



**Garodia International Centre for Learning,
Mumbai**

IB Diploma Curriculum Handbook 2018-20

The IB Learner Profile

The aim of all IB programmes is to develop internationally minded people who, recognizing their common humanity and shared guardianship of the planet, help to create a better and more peaceful world.

IB learners strive to be:

Inquirers	They develop their natural curiosity. They acquire the skills necessary to conduct inquiry and research and show independence in learning. They actively enjoy learning and this love of learning will be sustained throughout their lives.
Knowledgable	They explore concepts, ideas and issues that have local and global significance. In so doing, they acquire in-depth knowledge and develop understanding across a broad and balanced range of disciplines.
Thinkers	They exercise initiative in applying thinking skills critically and creatively to recognize and approach complex problems, and make reasoned, ethical decisions.
Communicators	They understand and express ideas and information confidently and creatively in more than one language and in a variety of modes of communication. They work effectively and willingly in collaboration with others.
Principled	They act with integrity and honesty, with a strong sense of fairness, justice and respect for the dignity of the individual, groups and communities. They take responsibility for their own actions and the consequences that accompany them.
Open minded	They understand and appreciate their own cultures and personal histories, and are open to the perspectives, values and traditions of other individuals and communities. They are accustomed to seeking and evaluating a range of points of view, and are willing to grow from the experience.
Caring	They show empathy, compassion and respect towards the needs and feelings of others. They have a personal commitment to service, and act to make a positive difference to the lives of others and to the environment.
Risk takers	They approach unfamiliar situations and uncertainty with courage and forethought, and have the independence of spirit to explore new roles, ideas and strategies. They are brave and articulate in defending their beliefs.
Balanced	They understand the importance of intellectual, physical and emotional balance to achieve personal well-being for themselves and others.
Reflective	They give thoughtful consideration to their own learning and experience. They are able to assess and understand their strengths and limitations in order to support their learning and personal development.

The International Baccalaureate Diploma Programme

The IB Diploma Programme (DP) is an academically challenging and balanced programme of education with final examinations that prepares students, aged 16 to 19, for success at university and life beyond. The programme has gained recognition and respect from the world's leading universities.

The International Baccalaureate programme is a coherent two-year pre-university course leading to either study for the full IB Diploma, in preparation for entrance into universities around the world; or study for the IB Course, which will provide entry into many universities and is recognised as an excellent passage into colleges or the work force.

The Curriculum

In order to gain the full IB Diploma, students are required to study six (6) subjects and the Core:

- three (3) subjects must be studied at Higher Level (HL)
a minimum of 240 hours of classroom study during the two-year period.
- three (3) subjects must be studied at Standard Level (SL)
a minimum of 150 hours of classroom study during the two-year period.

In addition to disciplinary and interdisciplinary study, the Diploma Programme features three core elements that broaden students' educational experience and challenge them to apply their knowledge and skills.

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 4500 word paper.

Creativity, activity, service, in which students engage in experiences involving the three strands of CAS.

Subjects offered at GICLM

Please note that subjects are provisional at this stage and are dependent on student numbers, teacher availability and final timetable arrangements.

Group 1	Studies in Language and Literature	English Language A Literature, Hindi Language A Literature
Group 2	Language acquisition	Language B French, German, Hindi, Mandarin ab initio/SL dependent on student nos.
Group 3	Individuals & societies	Business Management, Economics, History, Psychology Environmental Systems & Societies(SL only)
Group 4	Sciences	Biology, Chemistry, Physics, Environmental Systems & Societies(SL only)
Group 5	Mathematics	Mathematics HL, Mathematics SL
Group 6	The Arts	Theatre, Visual Arts, a second subject from groups 2, 3, or 4.

*Please note that Environmental Systems and Societies is a trans-disciplinary subject which may allow students to take two Group 6 subjects.

For most subjects the assessment is made up of internal assessment (coursework) and external examinations. The internal assessment (coursework) is normally marked internally and then moderated externally by the IB Organisation (IBO). The final examinations are set and marked externally by the IBO and taken during the month of May in the second year of the course. Details of the methods of assessment are supplied with each of the subject descriptions later in this booklet.

A student's choice of subjects within the IB Course programme will be planned to suit the individual needs of the student. When choosing IB subjects, students must bear in mind any special requirements for the course of study they think they will/may follow when they leave school. There is plenty of information relating to this in the school and there is a University Guidance Counsellors at GICLM. All students will need to discuss their plans with the counselor, subject teachers, parents, and the IB Coordinator before finalising their choices.

Conditions for the Award of the IB Diploma

Each of the six subjects is awarded a grade on a scale of 1 to 7, with 7 being the highest grade.

In addition, a maximum of 3 bonus points may be gained from a candidate's combined Extended Essay and Theory of Knowledge grades.

Maximum number of possible points to be obtained on an IB Diploma:

$$[(6 \text{ subjects} \times 7 \text{ points}) + 3 \text{ bonus points}] = 45 \text{ points}$$

A candidate must gain a minimum of 24 points in order to pass the full Diploma. There are some restrictions on the way in which these points are achieved. For example, a Diploma will not be awarded if students achieve a grade 1 in any subject, no matter how well they do in the others. In addition to obtaining a full Diploma, some universities and colleges may have other requirements, such as particular grades at Higher Level, in their offer of a place to a student.

Many universities will make offers to non-Diploma students as long as the student completes the IB Course.

Approaches to Teaching and Learning

The IB programme is designed to be challenging yet rewarding. Teaching in the IB Programme is based on a set of pedagogical principles.

Teaching is:

- based on inquiry - students should expect to take charge of their own learning, discover and question.
- focused on conceptual understanding - the aim is to understand the broad, powerful organizing ideas that have relevance both within and across subject areas.
- developed in local and global contexts - learning will be grounded in real-life contexts and enables students to 'Act Locally, Think Globally'.
- focused on effective teamwork and collaboration - students will work together to benefit from shared knowledge and innovation.
- differentiated to meet the needs of all learners - each student is an individual with different goals, targets and learning needs.
- informed by formative and summative assessment - assessment is used to set targets for progress.

The IB programme is designed for our students to develop the skills required in the 21st Century such as:

- thinking skills
- communication skills
- social skills
- self-management skills
- research skills.

The Extended Essay (EE)

The extended essay is intended to promote high-level research and writing skills, intellectual discovery and creativity while engaging students in personal research. This leads to a major piece of formally presented, structured writing of up to 4,000 words.

Extended essay topics may be chosen from a list of approved DP subjects—normally one of the student's six chosen subjects for the IB diploma.

Students are guided through the process of research and writing by an assigned supervisor (a teacher in the school). All students undertake three mandatory reflection sessions with their supervisor, including a short interview, or viva voce, following the completion of the extended essay.

Sample extended essay topics:

What is the relationship between the length of an exhaust pipe and the frequency of the sound it emits?

How far was the Christian Democrat victory in the Italian elections of 1948 influenced by Cold War tensions?

How effective is Friedrich Dürrenmatt's use of colour to convey his message in the play *Der Besuch der alten Dame*?

Assessment

The Essay will be marked externally, according to published criteria which are made known to the students and their supervisors before the commencement of work on the Essay. Each Essay is accompanied by a supervisor's report which makes clear the circumstances in which the essay was written.

A maximum of three points are awarded according to a student's combined performance in both the extended essay and theory of knowledge.

Theory of Knowledge (TOK)

TOK is a course about critical thinking and inquiring into the process of knowing, rather than about learning a specific body of knowledge. The TOK course examines how we know what we claim to know. The task of TOK is to make the knower aware of his or her own perspectives and those of the various groups whose knowledge he or she shares. TOK, therefore, explores both the personal and shared aspects of knowledge and investigates the relationships between them.

Ways of Knowing (WOK)

The TOK course identifies eight specific ways of knowing (WOKs). They are: Language, Sense Perception, Emotion, Reason, Imagination, Faith, Intuition and Memory.

Areas of Knowledge (AOK)

Areas of knowledge are specific branches of knowledge, each of which can be seen to have a distinct nature and different methods of gaining knowledge. TOK distinguishes between eight areas of knowledge. They are: Mathematics, the Natural Sciences, the Human Sciences, the Arts, History, Ethics, Religious Knowledge Systems, and Indigenous Knowledge Systems.

Assessment

There are two assessment tasks in the TOK course: an essay and a presentation.

The essay is externally assessed by the IB, and must be on any one of the six prescribed titles issued by the IB for each examination session. The maximum word limit for the essay is 1,600 words.

The presentation can be done individually or in a group, with a maximum group size of three. The TOK presentation requires students to identify and explore a knowledge question raised by a substantive real-life situation that is of interest to them.

Creativity, Activity, Service

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

Students are given the opportunity to participate in a balanced range of activities across the three components and to reflect, in a variety of ways, on their evolution as productive and purposeful agents of change, aware of their capabilities to reshape the world in which they live.

The CAS programme formally begins at the start of the Diploma Programme and continues regularly, ideally on a weekly basis, for at least 18 months with a reasonable balance between creativity, activity, and service.

Successful completion of CAS is a requirement for the award of the IB Diploma. All CAS students are expected to maintain and complete a CAS portfolio as evidence of their engagement with CAS. Completion of CAS is based on student achievement of the seven CAS learning outcomes. Students engage in CAS experiences involving one or more of the three CAS strands. A CAS experience can be a single event or may be an extended series of events.

Further, students undertake a CAS project of at least one month's duration that challenges students to show initiative, demonstrate perseverance, and develop skills such as collaboration, problem-solving, and decision-making. The CAS project can address any single strand of CAS, or combine two or all three strands. Students use the CAS stages (investigation, preparation, action, reflection and demonstration) as a framework for CAS experiences and the CAS project.

CAS emphasizes reflection which is central to building a deep and rich experience in CAS. Reflection informs students' learning and growth by allowing students to explore ideas, skills, strengths, limitations and areas for further development and consider how they may use prior learning in new contexts.

How is CAS organised?

Initially the school will introduce students to a few CAS activities involving the various strands. Students are guided to make best use of the opportunities to establish and sustain a purposeful and well-balanced programme. Although CAS planning periods are timetabled, students are required to commit to the programme beyond the stipulated hours.

Group 1: Language A

Group 1: Language A: English, Hindi A Language & Literature

Course Aims

1. Introduce students to a range of texts from different periods, styles and genres
2. Develop in students the ability to engage in close, detailed analysis of individual texts and make relevant connections
3. Develop the students' powers of expression, both in oral and written communication
4. Encourage students to recognize the importance of the contexts in which texts are written and received
5. Encourage, through the study of texts, an appreciation of the different perspectives of people from other cultures, and how these perspectives construct meaning
6. Encourage students to appreciate the formal, stylistic and aesthetic qualities of texts
7. Promote in students an enjoyment of, and lifelong interest in, language and literature.
8. Develop in students an understanding of how language, culture and context determine the ways in which meaning is constructed in texts
9. Encourage students to think critically about the different interactions between text, audience and purpose.

Overview

The language A: 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, and to encourage students to question the meaning generated by language and texts. Texts are chosen from a variety of sources, genres and media.

Assessment Outline

Standard Level		Higher Level	
Internal Assessment (30 %)	External Assessment (70 %)	Internal Assessment (30 %)	External Assessment (70 %)
Individual oral commentary (15 %)	Paper 1: Textual analysis (25 %)	Individual oral commentary (15 %)	Paper 1: Comparative textual analysis (25 %)
Further oral activity (15 %)	Paper 2: Essay (25 %)	Further oral activity (15 %)	Paper 2: Essay (25 %)
	Written task (20 %)		Written tasks (20 %)

Subject Uses for the Future

English Literature is a traditional subject well regarded for entry into a number of university courses eg. English Literature, Arts courses in general and Law. It shows a command of the use and communication of English.

Group 2: Language B and ab initio

Group 2 : Language Acquisition: Language B French, German, Hindi, Mandarin

Course Aims

The aims of group 2 are to:

1. develop students' intercultural understanding
2. enable students to understand and use the language they have studied in a range of contexts and for a variety of purposes
3. encourage, through the study of texts and through social interaction, an awareness and appreciation of the different perspectives of people from other cultures
4. develop students' awareness of the role of language in relation to other areas of knowledge
5. develop students' awareness of the relationship between the languages and cultures with which they are familiar
6. provide students with a basis for further study, work and leisure through the use of an additional language
7. provide the opportunity for enjoyment, creativity and intellectual stimulation through knowledge of an additional language.

Overview

SL and HL core

Communication and media
Global issues
Global issues

These three topics are compulsory at SL and HL.

SL and HL Options

Cultural diversity
Customs and traditions
Health
Leisure
Science and technology

Teachers select two topics.

Assessment Outline

Standard Level		Higher Level	
Internal Assessment (30 %)	External Assessment (70 %)	Internal Assessment (30 %)	External Assessment (70 %)
Individual oral (20 %) Interactive oral activity (10 %)	Paper 1: Receptive skills : Text-handling exercises based on the core. (25 %)	Individual oral (20 %) Interactive oral activity (10 %)	Paper 1: Receptive skills : Text-handling exercises based on the core. (25 %)
	Paper 2: Written productive skills One writing exercise based on the options. (25 %)		Paper 2: Written productive skills Two compulsory writing exercises. (25 %)
	Written assignment: Receptive and written productive skills:		Written Assignment: Creative writing based

	Inter-textual reading followed by a written task (20 %)		on the literary texts read. (20 %)
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Language Ab initio (SL only)*

The Language Ab Initio course is a language acquisition course for students with little or no experience of the language.

It is organised around three themes and various topics under them:

Individual and society

Daily routines
Education
Food and drink
Personal details, appearance and character
Physical health
Relationships
Shopping

Leisure and work

Employment
Entertainment
Holidays
Media
Sport
Technology
Transport

Urban and rural environment

Environmental concerns
Global issues
Neighbourhood
Physical geography
Town and services
Weather

Ab initio	
Internal Assessment (25 %)	External Assessment (75 %)
Individual oral (25 %) Presentation of a visual stimulus and follow-up questions on the visual stimulus.	Paper 1 : Receptive skills Text-handling exercises.(30 %)
	Paper 2: Productive skills Two compulsory writing exercises. (25 %)
	Written assignment: Receptive and productive skills (20 %)

Subject Uses for the Future

Higher level offers the opportunity for further study in that language at university. Standard level also gives opportunities for complementary studies in areas such as History, Business, Communications, Media etc. The capacity to speak and use another language is an important attribute in the modern world and students are encouraged to continue their studies whenever possible.

*Languages on offer are dependent on student numbers.

Group 3: Individuals and Societies

Business and Management

Course Aims

The aims of the business management course at HL and SL are to:

1. encourage a holistic view of the world of business
2. empower students to think critically and strategically about individual and organizational behaviour
3. promote the importance of exploring business issues from different cultural perspectives
4. enable the student to appreciate the nature and significance of change in a local, regional and global context
5. promote awareness of the importance of environmental, social and ethical factors in the actions of individuals and organizations
6. develop an understanding of the importance of innovation in a business environment.

Overview

Unit	Content
Business Organization and Environment	Introduction to business management Types of organizations Organizational objectives Stakeholders External environment Growth and evolution Organizational planning tools (HL only)
Human Resource Management	Functions and evolution of human resource management Organizational structure Leadership and management Motivation Organizational (corporate) culture (HL only) Industrial/employee relations (HL only)
Finance and Accounts	Sources of finance Costs and revenues Break-even analysis Final accounts (some HL only) Profitability and liquidity ratio analysis Efficiency ratio analysis (HL only) Cash flow Investment appraisal (some HL only)
Marketing	The role of marketing Marketing planning (including introduction to the four Ps) Sales forecasting (HL only) Market research The four Ps (product, price, promotion, place) The extended marketing mix of seven Ps (HL only) International marketing (HL only) E-commerce
Operations Management	The role of operations management Production methods

	Lean production and quality management (HL only) Location Production planning (HL only) Research and Development (HL only) Crisis management and contingency planning (HL only)
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Assessment Outline

Standard Level		Higher Level	
Internal Assessment (25 %)	External Assessment (75 %)	Internal Assessment (25 %)	External Assessment (75 %)
Written Commentary (25 %)	Paper 1: Based on a pre-released case study (30%)	Research Project (25 %)	Paper 1: Based on a pre-released case study (35 %)
	Paper 2: Structured questions and Extended Response (45 %)		Paper 2 (35%) Structured questions and Extended Response (40 %)

Subject Uses for Future

- Law
- Accountancy
- Marketing
- HRM
- Advertising
- Government / Civil Service
- Diplomatic service
- Retail

Entry Requirements for Higher Level

B Grade IGCSE Mathematics desirable.

Economics

Course Aims

1. encourage the systematic and critical study of: human experience and behaviour; physical, economic and social environments; and the history and development of social and cultural institutions
2. develop in the student the capacity to identify, to analyse critically and to evaluate theories, concepts and arguments about the nature and activities of the individual and society
3. enable the student to collect, describe and analyse data used in studies of society, to test hypotheses, and to interpret complex data and source material
4. promote the appreciation of the way in which learning is relevant both to the culture in which the student lives, and to the culture of other societies
5. develop an awareness in the student that human attitudes and beliefs are widely diverse and that the study of society requires an appreciation of such diversity
6. enable the student to recognize that the content and methodologies of the subjects in group 3 are contestable and that their study requires the tolerance of uncertainty.
7. develop an understanding of microeconomic and macroeconomic theories and concepts and their real-world application
8. develop an appreciation of the impact on individuals and societies of economic interactions between nations
9. develop an awareness of development issues facing nations as they undergo the process of change.

Overview

Units	
Microeconomics	Competitive markets: demand and supply Elasticity Government intervention Market failure Theory of the firm and market structures (HL only)
Macroeconomics	The level of overall economic activity Aggregate demand and aggregate supply Macroeconomic objectives Fiscal policy Monetary policy Supply-side policies
International economics	International trade Exchange rates The balance of payments Economic integration Terms of trade
Development economics	Economic development Measuring development The role of domestic factors The role of international trade The role of foreign direct investment (FDI) The roles of foreign aid and multilateral development assistance

	The role of international debt The balance between markets and intervention
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Assessment Outline

Standard Level		Higher Level	
Internal Assessment (20 %)	External Assessment (80 %)	Internal Assessment (25 %)	External Assessment (80 %)
Portfolio of three commentaries (20 %)	Paper 1: An extended response paper (40 %)	Portfolio of three commentaries (20 %)	Paper 1: An extended response paper (30 %)
	Paper 2: A data response paper (40 %)		Paper 2: A data response paper (30 %)
			Paper 3 : HL extension paper (20 %)

Subject uses for the Future

Economics graduates are employed in a range of posts which may or may not be related to their studies. They work in Manufacturing, Banking, Financial Markets, Insurance, Investment and Retailing Industries, as well as Government Agencies, International Organizations and Consulting. In all these settings, employers value Economics graduates understanding of decision making, their research and analytical skill and their experience of viewing problems in their national and international context.

History

Aims:

- Encourage the systematic and critical study of human experience and behavior; social and cultural institutions
- Develop student's capacity to identify, analyse critically and to evaluate theories, concepts and arguments about the individual and society
- Enable student to collect, describe and analyse data; to test hypotheses and interpret complex historical data and source material
- Increase students' understanding of themselves and contemporary society by encouraging a reflection on the past
- Develop an understanding of and interest in the past
- Encourage students to engage with multiple perspectives and appreciate complexity of concepts, issues, events and developments

Assessment Outline

SL	HL
<ul style="list-style-type: none">• Paper 1: A source based paper set on the prescribed subjects• Paper 2: An essay paper based on the world history topics• Internal Assessment (IA): a historical investigation	<ul style="list-style-type: none">• Paper 1: A source based paper set on the prescribed subjects• Paper 2: An essay paper based on the world history topics• Paper 3: An essay paper based on one of the Regional Depth Studies• Internal Assessment (IA): a historical investigation

Course Content

Prescribed Subject (Paper 1)

- The move to Global war 1931-1941: Japanese expansion in East Asia, German and Italian expansion

World History Topics (Paper 2)

- Authoritarian States (20th Century): China and Mao, Germany and Hitler, Stalin and USSR
- The Cold War: Superpower tensions and Rivalries (20th Century): Ideology, Berlin Crisis 1948, Containment, Détente, Korea 1950-53, Cuba 1962, Vietnam War 1965-75.

Depth Study (Paper 3 HL only)

- History of Asia and Oceania: Nationalism and Independence in India 1919-64

Subject Uses for the Future

History is a very highly regarded subject for entry into areas like Law, Media, Film, Government, Politics, UN, careers involving human aspects

Psychology

Course Aims

The aims of the Psychology course at SL and at HL are to:

1. develop an understanding of the biological, cognitive and sociocultural factors affecting mental processes and behaviour
2. apply an understanding of the biological, cognitive and sociocultural factors affecting mental processes and behaviour to at least one applied area of study
3. understand diverse methods of inquiry
4. understand the importance of ethical practice in psychological research in general and observe ethical practice in their own inquiries
5. ensure that ethical practices are upheld in all psychological inquiry and discussion
6. develop an awareness of how psychological research can be applied to address real-world problems and promote positive change.

Overview

Core

Biological approach to understanding behaviour
Cognitive approach to understanding behaviour
Sociocultural approach to understanding behaviour
Approaches to researching behaviour

Options

Abnormal psychology
Developmental psychology
Health psychology
Psychology of human relationships

Assessment Outline

Standard Level		Higher Level	
Internal Assessment (25 %)	External Assessment (75 %)	Internal Assessment (20 %)	External Assessment (80 %)
Experimental study (25 %)	Paper 1: Three short-answer questions and an essay. (50 %)	Experimental study (20 %)	Paper 1: Three short-answer questions and an essay. (40 %)
	Paper 2: One question on the option. (25 %)		Paper 2: One question on the option. (20 %)
			Paper 3: Three questions on approaches to research. (20 %)

Subject Uses for the Future

Psychologists perform a variety of duties in a vast number of industries, ranging from hospital, clinics, schools and businesses. They can be Academic or Professional in their role. Research opportunities in the Academic field are: Biological psychology, Cognitive psychology, Personality psychology, and Social psychology. Careers in the Professional field include: Clinical psychology, Counselling psychology,

Educational psychology, Forensic psychology, Health psychology, Occupational psychology and Sports psychology. Other popular areas include; Child psychology and the Psychology of Music. Popular Jobs that psychologists enter include: Marketing, Research & Development, Public Relations, Social Work, Government, Human Resources, Police & Prison Service, Teaching, Retail & Health Management.

Entry Requirements

The course is dependent on interest.

Environmental Systems & Societies SL

Course Aims

The aims of the ESS course are to enable students to:

1. acquire the knowledge and understandings of environmental systems at a variety of scales
2. apply the knowledge, methodologies and skills to analyse environmental systems and issues at a variety of scales
3. appreciate the dynamic interconnectedness between environmental systems and societies
4. value the combination of personal, local and global perspectives in making informed decisions and taking responsible actions on environmental issues
5. be critically aware that resources are finite, and that these could be inequitably distributed and exploited, and that management of these inequities is the key to sustainability
6. develop awareness of the diversity of environmental value systems
7. develop critical awareness that environmental problems are caused and solved by decisions made by individuals and societies that are based on different areas of knowledge
8. engage with the controversies that surround a variety of environmental issues
9. create innovative solutions to environmental issues by engaging actively in local and global contexts.

Overview

ESS is an interdisciplinary group 3 and 4 course that is offered only at standard level (SL). As an interdisciplinary course, ESS is designed to combine the methodology, techniques and knowledge associated with group 4 (sciences) with those associated with group 3 (individuals and societies). Because it is an interdisciplinary course, students can study ESS and have it count as either a group 3 or a group 4 course, or as both. If students choose the latter option this leaves the opportunity to study an additional subject from any other group, including an additional group 3 or group 4 subject.

ESS is a complex course, requiring a diverse set of skills from its students. It is firmly grounded in both a scientific exploration of environmental systems in their structure and function and in the exploration of cultural, economic, ethical, political, and social interactions of societies with the environment. As a result of studying this course, students will become equipped with the ability to recognize and evaluate the impact of our complex systems of societies on the natural world. The interdisciplinary nature of the course requires a broad skill set from students and includes the ability to perform research and investigations and to participate in philosophical discussion. The course requires a systems approach to environmental understanding and problem solving, and promotes holistic thinking about environmental issues. It is recognized that to understand the environmental issues of the 21st century and suggest suitable management solutions, both the human and environmental aspects must be understood. Students should be encouraged to develop solutions from a personal to a community and to a global scale.

Through the exploration of cause and effect, the course investigates how values interact with choices and actions, resulting in a range of environmental impacts. Students develop an understanding that the connections between environmental systems and societies are diverse, varied and dynamic. The complexity of these interactions challenges those working towards understanding the actions required for effective guardianship of the planet and sustainable and equitable use of shared resources.

Course content

Foundations of environmental systems and societies

Ecosystems and ecology

Biodiversity and conservation

Water and aquatic food production systems and societies

Soil systems and terrestrial food production systems and societies

Atmospheric systems and societies

Climate change and energy production

Human systems and resource use

Assessment Outline

Standard Level	
Internal Assessment (25 %)	External Assessment (75 %)
Individual investigation (25 %)	Paper 1: case study (50 %)
	Paper 2: short answers and structured essays (25 %)

Group 4: Experimental Sciences

Biology

Course aims

The aims enable students, through the overarching theme of the Nature of science, to:

1. appreciate scientific study and creativity within a global context through stimulating and challenging opportunities
2. acquire a body of knowledge, methods and techniques that characterize science and technology
3. apply and use a body of knowledge, methods and techniques that characterize science and technology
4. develop an ability to analyse, evaluate and synthesize scientific information
5. develop a critical awareness of the need for, and the value of, effective collaboration and communication during scientific activities
6. develop experimental and investigative scientific skills including the use of current technologies
7. develop and apply 21st century communication skills in the study of science
8. become critically aware, as global citizens, of the ethical implications of using science and technology
9. develop an appreciation of the possibilities and limitations of science and technology
10. develop an understanding of the relationships between scientific disciplines and their influence on other areas of knowledge.

Overview

Core

Cell biology
Molecular biology
Genetics
Ecology
Evolution and biodiversity
Human physiology

Options

- A. Neurobiology and behaviour
- B. Biotechnology and bioinformatics
- C. Ecology and conservation
- D. Human physiology

Additional higher level (AHL)

Nucleic acids
Metabolism, cell respiration and photosynthesis
Plant biology
Genetics and evolution
Animal physiology

Assessment Outline

Standard Level		Higher Level	
Internal Assessment (20 %)	External Assessment (80 %)	Internal Assessment (24 %)	External Assessment (76 %)
Individual Investigation (20%)	Paper 1: Multiple Choice questions (20 %)	Individual Investigation (24 %)	Paper 1: Multiple Choice questions (20%)
	Paper 2: Data based question Short answer and extended response questions on core material (40 %)		Paper 2: Data based question Short answer and extended response questions on core and AHL material (36 %)
	Paper 3: questions on core and SL option material. (20 %)		Paper 3: questions on core, AHL and option material. (24 %)

Career Opportunities

IB Biology is a prerequisite for many University courses such as Pharmacy, Medicine and Natural Sciences. Studying Biology provides an understanding of the nature of living organisms and biological processes, thereby providing insights into a variety of physical and biochemical phenomena. It also puts you in an excellent position to choose from a wide variety of useful, interesting, and rewarding careers. Biology opens doors to many careers including Research, Healthcare, applied and field Biology and Genetics to name just a few. The skills students develop during the Biology course are readily transferable to other fields, providing opportunities to further study for professional positions in the private sector, education, or public service.

Entry Requirements

Higher Level: should have at least a B or Grade A in I/GCSE Biology/Double Award Science and Mathematics or similar.

Chemistry

The aims enable students, through the overarching theme of the Nature of science, to:

1. appreciate scientific study and creativity within a global context through stimulating and challenging opportunities
2. acquire a body of knowledge, methods and techniques that characterize science and technology
3. apply and use a body of knowledge, methods and techniques that characterize science and technology
4. develop an ability to analyse, evaluate and synthesize scientific information
5. develop a critical awareness of the need for, and the value of, effective collaboration and communication during scientific activities
6. develop experimental and investigative scientific skills including the use of current technologies
7. develop and apply 21st century communication skills in the study of science
8. become critically aware, as global citizens, of the ethical implications of using science and technology
9. develop an appreciation of the possibilities and limitations of science and technology
10. develop an understanding of the relationships between scientific disciplines and their influence on other areas of knowledge.

Overview

Core

Stoichiometric relationships
Atomic structure

Periodicity
Chemical bonding and structure
Energetics/thermochemistry
Chemical kinetics
Equilibrium

Acids and bases
Redox processes
Organic chemistry
Measurement and data processing

Additional Higher Level (AHL)

Atomic structure
The periodic table—the transition metals
Chemical bonding and structure
Energetics/thermochemistry
Chemical kinetics
Equilibrium
Acids and bases
Redox processes

Organic chemistry
Measurement and analysis

One option from

Materials
Biochemistry
Energy
Medicinal chemistry

Assessment Outline

Standard Level		Higher Level	
Internal Assessment (20 %)	External Assessment (80 %)	Internal Assessment (24 %)	External Assessment (76 %)
Individual Investigation (20%)	Paper 1: Multiple Choice questions (20 %)	Individual Investigation (24 %)	Paper 1: Multiple Choice questions (20%)
	Paper 2: Data based question Short answer and extended response questions on core material (40 %)		Paper 2: Data based question Short answer and extended response questions on core and AHL material (36 %)
	Paper 3: questions on core and SL option material. (20 %)		Paper 3: questions on core, AHL and option material. (24 %)

Computer Science

Course Aims

The Diploma Programme computer science course should aim to:

1. provide opportunities for study and creativity within a global context that will stimulate and challenge students developing the skills necessary for independent and lifelong learning
2. provide a body of knowledge, methods and techniques that characterize computer science
3. enable students to apply and use a body of knowledge, methods and techniques that characterize computer science
4. demonstrate initiative in applying thinking skills critically to identify and resolve complex problems
5. engender an awareness of the need for, and the value of, effective collaboration and communication in resolving complex problems
6. develop logical and critical thinking as well as experimental, investigative and problem-solving skills
7. develop and apply the students' information and communication technology skills in the study of computer science to communicate information confidently and effectively
8. raise awareness of the moral, ethical, social, economic and environmental implications of using science and technology
9. develop an appreciation of the possibilities and limitations associated with continued developments in IT systems and computer science
10. encourage an understanding of the relationships between scientific disciplines and the overarching nature of the scientific method.

Course Outline

Recently there has been a realisation that young people are becoming simply users of IT tools instead of the creators of them as was the case in the previous two decades. Computer Science is experiencing a growth in popularity both in schools and at universities to produce young people who will shape the future of software rather than just be consumers. Computer Science will develop in students the technical ability of computer programming in Java and computational thinking, as well as an in-depth understanding of how the software that we use every day is created.

The key determinant of success is the ability to think logically, handle complexity, and be able to break large tasks down in to smaller manageable pieces (which become parts of a computer program).

Course Content

HL/SL Core

System fundamentals (20 hours)

Computer organisation (6 hours)

Networks (9 hours)

Computational thinking, problem-solving and programming (45 hours)

HL Extension:

Abstract data structures (23 hours)

Resource management (8 hours)

Control (14 hours)

Case study

Additional subject content introduced by the annually issued case study

Options (students choose 1)

Option A: Databases

Option B: Modelling and simulation

Option C: Web science

Option D: Object-oriented programming (OOP)

Assessment Outline

Standard Level		Higher Level	
Internal Assessment (30 %)	External Assessment (70 %)	Internal Assessment (20 %)	External Assessment (80 %)
Solution (30%)	Paper 1: core (45 %)	Solution (20 %)	Paper 1: core (40%)
	Paper 2: option (25 %)		Paper 2: option (20 %)
			Paper 3: case study (20 %)

Physics

Course Aims

The aims enable students, through the overarching theme of the Nature of science, to:

1. appreciate scientific study and creativity within a global context through stimulating and challenging opportunities
2. acquire a body of knowledge, methods and techniques that characterize science and technology
3. apply and use a body of knowledge, methods and techniques that characterize science and technology
4. develop an ability to analyse, evaluate and synthesize scientific information
5. develop a critical awareness of the need for, and the value of, effective collaboration and communication during scientific activities
6. develop experimental and investigative scientific skills including the use of current technologies
7. develop and apply 21st-century communication skills in the study of science
8. become critically aware, as global citizens, of the ethical implications of using science and technology
9. develop an appreciation of the possibilities and limitations of science and technology
10. develop an understanding of the relationships between scientific disciplines and their influence on other areas of knowledge.

Course content

Core	Additional Higher Level (AHL)	One option from
Measurements and uncertainties	Wave phenomena	Relativity
Mechanics	Fields	Engineering physics
Thermal physics	Electromagnetic induction	Imaging
Waves	Quantum and nuclear physics	Astrophysics
Electricity and magnetism		
Circular motion and gravitation		
Atomic, nuclear and particle physics		
Energy production		

Standard Level		Higher Level	
Internal Assessment (20 %)	External Assessment (80 %)	Internal Assessment (24 %)	External Assessment (76 %)
Individual Investigation (20%)	Paper 1: Multiple Choice questions (20 %)	Individual Investigation (24 %)	Paper 1: Multiple Choice questions (20%)
	Paper 2: Data based question Short answer and extended response		Paper 2: Data based question Short answer and extended response

	questions on core material (40 %)		questions on core and AHL material (36 %)
	Paper 3: questions on core and SL option material. (20 %)		Paper 3: questions on core, AHL and option material. (24 %)

Group 5: Mathematics

Group 5

Mathematics Standard Level

Course Aims

The aims of all mathematics courses in group 5 are to enable students to:

1. enjoy mathematics, and develop an appreciation of the elegance and power of mathematics
2. develop an understanding of the principles and nature of mathematics
3. communicate clearly and confidently in a variety of contexts
4. develop logical, critical and creative thinking, and patience and persistence in problem-solving
5. employ and refine their powers of abstraction and generalization
6. apply and transfer skills to alternative situations, to other areas of knowledge and to future developments
7. appreciate how developments in technology and mathematics have influenced each other
8. appreciate the moral, social and ethical implications arising from the work of mathematicians and the applications of mathematics
9. appreciate the international dimension in mathematics through an awareness of the universality of mathematics and its multicultural and historical perspectives
10. appreciate the contribution of mathematics to other disciplines, and as a particular “area of knowledge” in the TOK course.

Course content

Algebra

Functions and equations

Circular functions and trigonometry

Vectors

Statistics and probability

Calculus

Assessment Outline

Standard Level	
Internal Assessment (20 %)	External Assessment (80 %)
Individual Exploration (20%)	Paper 1: (40 %)
	Paper 2: (40 %)

Entry Requirements

Extended Level IGCSE A*, A, B or equivalent

Subject Uses for the Future

Mathematics Higher Level and Mathematics Standard Level

- Mathematician
- Engineering (various)
- Business analyst
- IT project management
- Design (Furniture , interior)
- Computer music research
- Financial (Accountant, Actuary, Consultant)
- Film marketing analyst
- Freelance IT consultant
- Architect

Group 5

Mathematics Higher Level

Course Aims

1. enjoy mathematics, and develop an appreciation of the elegance and power of mathematics
2. develop an understanding of the principles and nature of mathematics
3. communicate clearly and confidently in a variety of contexts
4. develop logical, critical and creative thinking, and patience and persistence in problem-solving
5. employ and refine their powers of abstraction and generalization
6. apply and transfer skills to alternative situations, to other areas of knowledge and to future developments
7. appreciate how developments in technology and mathematics have influenced each other
8. appreciate the moral, social and ethical implications arising from the work of mathematicians and the applications of mathematics
9. appreciate the international dimension in mathematics through an awareness of the universality of mathematics and its multicultural and historical perspectives
10. appreciate the contribution of mathematics to other disciplines, and as a particular “area of knowledge” in the TOK course.

Course Content

Algebra

Functions and equations

Circular functions and trigonometry

Vectors

Statistics and probability

Calculus

Options

Statistics and probability

Sets, relations and groups

Calculus

Discrete mathematics

Assessment Outline

Standard Level	
Internal Assessment (20 %)	External Assessment (80 %)
Mathematical Exploration (20%)	Paper 1: (30 %)
	Paper 2: (30 %)
	Paper 3: (20 %)

Group 6: Arts and Electives

Group 6

Theatre

Course Aims

1. enjoy lifelong engagement with the arts,
2. become informed, reflective and critical practitioners in the arts
3. understand the dynamic and changing nature of the arts
4. explore and value the diversity of the arts across time, place and cultures
5. express ideas with confidence and competence
6. develop perceptual and analytical skills.
7. explore theatre in a variety of contexts and understand how these contexts inform practice (theatre in context)
8. understand and engage in the processes of transforming ideas into action (theatre processes)
9. develop and apply theatre production, presentation and performance skills, working both independently and collaboratively (presenting theatre) For HL only:
10. understand and appreciate the relationship between theory and practice (theatre in context, theatre processes, presenting theatre).

Overview

The theatre syllabus at SL and HL consists of three equal, interrelated areas:

Theatre in context

This part of the course requires that students develop skills, knowledge and understanding in the following areas:

- the ability to research and analyse play texts, theatre theorists (HL only), world theatre traditions and performance practices from a variety of cultural contexts (SL and HL)
- experience the practical presentation and performance skills of theatre practices from a variety of cultures, through workshops, practical engagement and experimentation with skills particular to these practices
- the ability to appreciate critically theatre performances from a diverse range of theatre practices from various cultural contexts, and to discern the relationship between performance and any theory that may inform it
- an appreciation of the cultural, aesthetic and intellectual contexts from which theatre evolves and to which it contributes
- the understanding of the significance of theatre and its impact on the lives of particular communities within a specific cultural context.

Presenting theatre

Creating theatre based on theatre theory (HL only)

Working with play texts (SL and HL)

Examining world theatre traditions (SL and HL)

Collaboratively creating original theatre (SL and HL)

Theatre processes

The theatre processes area of the course allows students to explore the different processes involved in making theatre from the perspectives of creator, designer, director and performer; in order to develop the skills required to make theatre and to observe and reflect on processes used in different theatre traditions and performance practices from around the world.

The theatre processes area requires that students develop skills, knowledge and understanding in the following areas.

- Creating
- Designing
- Directing
- Performing
- Spectating

Assessment Outline

Assessment tasks	Weightage	
	SL	HL
External Assessment		
Task 1: Solo theatre piece (HL only) • Students at HL research a theatre theorist they have not previously studied, identify an aspect(s) of their theory and create and present a solo theatre piece (4–8 minutes) based on this aspect(s) of theory.	NA	35 %
Task 2: Director’s notebook (SL and HL) • Students at SL and HL choose a published play text they have not previously studied and develop ideas regarding how the entire play could be staged for an audience. 35% 20%	35 %	20 %
Task 3: Research presentation (SL and HL) • Students at SL and HL plan and deliver an individual presentation (15 minutes maximum) to their peers in which they present and physically demonstrate their research into a convention of a theatre tradition they have not previously studied.	30 %	20 %
Internal Assessment	35 %	25 %
Task 4: Collaborative project (SL and HL) • Students at SL and HL collaboratively create and present an original piece of theatre (lasting 13–15 minutes) for and to a specified target audience, created from a starting point of their choice.		

Visual Arts

Course Aims

1. enjoy lifelong engagement with the arts
2. become informed, reflective and critical practitioners in the arts
3. understand the dynamic and changing nature of the arts
4. explore and value the diversity of the arts across time, place and cultures
5. express ideas with confidence and competence
6. develop perceptual and analytical skills.
7. make artwork that is influenced by personal and cultural contexts
8. become informed and critical observers and makers of visual culture and media
9. develop skills, techniques and processes in order to communicate concepts and ideas.

Overview

	Visual Arts in context	Visual Arts Methods	Communicating Visual Arts
Theoretical practice	Students examine and compare the work of artists from different cultural contexts. Students consider the contexts influencing their own work and the work of others.	Students look at different techniques for making art. Students investigate and compare how and why different techniques have evolved and the processes involved.	Students explore ways of communicating through visual and written means. Students make artistic choices about how to most effectively communicate knowledge and understanding.
Art Making practice	Students make art through a process of investigation, thinking critically and experimenting with techniques. Students apply identified techniques to their own developing work.	Students experiment with diverse media and explore techniques for making art. Students develop concepts through processes that are informed by skills, techniques and media.	Students produce a body of artwork through a process of reflection and evaluation, showing a synthesis of skill, media and concept.
Curatorial practice	Students develop an informed response to work and exhibitions they have seen and experienced. Students begin to formulate personal intentions for creating and displaying their own artworks.	Students evaluate how their ongoing work communicates meaning and purpose. Students consider the nature of "exhibition" and think about the process of selection and the potential impact of their work on different audiences.	Students select and present resolved works for exhibition. Students explain the ways in which the works are connected. Students discuss how artistic judgments impact the overall presentation.

Visual Arts Journal

Maintain a visual art journal which charts your journey through the course. This will contain reflections, ideas for development and will inform all aspects of the assessment. Although not directly assessed, elements of this journal may be submitted as part of the process portfolio.

Assessment Outline

Assessment tasks	Weightage	
	SL	HL
External Assessment		
Part 1: Comparative study Students analyse and compare different artworks by different artists. This independent critical and contextual investigation explores artworks, objects and artifacts from differing cultural contexts.	20 %	20 %
Part 2: Process portfolio Students submit carefully selected materials which evidence their experimentation, exploration, manipulation and refinement of a variety of visual arts activities during the two-year course.	40 %	40 %
Internal Assessment	40 %	40 %
Part 3: Exhibition Students submit for assessment a selection of resolved artworks from their exhibition. The selected pieces should show evidence of their technical accomplishment during the visual arts course and an understanding of the use of materials, ideas and practices appropriate to visual communication. Students submit a curatorial rationale that does not exceed 400 words. Students submit 4–7 artworks. Students submit exhibition text (stating the title, medium, size and intention) for each selected artwork. Students may submit two photographs of their overall exhibition.		

PLEASE NOTE THAT STUDENTS MAY TAKE ANOTHER SUBJECT FROM GROUPS 2, 3 OR 4 IN THIS GROUP.