

Yearly plan Italian Language and Culture

Class 12th grade

Academic year 2020-2021

GENERAL OBJECTIVES

The ministerial program foresees the study of literary history and texts from the Middle Ages to Romanticism for the second two-year period of the linguistic high school, leaving the study on Giacomo Leopardi at the beginning of the last year of high school. Students will develop skills related to the comprehension and analysis of texts in Italian literature, both in terms of content and language, as well as knowledge of the genres and biographies of the authors of reference.

SPECIFIC OBJECTIVES

Linguistic and stylistic aspects of Italian poetry will be peculiar. General aspects of the history of the language will also be addressed.

CONTENTS

The texts of the authors that will be read and commented are predictably the following:

Machiavelli

De principatibus, Lettera di dedica a Lorenzo de' Medici il Giovane, capp. 6, 7, 15, 18, 25, 26

L. Ariosto

Lena, prologo

Satire: I

Orlando furioso I 1-71, X 92-115, XI, XII 4-22, XVIII 165-192, XIX 1-15, XXIII 100-136, XXXIV, XLVI 1-3

P. Bembo

Prose della volgar lingua, I 18s., II 4-6

Rime: 5 (*Crin d'oro crespo e d'ambra tersa e pura*)

F. Berni

Rime: 31 (*Alla sua donna*)

G. Stampa

Rime: 7 (*Chi vuol conoscer, donne, il mio signore*)

P. Aretino

Ragionamento della Nanna e dell'Antonia, 79-87

Lettera a Tiziano Vecellio del maggio 1544

F. Guicciardini

Ricordi passi scelti

G. Della Casa

Rime: 53 (Varchi, Ippocrene il nobil cigno alberga)
Rime: 64 (Questa vita mortal, che 'n una o 'n due)

T. Tasso

Lezione sopra un sonetto di monsignor Della Casa

Rime: 573 (O del grand'Appennino)

Aminta prologo e I coro

Gerusalemme liberata I 1-3, II 17-26 e 53, III 17-20, VI 103-105, VII 1-13, XII 52-70, XIII, XVI 9-35

Discorsi dell'arte poetica e in particolare sopra il poema eroico, passi scelti

Dialoghi: Il messaggiero, passi scelti

T. Campanella

Poesie: 5 (Anima immortale)

G.B. Marino

Al pesce spada

Adone VII 32-37

G. Galilei

Lettere copernicane: Lettera a Benedetto Castelli 21 dicembre 1613

Dialogo sopra i due massimi sistemi del mondo, lettera prefatoria e finale della prima giornata

G. Vico

La scienza nuova II 1,1

C. Beccaria

Da Dei delitti e delle pene: capitolo contro la pena di morte

C. Goldoni

Le baruffe chiozzotte

Metastasio

La primavera

G. Parini

Odi: La salubrità dell'aria; La musica

Il giorno vv. 1-155

U. Foscolo

Ultime lettere di Jacopo Ortis, lettere dell'11 e del 13 ottobre 1797, del 13, del 14 e del 15 maggio 1798, del 19 e 20 febbraio 1799, suicidio

Sonetti: Alla sera; A Zacinto; Un dì, s'io non andrò sempre fuggendo

Dei sepolcri

A. Manzoni

Adelchi, coro dell'atto IV

Il Cinque Maggio

Lettre à M. Chauvet

I promessi sposi (capitoli 1-4, 8 solo *l'Addio ai monti*, 9-10, 13-15, 20-21, 27 solo la parte della biblioteca di Don Ferrante, 34 solo la parte della descrizione di Cecilia, 38)

To these texts, we will add the reading and commentary of a selection of cantos from the second cantica from *Commedia di Dante*:

Purgatorio I-VI, VIII-IX, XI, XXIV, XXVI, XXX

The program could be changed in relation to the performance of the class.

METHODOLOGY

All the texts will be provided in pdf format to the students. They could find them, before the lessons in order to illustrate them, on the RES under the Didactics. These could be enriched with other materials indispensable for the study or useful for the revision. To support and / or deepen the teaching, audio and / or audiovisual documents may also be shared.

The history of literature will instead be addressed on the following volumes:

- G. Ferroni, *Storia della letteratura italiana. 2. Dal Cinquecento al Settecento*, Milano, Mondadori 2012 ISBN 9788861840805 euro 22,00
- G. Ferroni, *Storia della letteratura italiana. 3. Dall'Ottocento al Novecento*, Milano, Mondadori 2012 ISBN 9788861840812 euro 23,00 (solo fino a Manzoni)

EVALUATION METHODS

The evaluation will be carried out through exercises and periodic checks in oral and written, individual and group.

Yearly plan History of Art
Class 12th grade
Academic year 2020 - 2021

General objectives

As part of the high school program, students will develop a clear understanding of the relationship between the works of art and the historical context in which they were produced; therefore, they will be able to make connection with literature, philosophical and scientific thought, politics, and religion.

Through the analysis of pictorial, sculptural and architectural works of art, they will be able to grasp and appreciate aesthetic values.

Specific objectives

- Identifying the artists and the artworks analysed in class within a specific historical context, through the use of an appropriate methodology and terminology
- Recognising and explaining iconographic and symbolic aspects, stylistic features, as well as the materials and the techniques employed
- Knowing how to read and analyse a work of art by making comparisons and connections
- Developing a deep awareness of the great cultural value of the archaeological, architectural and artistic heritage of our country, also through issues concerning the protection, conservation and restoration of our tradition

Methodology

The teaching of art aims at an active and participatory learning through the use of interactive teaching methods, such as LIM and multimedia tools, dialogical approach to lectures and compare and contrast method to activate students' learning processes, as well as educational visits to museums or exhibitions, in order to allow a direct relationship with the work of art.

In consideration of the extended period of time covered by the art course, the planning will be articulated through the fundamental contents (artists, works, movements) within the different historical contexts.

In addition to the textbook, study materials and lecture notes will be provided in order to offer an in-depth analysis on significant aspects related to local artistic tradition as well as the international context, thus emphasising the interdisciplinary vocation of the subject.

Content

During the fourth year, the art history course will begin with neoclassical art and end with the artistic movements of the late nineteenth and early twentieth centuries.

The artistic movements of the nineteenth and twentieth centuries will be analysed through the comparison between the neoclassical and romantic movements.

As opposite to both neoclassicism and romanticism, realist painting will be studied in relation to the social reality and political climate of the mid-nineteenth century that inspired it.

From the invention of the dark room to the idea of "photography as fine art", the technological development of photography will be studied through the work of some of the most important photographers on the international scene.

With the birth of the Impressionist style, the influence of photography and studies on light and colour, the atmospheric effects in painting will be analysed through the work of some of the key figures of this movement.

At the end of the course, Post-impressionism will be studied through some of the aesthetic researches that are connected to it, as well as compared to the oeuvre of the Macchiaioli and the Italian Divisionists.

Evaluation methods

The assessment of students' knowledge and skills will take into account, in addition to the average of the marks achieved in the exams, the actual commitment and participation in the class work, the progress shown in learning and widening contents, appropriate use of specific terminology, critical ability, punctuality and accuracy in meeting deadlines and completing assignments.

The evaluation tools include oral tests (interrogations, discussions, classroom interventions, etc.), written tests (tests and questionnaires, worksheets, reports, etc.) and interdisciplinary projects.

Yearly plan Advanced English

Class 12th Grade

Academic year 2020-21

General objectives

The minimum learning objective to be reached by the Advanced English Group by the completion of high school is the obtainment of the level C1/C2 of the Common European Framework of Reference for languages. For this purpose, students will practice reading and listening – for gist, detail and specific information – oral and written texts related to a variety of topics and in an interdisciplinary perspective. Students will also be asked to practice writing, in various formats, and speaking about current events, topics of general interest, literature and art. Given the international context of the school and that English is the language in which all subjects are taught, many didactic activities will have the aim of practicing communication skills which are appropriate to the interlocutors and to the context; and to develop the knowledge of subject-related lexis, in collaboration with the other teachers, and a correct pronunciation. The other fundamental objective, alongside the knowledge of the language, is the acquisition of the culture of English-speaking countries, focusing on analogies and differences with the culture of the students.

Specific objectives

Each of the following four test components contributes to a profile which defines the students' overall communicative language ability at this level.

Reading and Use of English

Assessment of students' ability to understand the meaning of written English at word, phrase, sentence, paragraph and whole-text level, and demonstrate knowledge and control of the language system. Students need to be able to understand texts from publications such as fiction and non-fiction books, journals, newspapers and magazines. Candidates' use of English is tested by tasks which show how well they can control their grammar and vocabulary.

Writing

Assessment of students' ability to write specified text types with a range of functions. (cont....)

Students have to show that they can produce two different pieces of writing: a compulsory essay in Part 1, and one from a choice of four tasks in Part 2.

Listening

Assessment of students' ability to understand the meaning of spoken English, to extract information from a text and to understand speakers' attitudes and opinions.

Students need to show they can understand the meaning of a range of spoken material, including conversations, lectures, seminars, broadcasts and talks.

Speaking

Assessment of students' ability to produce spoken English using a range of functions in a variety of tasks. Students take the Speaking test with another candidate or in a group of three, and are tested on their ability to take part in different types of interaction: with the examiner, with the other candidate and by themselves.

Methodology

In order to avoid a teacher-centred approach, students will be asked to work in pairs, small groups and as a whole class, interacting with each other and with native speakers in role-taking and role-playing activities. To make students the active participants of their learning, inductive-explorative activities will be preferred, as well as the assignment of "authentic" tasks.

Content

Overall the content will focus on the four disciplines required for successfully passing the Cambridge exams, Reading and Use of English, Writing, Listening, Speaking using a variety of media and support material to develop to required C1/C2 level; Communicative functions, Grammatical structures, Vocabulary including idiomatic expressions and Pronunciation.

Cambridge International Baccalaureate English Language and Literature will be the primary text book and Map of lesson programme will be structured around Topic, Lesson Focus, Exam Skills, Grammar and Vocabulary, Units 6-12. The supporting text book for grammar and vocabulary practise will be Longman Advanced/Proficiency Grammar and Vocabulary, Units 5-10.

Evaluation methods

Following the four-fold structure of the Cambridge English language examinations, right from the start students will be evaluated in the four key skills: writing, reading, listening and speaking. Writing skills will be assessed through linguistic compositions (essays, mini-essays, etc.) and simulations of real-life communications (emails, messages, blog posts); oral skills will be evaluated both through "classic" interrogations and oral presentations with multimedia supports on linguistic-cultural topics and on topics related to the students' interests, as well as through role plays, role-taking activities, debates; oral and written comprehension skills will be assessed through oral, audio-visual and written structured and authentic Cambridge Proficiency Exams texts, to comprehend globally and in detail,

related general interest or artistic and literary topics. Cambridge Assessment methods will be used for all Exam practise tests and EFL classwork.

PROGRAMA DE CULTURA Y LENGUA ESPAÑOLA

Clase 12TH

Año escolar 2020/2021

Objetivos generales

OBJETIVOS GENERALES que promueven el aprendizaje del español se basarán en el uso adecuado del idioma presentándose una serie de experiencias de aprendizaje que se fomentarán en clase, y tienen como objetivo:

- Estimular el interés y sensibilidad hacia las culturas en las que se habla la lengua objeto de estudio.
- Crear un clima de seguridad, confianza y afectividad. Para que el alumnado se exprese libremente, se respeten, y establezcan lazos afectivos satisfactorios.
- Fomentar la confianza del alumno en sí mismo a la hora de comunicarse.
- Aumentar la motivación para aprender dentro y fuera del aula.
- Desarrollar la capacidad de aprender de manera autónoma

Objetivos específicos

Los objetivos ESPECÍFICOS que se perseguirán están recogidos en el nivel A2 del MCER (Marco Común Europeo de Referencia para las lenguas):

- Comprender frases y el vocabulario más habitual sobre temas de interés personal (información personal y familiar muy básica, compras, lugar de residencia, empleo).
- Ser capaz de leer textos muy breves y sencillos.

- Saber encontrar información específica y predecible en escritos sencillos y cotidianos como anuncios publicitarios, prospectos, menús y horarios y comprendo cartas personales breves y sencillas.
- Poder comunicarme en tareas sencillas y habituales que requieren un intercambio simple y directo de información sobre actividades y asuntos cotidianos.
- Ser capaz de realizar intercambios sociales muy breves, aunque, por lo general, no puedo comprender lo suficiente como para mantener la conversación por mí mismo.
- Utilizar una serie de expresiones y frases para describir con términos sencillos a mi familia y otras personas, mis condiciones de vida, mi origen educativo y mi trabajo actual o el último que tuve.
- Ser capaz de escribir notas y mensajes breves y sencillos relativos a mis necesidades inmediatas. Puedo escribir cartas personales muy sencillas, por ejemplo agradeciendo algo a alguien

Metodología

La presente programación se ha diseñado siguiendo principalmente el enfoque comunicativo. Esta perspectiva implica aprender usando la lengua para los fines para los que se utiliza normalmente.

Los alumnos se enfrentarán a situaciones de comunicación real, donde los diferentes contenidos se les presentarán de manera integrada dentro de tareas comunicativas de comprensión, expresión, interacción, mediación o distintas combinaciones de las mismas.

Para el desarrollo de habilidades socioculturales y el conocimiento de las culturas asociadas con el español (española, andaluza, hispanoamericana etc.) se realizarán tareas con materiales auténticos y/o adaptados, y teniendo en cuenta el nivel de los alumnos, donde las tareas le permitirán entrar en contacto directo con las costumbres, usos del español y características de las culturas en cuestión.

Por último, se aplicará una metodología que proporcione al alumnado las competencias y destrezas necesarias para realizar las tareas con eficacia.

Aclaración sobre la metodología:

Debemos tener en cuenta que es muy importante tanto en la organización espacial como la temporal la flexibilidad, de modo que tengan cabida nuevas iniciativas, investigaciones, intereses, propuestas o proyectos que nos ayuden a conseguir una enseñanza más completa.

Contenidos

Para conseguir los puntos anteriores debemos conocer bien los siguientes CONTENIDOS que seguirán siempre una gradualidad y progresión adecuadas, estableciendo procesos adaptados a los diferentes ritmos y circunstancias personales de aprendizaje.

Se comenzará con el repaso y la profundización de los siguientes contenidos:

- Imperfecto de subjuntivo.
- Pluscuamperfecto de subjuntivo.
- La voz pasiva y la pasiva refleja.
- Presencia o ausencia de la preposición "de"

De literatura:

Siglo XV:

- El Romancero
- La lírica culta: Jorge Manrique "Coplas a la muerte de su padre".
- El teatro. Fernando de Rojas "La Celestina".

A continuación, seguiremos con los nuevos argumentos relacionados con los anteriores:

- Las perífrasis de infinitivo.
- Las oraciones causales.
- Las oraciones finales.
- Los verbos de cambio.

- El voseo.
- La oración condicional introducida con si.
- Otras oraciones condicionales.
- Las oraciones de relativo.
- Las perífrasis de gerundio.

Durante cada unidad se estudiará el vocabulario de un/os campo/s específico/s, donde repasaremos y ampliaremos lo visto en el curso anterior.

Este vocabulario está recogido en el Plan Curricular del Instituto Cervantes y corresponde al nivel B1/B2.

(https://cvc.cervantes.es/Ensenanza/biblioteca_ele/plan_curricular/niveles/09_nociones_especificas_inventario_b1-b2.htm)

LITERATURA

- Adquirir y utilizar el léxico relativo a la historia y a la literatura.;
- Conocer las líneas generales del recorrido histórico-literario español y algunos autores más representativos a través de textos significativos del RENACIMIENTO y del BARROCO (Siglo de Oro).
- Comprender e interpretar textos literarios sabiendo reconocer el género y localizándolo dentro del contexto histórico-cultural al que pertenece.

El Siglo de Oro XVI: El Renacimiento

Contexto cultural: Marco histórico, social y literario.

- Los nuevos géneros literarios principales: la novela picaresca, la novela pastoril y la novela bizantina. Estudio de El Lazarillo de Tormes (1554): significado, contenido, caracteres.
- Poesía del Siglo de Oro Garcilaso de la Vega (1501-1536): biografía ,obra y estilo.
- MIGUEL DE CERVANTES SAAVEDRA (1547-1616). Estudio de "El ingenioso hidalgo Don Quijote de La Mancha" : motivos, estructura, significado, asunto y caracteres.

- ASCETICA Y LA MISTICA.

El Siglo de Oro XVII: El Barroco

Contexto cultural: Marco histórico, social y literario.

La poesía en el siglo XVII

- Estilos y formas poéticas: culteranismo y conceptismo.
- Francisco de Quevedo (1580-1645) y Luis de Góngora (1561-1627)

Método de evaluación

La evaluación del español, como lengua, será una evaluación continua e integrada en la metodología, como indicador de la marcha del alumno en singular, como el de la clase en general.

Serán considerados los siguientes aspectos dentro de la comprensión y producción oral:

- Comprensión de la tarea y ejecución.
- Eficacia comunicativa.
- Organización del discurso.
- Corrección gramatical y léxica.
- Pronunciación y fluidez.

Dentro de la comprensión y producción escrita de los diferentes tipos de texto (dialógico, descriptivo, narrativo, argumentativo,...) se evaluarán los siguientes aspectos:

- Eficacia comunicativa.
- Adaptación al formato solicitado.
- Organización y formulación de los textos.
- Corrección gramatical.
- Corrección léxica y ortográfica.

Naturalmente, los descriptores indicados se basan en el MCER Marco (Común europeo de Referencia para las lenguas) y sobre las Indicaciones Nacionales para los Institutos. Para todo esto se utilizarán unas tablas de evaluación que se explicarán al inicio del curso para el conocimiento y participación consciente del alumno en la consecución de los objetivos que tienen que alcanzar y en su propia evaluación.

Los textos literarios tendrán una consideración particular con una tabla de evaluación concreta.

Por cada tabla elaborada se facilita además otra relativa a la evaluación de los estudiantes con trastornos del aprendizaje.

Además de todo lo anterior, se tendrán en cuenta otros aspectos importantes que forman parte del aprendizaje, como son:

- La realización regular de los deberes, así como su puntualidad en la entrega.
- El interés y la participación en las clases.
- La evolución del alumno a largo del año.

Yearly plan Chinese Language and Culture
Class 12th grade
Academic year 2020-2021

General objectives

The proposed course provides students with the cultural and methodological tools for a deeper understanding of the Chinese linguistic and cultural reality. The course also aims at developing in the students a rational, creative and critical attitude, so that they will be able to compare situations, phenomena and problems. Accordingly, upon completion of the course, the students should be able to demonstrate knowledge, skills and competence to understand a linguistic and cultural landscape generally perceived as distant. The course includes the greatest possible exposure to the foreign language. This will enable students to share experiences of both language communication and understanding of foreign culture in an intercultural perspective. This objective will be pursued through virtual exchanges and face to face classes, which will provide exposure to the most truthful language inputs.

Specific objectives

In terms of linguistic-communicative competence, students are able to understand the main points of a clear speech in standard language dealing with familiar topics, including short narrations. They are able to produce, in a reasonably smooth manner, a simple description of one or more subjects, provided that they relate to familiar topics. They are able to read factual texts on topics that refer to field of their interest reaching a good level of understanding. Students can write cohesive and linear texts on familiar topics or topics already studied in school. They are also able to use technological tools in order to look characters up in the dictionary. In the context of the development of knowledge about the Chinese cultural universe, students understand and analyze aspects related to culture, with particular reference to the social sphere. They compare aspects of their culture with aspects related to Chinese culture. Students starts to have a deeper knowledge on Chinese literature.

Methodology

The study of Chinese language and culture must proceed along two fundamental and intertwined lines: the development of linguistic-communicative skills and the development of knowledge related to the cultural universe. The language presents a total morphological diversity and culture is commonly perceived as "other" than the western cultural block. For all these reasons, studentes are asked to overcome stereotypes and preconceptions and to look at the course as an opportunity for

exchange and awareness. Students will also be provided with a social, cultural, historical and geopolitical introduction to the Chinese reality. The added value is the conscious use of effective communication strategies and a reflection on the language system and uses.

Content

Language goals:

- General review;
- Referring to the future;
- Modal and perfectives particle;
- Complement of degree part 2;
- Comparative and superlative grammar;
- Result complement;
- Correlative constructions (一边...一边...,又... 又...);
- Conjunctions (不但.....而且);
- Simple direction complement;

Historical and literary goals:

- General review;
- Quick historical and literary background of Chinese dynasties (from Sui to Qing dynasty);
- Fiction, the classical novels;

The listed linguistic and historical literary knowledge represents a base from which the teacher and the students will draw inspiration to develop the program in a flexible and personal way.

Evaluation methods

The proposed evaluation modality will be applied to all components and activities of the educational path. Students' oral and written production/comprehension skills will be evaluated by written and oral tests. The evaluation may be implemented by group work project or individual work project on linguistic or cultural topics. Respect of deadlines, level of attention and participation in class will be basic factors for the final evaluation. The teacher will determine the weight of the different tests (possible differentiation of Chinese language tests and Chinese culture tests).

Yearly plan Mathematics

Class 12th grade

Accademic year 2020 - 2021

General objectives

At the end of the second two-year period (11th and 12th grade) of linguistic high school, students will know the basic concepts and methods of Mathematics, both within the discipline and relevant for the description and prediction of simple phenomena of the world, in particular in the field of Physics. Hence, the groups of concepts and methods that will be the objective of study are:

- elements of Euclidean geometry of plane and space (definitions, demonstrations, generalizations, axiomatizations);
- elements of algebraic computation and elements of Cartesian analytic geometry;
- introduction to the mathematical concepts necessary for the study of physical phenomena;
- introduction to the basic concepts of probability and statistical analysis;
- construction and analysis of simple mathematical models of classes of phenomena, also using computer tools for description and computation.

This development of topics and mathematical approaches will form the basis of conceptual and methodological comparisons with other disciplines such as Physics, Natural and Social Sciences, Philosophy and History. Particular attention will be paid to the role of linguistic expression in mathematical reasoning.

Specific objectives

The Maths course for 12th grade students is divided into the following areas. ARITHMETIC AND ALGEBRA

The study of the number n and of contexts in which exponential growths appear with the number e , will allow them to deepen the knowledge of real numbers, with regard to the topic of transcendental numbers. Students will be introduced to the problem of infinity and its connections with the philosophical thought.

GEOMETRY

Students will learn definitions and elementary properties and relations of circular functions, the most important theorems used to solve triangles and their use in the field of Physics.

RELATIONS AND FUNCTIONS

Students will study and deepen the elementary functions of analysis and their graphs, in particular the polynomial, rational, circular, exponential and logarithmic functions. They will learn to build simple models of exponential growth or decay, as well as periodic trends, also in relation to the study of other disciplines; all this is in both a discrete and a continuous setting. DATA AND

FORECASTS

Students will study the conditional probability, Bayes formula and its applications, together with the basic elements of combinatorics. Students will deepen the concept of mathematical model thanks to the new knowledge acquired.

Methodology

The fundamental concepts of this discipline will be presented to students through lectures and discussions. Numerous exercises will be carried out and illustrated in class to allow students to master the concepts learned and to be able to apply them.

Some parts of the curriculum will be taught with problem solving techniques and the teacher will try to stimulate the active participation of students by submitting them to problematic situations from which to draw observations, concepts and methodologies useful for their resolution.

The assimilation of concepts will always be supported by the assignment of a reasonable number of exercises to be performed at home.

The curriculum will be constantly monitored by the teacher and its progression will be modulated according to the level of learning achieved by students and according to the difficulties they manifested.

All the lessons will be taught in English.

When possible, some laboratory activities will accompany students in the process of learning Mathematics, with connections in particular with the other scientific disciplines studied in the course of high school. These activities will be held in classroom using the technologies available to students (personal computers) and the smartboard.

Contents

DIDACTIC MODULE 1: EXPONENTIALS AND LOGARITHMS

DIDACTIC UNIT 1 - Functions

Functions and their classification. Domain, range, zeroes and sign of a function. Injective, surjective and bijective functions. Increasing and decreasing functions. Even and odd functions. Periodic functions.

DIDACTIC UNIT 2 - Exponentials

Powers with real exponents and their properties. Exponential function. Exponential equations. Exponential inequalities.

DIDACTIC UNIT 3 - Logarithms

Definition and properties of logarithms. Formula used to change the base of logarithms. Logarithmic function. Logarithmic equations. Logarithmic inequalities. Exponential equations and inequalities that can be solved with logarithms.

DIDACTIC MODULE 2: GONIOMETRY AND TRIGONOMETRY

DIDACTIC UNIT 4 - Goniometric functions

Measure of angles and goniometric circumference. Sine and cosine functions. Tangent function. Graphs and characteristics of goniometric functions. Pythagorean theorem and tangent formula. Secant, cosecant and cotangent functions. Value of goniometric functions for notable angles. Associated angles. Goniometric inverse functions.

DIDACTIC UNIT 5 - Goniometric equations and inequalities

Addition and subtraction formulas for sine, cosine and tangent. Double-angle formulas and half-angle formulas for sine, cosine and tangent. Parametric formulas. Sum-to-product and product-to-sum formulas. Elementary goniometric equations. Linear equations in sine and cosine. Homogeneous quadratic equations in sine and cosine. Goniometric inequalities.

DIDACTIC UNIT 6 - Trigonometry

Theorems about right triangles. Solving right triangles. Theorem of the area of a triangle. Chord theorem. Theorems valid for all types of triangle: law of sines and law of cosines. Solving any types of triangle.

DIDACTIC MODULE 3: COMBINATORICS

DIDACTIC UNIT 7 - Combinatorics

Simple dispositions and dispositions with replacement. Simple permutations and permutations with replacement. Factorial function $n!$. Simple combinations and combinations with replacement.

Evaluation methods

There will be numerous moments of formative assessment, whose purpose is to measure the level of achievement with respect to the objectives. Students will be graded taking into account their participation in class during lessons and discussions, their performance when solving university quizzes collected by the teacher, oral interrogations (in English) and written tests (always in English).

The summative assessment (proposed by the teacher during the final scrutiny) will take into account the following parameters: achievement of the objectives verified with written and oral tests throughout the school year, interest and commitment shown in class, outcome of the make-up tests (if present) and global growth process in relation to the student's educational path.

Yearly plan

Physics

Class 12th grade

Accademic year 20 20-2021

General objectives

At the end of the second two-year period (grades 11th and 12th) of linguistic high school, students will have learned the basic concepts of Physics. In particular, they will have acquired the following skills:

- be able to observe and identify phenomena;
- face and solve simple problems of Physics using various mathematical tools in accordance to what they have studied in Maths;
- be aware of the multiple aspects of the experimental method, where all experiments are intended as reasoned interrogations of natural phenomena, critical analyses of data and reliability of a measurement process, construction and validation of models;
- understand and evaluate the scientific and technological choices that affect the society in which we live.

During the second two-year period, we continue to build the language of Physics, accustoming students to simplify and model real situations, to solve problems and to have critical awareness of their work. At the same time, students will better understand the field of investigation of the discipline and will learn to explore phenomena and to describe them with appropriate language.

Specific objectives

The Physics course for 12th grade students is divided into the following areas. GEOMETRICAL OPTICS

Through the study of geometrical optics, students will deepen the phenomena of reflection and refraction of light, analyzing the properties of plane and spherical mirrors and properties of thin lenses.

MECHANICAL AND ELECTROMAGNETIC WAVES

The study of waves will concern mechanical and electromagnetic waves, their parameters and their characteristic phenomena. In particular, they will study sound waves and light waves, together with the main physical quantities used to describe them and the Doppler effect.

ELECTRIC PHENOMENA

The study of electric phenomena will allow students to critically examine the concept of distance interaction (already encountered with the law of universal gravitation), the need for its overcoming and the introduction of interactions mediated by the electric field. Students will complete the study of electric phenomena during the last year of high school, together with magnetism.

Methodology

The fundamental concepts of this discipline will be presented to students through lectures and discussions. Numerous exercises will be carried out and illustrated in class to allow students to master the concepts learned and to be able to apply them.

Some parts of the curriculum will be taught with problem solving techniques and the teacher will try to stimulate the active participation of students by submitting them to problematic situations from which to draw observations, concepts and methodologies useful for their resolution.

The assimilation of concepts will always be supported by the assignment of a reasonable number of exercises to be performed at home.

The curriculum will be constantly monitored by the teacher and its progression will be modulated according to the level of learning achieved by students and according to the difficulties they manifested.

All the lessons will be taught in English.

When possible, some laboratory activities will accompany students in the process of learning Physics. These experiments and experiences will be carried out in our Physics-Chemistry Lab or proposed in class through the smartboard.

Contents

DIDACTIC MODULE 1: MECHANICAL WAVES

DIDACTIC UNIT 1 - Mechanical waves

Definition. Transversal and longitudinal waves. Wave fronts and rays. Periodic waves. Physical quantities used to describe waves: wavelength, amplitude, period, frequency, propagation speed, phase. Harmonic waves. Harmonic wave function. Interference on a plane. Constructive and destructive interference. Diffraction.

DIDACTIC UNIT 2 - Sound

Sound waves. Speed of sound. Audibility range and threshold. Three characteristics of sound: pitch, intensity and timbre. Reflection of sound waves and echo. Natural frequencies and resonance. Stationary waves (theoretical outline). Beats. Doppler effect.

DIDACTIC MODULE 2: ELECTROMAGNETIC WAVES

DIDACTIC UNIT 3 - Geometrical optics

Rays of light. Laws of reflection of light for plane mirrors. Spherical mirrors. Image construction for spherical mirrors. Spherical mirrors formula. Refraction of light: Snell's law. Total reflection. Thin lenses and thin lenses law.

DIDACTIC UNIT 4 - Nature of light, interference and diffraction

Waves and corpuscles. Light waves and colors. Irradiance. Huygens principle. Analysis of the reflection of a wave. Interference of light and Young's experiment (double-slit). Iridescence of transparent films. Diffraction of light. Diffraction grating.

DIDACTIC MODULE 3: ELECTRIC PHENOMENA

DIDACTIC UNIT 5 - Electric charge

Charging by friction. Conductors and insulators. Operative definition of electric charge. The unit of measurement coulomb. Coulomb's law. Charging by induction. The polarization of insulators.

Yearly plan Natural Science

Class 12 th grade

Academic year 2020/21

General objectives

Knowing the fundamental concepts of chemistry and biology, and using the specific procedures in a proper way, through the application of the scientific method, are the main objectives of the subject.

Specific objectives

In the second biennium the subject contents have to be expanded and consolidated. The students will start to understand the relationships between the different topics allowing them to explain in a deeper way a specific phenomenon.

Methodology

Traditional teaching, based on frontal lesson, will be done together with flipped classroom where the students will present to the class a specific topic helped by the teacher.

Both methodologies will be supported by interactive technology tools thanks to the use of smartboards.

Team activities will be organized to allow the student to learn the rules that govern the team work.

Lab activities will play a pivotal role in the course and everytime lab reports will be worked out creating a connection between theory and practise.

Content

The Chemistry course will be focused on kinetics and reaction equilibrium related to the energy variation associated to a chemical reaction.

- Redox reactions
- Reaction rate and affecting factors
- Reversible reactions and chemical equilibrium
- Enthalpy: exothermic and endothermic reactions
- Hess Laws and enthalpy cycle.

During the Biology course, the structure-activity relationship between DNA and RNA will be analyzed together with the genetics basic laws.

- Structure of the nucleic acids: DNA and RNA
- The dogma of biology: DNA-RNA-protein
- The cell cycle and the cell division (mitosis and meiosis)
- Mendel and the laws of genetics
- Inheritance and genes

Evaluation methods

The acquired knowledge will be evaluated through both written and oral test. In the team work, contents, interest and sympathy will be part of the evaluation. Student participation and curiosity will be fundamental elements taken into account by the teacher in the evaluation method.

Yearly plan Business Studies

Class 12 th grade

Academic year 2020/21

General objectives

The aims of the Business Studies programme, which are not listed in order of priority, are to enable candidates to: 1) make effective use of relevant terminology, concepts and methods, and recognise the strengths and limitations of the ideas used in business; 2) apply their knowledge and critical understanding to current issues and problems in a wide range of business contexts; 3) distinguish between facts and opinions, and evaluate qualitative and quantitative data in order to help build arguments and make informed judgements; 4) appreciate the perspectives of a range of stakeholders in relation to the business environment, individuals, society, government and enterprise; 5) develop knowledge and understanding of the major groups and organisations within and outside business, and consider ways in which they are able to influence objectives, decisions and activities; 6) develop knowledge and understanding of how the main types of businesses are organised financed and operated and how the relations with other organisations consumers employees, owners and society are regulate. 7) develop skills of numeracy, literacy, enquiry, selection and use of relevant sources of information, presentation and interpretation. 8) Develop an awareness of the nature and significance of innovation and change within the context of business activities.

Specific objectives

First Term; Understanding People in Business focusing on the following concepts; (i) Motivating workers, (ii) Organisation and Management (iii) Recruitment, selection and training, (iii) Internal and external communication

Second Term; (i) Work Experience Case Study Project: To be Determined

Methodology

In order to avoid a teacher-centred approach, students will be asked to work in pairs, small groups and as a whole class, interacting with each other and with native speakers in role-taking and role-playing activities.

To make students the active participants of their learning, inductive-explorative activities will be preferred, as well as the assignment of "authentic" tasks. Authentic and modern world case study analysis will be constantly referenced and written work will be based on Cambridge IGCSE Business Studies.

Technology platform stockmarket.org will be utilised for Investment Analysis and Stock share investment simulation.

Content

2 People in business

2.1 Motivating workers

2.1.1 The importance of a well-motivated workforce:

- Why people work and what motivation means
- The concept of human needs – Maslow's hierarchy
- Key motivational theories: Taylor and Herzberg

2.1.2 Methods of motivation:

- Financial and non-financial rewards and methods
- Recommend and justify appropriate method(s) of motivation in given circumstances

2.2 Organisation and management

2.2.1 Draw, interpret and understand simple organisational charts:

- Simple hierarchical structures: span of control, hierarchy, chain of command and delegation
- Roles, responsibilities and inter-relationships between people in organisations

2.2.2 The role of management:

- Functions of management – planning, organising, co-ordinating, commanding and controlling

- Importance of delegation; trust versus control

2.2.3 Leadership styles:

- Features of the main leadership styles – autocratic, democratic and laissez-faire
- Recommend and justify an appropriate leadership style in given circumstances

2.2.4 Trade unions:

- What a trade union is and the benefits of workers being union members

Cambridge IGCSE Business Studies 0450 syllabus 2017, 2018 and 2019. Subject content

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2.3 Recruitment, selection and training of workers

2.3.1 The methods of recruiting and selecting workers:

- Recruitment and selection
- Difference between internal and external recruitment
- Main stages in recruitment and selection of staff
- Benefits and limitations of part-time and full-time workers

2.3.2 The importance of training and the methods of training:

- Importance of training to a business and workers
- Benefits and limitations of induction training, on-the-job training and off-the-job training

2.3.3 Why reducing the size of the workforce might be necessary:

- Difference between dismissal and redundancy with examples to illustrate the difference

- Understand situations in which downsizing the workforce might be necessary, e.g.

automation or reduced demand for products

- Recommend and justify which workers to recruit/make redundant in given circumstances

2.3.4 Legal controls over employment issues and their impact on employers and employees:

- Legal controls over employment contracts, unfair dismissal, discrimination, health and safety, legal minimum wage

2.4 Internal and external communication

2.4.1 Why effective communication is important and the methods used to achieve it:

- Effective communication and its importance to business
- Benefits and limitations of different communication methods including those based on

information technology (IT)

- Recommend and justify which communication method to use in given circumstances

2.4.2 Demonstrate an awareness of communication barriers:

- How communication barriers arise and problems of ineffective communication;

Evaluation methods

Written assessment will include Exam Practise questions and completion of exam style case studies which will be graded according to Cambridge IGCSE marking criteria.

Oral assessment and presentation assessment will be marked according to content, delivery, organisation, visual and quality of interrogation questions, observation and feedback.

Yearly plan

Class 12th Grade

Academic year 2020/21

General objectives

In the fourth year the most common computer work software will be used together with the basic concepts connected to them. The architectural features of a spreadsheet and software for digital presentations and in-depth analysis of word processing software will be introduced.

The concept of network collaboration, the benefits of collaboration, cloud computing, its basic functionality and common features will be explained. The concept of online meeting and online study will be introduced.

The constituent elements will be introduced to guarantee the security of data and information. The basic principles of web editing for the creation, study and publication of websites and applications.

It is necessary to start from what students have already acquired in the basic school to let them achieve the mastery of these tools, with particular attention to online security.

The structure and services of the Internet will be introduced. Together with the other disciplines, students will be used to effectively use communication and the search for information, and to be aware of the problems and rules of this use.

Specific objectives

Acquisition of suitable knowledge and skills on the topics addressed.
The contents will cover the following topics:

- Spreadsheet (Excel)
- Word processing (Writer)
- Impress (Powerpoint)
- It Security
- Web editing
- Online collaboration tools
- Security of data and information

- Safe surfing on the net

Methodology

The lessons will be conducted through discursive lectures, with the support of videos and the use of technological supports. To evaluate the acquired knowledge, written and oral examinations will be carried out. Participation, socialization, collaboration with initiatives and among students will also be considered, with a judgment that is not only notional and conceptual, but also educational.

Content

The contents will cover the following topics:

- Differences between licensed software and free software
- Original software and open source copies
- Desktop software and cloud software
- Settings and use of excel
- Settings and use of Impress (Powerpoint)
- In-depth use of writers (Word)
- Design, creation and study of websites
- Sharing of documents to collaborate

Evaluation methods

INSTRUMENTS AND METHODS

- Personal personal computer for each student
- Guidelines for preparation for ECDL exams.
- Online access for exercises related to the achievement of the European computer license.
- Frontal lessons.
- Computer exercises on the topics provided.
- Exam tests in specific Internet sites.

