. The DP provides opportunities to develop both disciplinary and interdisciplinary knowledge and understanding that meet rigorous standards. It is a truly international programme incorporating the best educational practices from around the world, while remaining free from the influence of any particular system or government. In addition to academic excellence, it encourages inquiry, caring, open-mindedness, intercultural understanding, and the attitudes.

Mission Statement

The International Baccalaureate® aims to develop inquiring, knowledgeable and caring young people who help to create a better and more peaceful world through intercultural understanding and respect.

To this end the organization works with schools, governments and international organizations to develop challenging programmes of international education and rigorous assessment.

These programmes encourage students across the world to become active, compassionate and lifelong learners who understand that other people, with their differences, can also be right.

IB DIPLOMA MODEL



The International Baccalaureate® (IB) Diploma Programme (DP) curriculum sets out the requirements for study of the DP.

The curriculum is made up of the DP core and six subject groups.

The three core elements are:

- [Theory of knowledge](#), in which students reflect on the nature of knowledge and on how we know what we claim to know.
- [The extended essay](#), which is an independent, self-directed piece of research, finishing with a 4,000-word paper.
- [Creativity, activity, service](#), in which students complete a project related to those three concepts.

The six subject groups are:

- [Studies in language and literature](#)
- [Language acquisition](#)
- [Individuals and societies](#)
- [Sciences](#).
- [Mathematics](#)
- [The arts](#).

There are different courses within each subject group.

Choosing subjects in the Diploma Programme

Students choose courses from the following subject groups: studies in language and literature; language acquisition; individuals and societies; sciences; mathematics; and the arts.

Students may opt to study an additional sciences, individuals and societies, or languages course, instead of a course in the arts.

Students will take some subjects at higher level (HL) and some at standard level (SL). HL and SL courses differ in scope but are measured according to the same grade descriptors, with students expected to demonstrate a greater body of knowledge, understanding and skills at higher level.

Each student takes at least three (but not more than four) subjects at higher level, and the remaining at standard level.

Standard level subjects take up 150 teaching hours. Higher level comprises 240 teaching hours.

(www.ibo.org)

COURSE OFFERINGS AT ROOTS MILLENNIUM SCHOOL

Group	Description	Subject	Level	
			HL	SL
1	Language and Literature. A	English Language and Literature A	•	•
		Urdu Literature.	•	•
2	Language Acquisition. B	English Language B	•	•
		German ab initio		•
3	Individual and Societies	Business and Management	•	•
		Economics	•	•
		Psychology	•	•
4	Sciences	Biology	•	•
		Physics	•	•
		Chemistry	•	•
		Computer Science	•	•
5	Mathematics	Mathematics HL	•	
		Mathematics SL		•
6	The Arts	Visual Arts	•	•
CORE	Compulsory subjects	Extended Essay		
		Theory of Knowledge		
		Creativity, Activity, Service		

Group 1. Language and Literature

DP English A: Language and Literature

Area of Study: English

Credit: 2

Grade Level: 11-12

Required or Elective: Elective

Course Length: 2 Yrs.

The IB DP English Language and Literature course aims to develop skills of textual analysis and the understanding that texts, both literary and non-literary, can relate to culturally determined reading practices. The course also encourages students to question the meaning generated by language and texts. An understanding of the ways in which formal elements are used to create meaning in a text is combined with an exploration of how that meaning is affected by reading practices that are culturally defined and by the circumstances of production and reception. The study of literature in translation from other cultures is especially important to IB DP students because it contributes to a global perspective. Texts are chosen from a variety of sources, genres and media.

DP Urdu A: Literature

Area of Study: Urdu

Credit: 2

Grade Level: 11-12

Required or Elective: Elective

Course Length: 2 Yrs.

The IB DP Urdu Literature course develops understanding of the techniques involved in literary criticism and promotes the ability to form independent literary judgments. In language A: literature, the formal analysis of texts and wide coverage of a variety of literature—both in the language of the subject and in translated texts from other cultural domains—is combined with a study of the way literary conventions shape responses to texts. Students completing this course will have a thorough knowledge of a range of texts and an understanding of other cultural perspectives. They will also have developed skills of analysis and the ability to support an argument in clearly expressed writing, sometimes at significant length. This course will enable them to succeed in a wide range of university courses, particularly in literature but also in subjects such as philosophy, law and language..

Group 2: Language Acquisition

DP English Language B

Area of Study: Foreign Language

Credit: 2

Grade Level: 11-12

Required or Elective: Elective

Course Length: 2 Yrs.

The IB DP language B course provides students with the opportunity to acquire or develop an additional language and to promote an understanding of other cultures through the study of language.

Language B is designed for students who possess a degree of knowledge and experience in the target language. Those learning a language B at higher level should be able to follow university courses in other disciplines in the language B that is studied.

DP German Language ab initio

Area of Study: Foreign Language

Credit: 2

Grade Level: 11-12

Required or Elective: Elective

Course Length: 2 Yrs.

The IB DP language ab initio course is designed to provide students with the necessary skills and intercultural understanding to enable them to communicate successfully in an environment where the language studied is spoken. This process encourages the learner to go beyond the confines of the classroom, expanding an awareness of the world and fostering respect for cultural diversity. The language ab initio course develops students' linguistic abilities through the development of receptive, productive and interactive skills by providing them opportunities to respond and interact appropriately in a defined range of everyday situations. Language ab initio is available at standard level only.

Group 3. Individual and Societies

DP Business and Management

Area of Study: Social Sciences

Credit: 2

Grade Level: 11-12

Required or Elective: Elective

Course Length: 2 Yrs.

The business management course is designed to develop students' knowledge and understanding of business management theories, as well as their ability to apply a range of tools and techniques. Students learn to analyse, discuss and evaluate business activities at local, national and international levels. The course covers a range of organizations from all sectors, as well as the sociocultural and economic contexts in which those organizations operate.

The course covers the key characteristics of business organization and environment, and the business functions of human resource management, finance and accounts, marketing and operations management. Links between the topics are central to the course. Through the exploration of six underpinning concepts (change, culture, ethics, globalization, innovation and strategy), the course allows students to develop a holistic understanding of today's complex and dynamic business environment. The conceptual learning is firmly anchored in business management theories, tools and techniques and placed in the context of real world examples and case studies.

DP Economics

Area of Study: Social Sciences

Credit: 2

Grade Level: 11-12

Required or Elective: Elective

Course Length: 2 Yrs.

Economics is a dynamic social science. The study of economics is essentially about dealing with scarcity, resource allocation and the methods and processes by which choices are made in the satisfaction of human wants. As a social science, economics uses scientific methodologies that include quantitative and qualitative elements. The DP economics course emphasizes the economic theories of microeconomics, which deal with economic variables affecting individuals, firms and markets, and the economic theories of macroeconomics, which deal with economic variables affecting countries, governments and societies. These economic theories are not studied in a vacuum— rather, they are to be applied to real-world issues. Prominent among these issues are fluctuations in economic activity, international trade, economic development

and environmental sustainability. The economics course encourages students to develop international perspectives, fosters a concern for global issues and raises students' awareness of their own responsibilities at a local, national and international level. Teachers explicitly teach thinking and research skills such as comprehension, text analysis, transfer, and use of primary sources.

DP Psychology

Area of Study: Social Sciences

Credit: 2

Grade Level: 11-12

Required or Elective: Elective

Course Length: 2 Yrs.

The IB Diploma Programme psychology course aims to develop an awareness of how research findings can be applied to better understand human behaviour and how ethical practices are upheld in psychological inquiry. Students learn to understand the biological, cognitive and sociocultural influences on human behaviour and explore alternative explanations of behaviour. They also understand and use diverse methods of psychological inquiry.

Group 4. Sciences

DP Biology

Area of Study: Sciences

Credit: 2

Grade Level: 11-12

Required or Elective: Elective

Course Length: 2 Yrs.

Biology is the study of life. The vast diversity of species makes biology both an endless source of fascination and a considerable challenge. Biologists attempt to understand the living world at all levels from the micro to the macro using many different approaches and techniques. Biology is still a young science and great progress is expected in the 21st century. This progress is important at a time of growing pressure on the human population and the environment.

By studying biology in the DP students should become aware of how scientists work and communicate with each other. While the scientific method may take on a wide variety of forms, it is the emphasis on a practical approach through experimental work that characterizes the sciences. Teachers provide students with opportunities to design investigations, collect data,

develop manipulative skills, analyse results, collaborate with peers and evaluate and communicate their findings

DP Chemistry

Area of Study: Sciences

Credit: 2

Grade Level: 11-12

Required or Elective: Elective

Course Length: 2 Yrs.

Chemistry is an experimental science that combines academic study with the acquisition of practical and investigational skills. Chemical principles underpin both the physical environment in which we live and all biological systems. Chemistry is often a prerequisite for many other courses in higher education, such as medicine, biological science and environmental science.

Both theory and practical work should be undertaken by all students as they complement one another naturally, both in school and in the wider scientific community. The DP chemistry course allows students to develop a wide range of practical skills and to increase facility in the use of mathematics. It also allows students to develop interpersonal and information technology skills, which are essential to life in the 21st century.

DP Physics

Area of Study: Sciences

Credit: 2

Grade Level: 11-12

Required or Elective: Elective

Course Length: 2 Yrs.

Physics is the most fundamental of the experimental sciences, as it seeks to explain the universe itself, from the very smallest particles to the vast distances between galaxies. Despite the exciting and extraordinary development of ideas throughout the history of physics, observations remain essential to the very core of the subject. Models are developed to try to understand observations, and these themselves can become theories that attempt to explain the observations.

Besides helping us better understand the natural world, physics gives us the ability to alter our environments. This raises the issue of the impact of physics on society, the moral and ethical dilemmas, and the social, economic and environmental implications of the work of physicists.

DP Computer Science

Area of Study: Sciences

Credit: 2

Grade Level: 11-12

Required or Elective: Elective

Course Length: 2 Yrs.

The IB DP computer science course requires an understanding of the fundamental concepts of computational thinking as well as knowledge of how computers and other digital devices operate. The course, underpinned by conceptual thinking, draws on a wide spectrum of knowledge, and enables and empowers innovation, exploration and the acquisition of further knowledge. Students study how computer science interacts with and influences cultures, society and how individuals and societies behave, and the ethical issues involved. During the course the student will develop computational solutions. This will involve the ability to:

- identify a problem or unanswered question
- design, prototype and test a proposed solution
- liaise with clients to evaluate the success of the proposed solution and make recommendations for future developments

Group 5 Mathematics

DP Mathematics HL

Area of Study: Mathematics

Credit: 2

Grade Level: 11-12

Required or Elective: Elective

Course Length: 2 Yrs.

The IB DP higher level mathematics course focuses on developing important mathematical concepts in a comprehensible, coherent and rigorous way, achieved by a carefully balanced approach. Students are encouraged to apply their mathematical knowledge to solve problems set in a variety of meaningful contexts. Development of each topic should feature justification and proof of results. Students should expect to develop insight into mathematical form and structure, and should be intellectually equipped to appreciate the links between concepts in different topic areas. They are also encouraged to develop the skills needed to continue their mathematical growth in other learning environments. The internally assessed exploration allows students to develop independence in mathematical learning. Students are encouraged to take a considered approach to various mathematical activities and to explore different mathematical ideas. The exploration also allows students to work without the time constraints

of a written examination and to develop the skills they need for communicating mathematical ideas.

DP Mathematics SL

Area of Study: Mathematics

Credit: 2

Grade Level: 11-12

Required or Elective: Elective

Course Length: 2 Yrs.

The IB DP mathematics standard level (SL) course focuses on introducing important mathematical concepts through the development of mathematical techniques. The intention is to introduce students to these concepts in a comprehensible and coherent way, rather than insisting on the mathematical rigour required for mathematics HL. Students should, wherever possible, apply the mathematical knowledge they have acquired to solve realistic problems set in an appropriate context.

Group 6 The Arts

DP Visual Arts

Area of Study: Fine Arts

Credit: 2

Grade Level: 11-12

Required or Elective: Elective

Course Length: 2 Yrs.

The IB Diploma Programme visual arts course encourages students to challenge their own creative and cultural expectations and boundaries. It is a thought-provoking course in which students develop analytical skills in problem-solving and divergent thinking, while working towards technical proficiency and confidence as art-makers. In addition to exploring and comparing visual arts from different perspectives and in different contexts, students are expected to engage in, experiment with and critically reflect upon a wide range of contemporary practices and media. The course is designed for students who want to go on to further study of visual arts in higher education as well as for those who are seeking lifelong enrichment through visual arts.

IB Core subjects

The Diploma Programme core is an integral part of the DP student's pre-university experience.

The extended essay and theory of knowledge course contribute up to three points to the overall diploma score.

Extended essay

Area of Study: DP Requirement

Grade Level: 11-12

Required or Elective: Required for all Diploma students

Course Length: 2 Yrs.

The extended essay is an in-depth study of a focused topic chosen from the list of approved DP subjects—normally one of the student's six chosen subjects, or in World Studies. World Studies provides students the opportunity to carry out an in-depth interdisciplinary study of an issue of contemporary global significance, utilizing two IB disciplines. Both are intended to promote high-level research and writing skills, intellectual discovery and creativity, engaging students in personal research in a topic of their own choice, under the guidance of a supervisor (a teacher in the school). This leads to a major piece of formally presented, structured writing, in which ideas and findings are communicated in a reasoned, coherent and appropriate manner.

The extended essay, including the world studies option, is a compulsory, externally assessed piece of independent research/investigation. Presented as a formal piece of scholarship containing no more than 4,000 words, it is the result of approximately 40 hours of student work, and concluded with a short interview, or viva voce, with the supervising teacher (recommended).

Theory of knowledge

Area of Study: DP Requirement

Grade Level: 11-12

Required or Elective: Required for all Diploma students

Course Length: 2 Yrs.

Theory of knowledge (TOK) is a course about critical thinking and inquiring into the process of knowing, rather than about learning a specific body of knowledge. It plays a special role in the DP by providing an opportunity for students to reflect on the nature of knowledge, to make connections between areas of knowledge and to become aware of their own perspectives and those of the various groups whose knowledge they share. It is a core element undertaken by all DP students, and schools are required to devote at least 100 hours of class time to the course. The overall aim of TOK is to encourage students to formulate answers to the question “how do you know?” in a variety of contexts, and to see the value of that question. This allows students to develop an enduring fascination with the richness of knowledge.

Creativity, activity, service

Area of Study: DP Requirement

Grade Level: 11-12

Required or Elective: Required for all Diploma students

Course Length: 2 Yrs.

Creativity, activity, service (CAS) is at the heart of the DP. With its holistic approach, CAS is designed to strengthen and extend students’ personal and interpersonal learning from the Primary Years Programme (PYP) and Middle Years Programme (MYP).

CAS is organized around the three strands of creativity, activity and service defined as follows.

- Creativity—exploring and extending ideas leading to an original or interpretive product or performance.
- Activity—physical exertion contributing to a healthy lifestyle.
- Service—collaborative and reciprocal engagement with the community in response to an authentic need.