

Course Descriptions for the Mathematics Program

Level One

Course	General Mathematics			year
Course number	101			First
Course code	Math			
Credit Hours	Theo	Prac.	Total	Level
	2	1	3	One
Prerequisites	-			

Course Description

Algebraic operations on numbers, Methods of analysis, logarithm and exponents, solving linear equations, solving square equations, triangular functions, Retezih coordinates, equations of straight line and circles, cutting cone, strategies of solving verbal problems.

Course	General Chemistry 1			year
Course number	101			First
Course code	Chem			
Credit Hours	Theo	Prac.	Total	Level
	3	1	4	One
Prerequisites	-			

Course Description

States of matter - physical and chemical properties of the materials - atomic numbers - block number - isotopes - chemical formulas and primitive and synthetic molecules - Avogadro's number - the molar mass - ratios configuration - calculate formulas primitive vehicles - account the limiting factor and yield actual interactions - theories of classical and modern installation atomic - the dual nature of the electron - the Uncertainty Principle to Heyznberg - quantum numbers - Alawrpittalat Atomic - the electronic distribution of atoms - Base Hond - the principle of building upward - the periodic table and include recipes elements (Radius - ionization potential - the tendency mail - Alsalbehalkahrabah) - chemical bonds and molecular structure - symbols The forms Lewis - diffraction at the base of the eighties - Types of links shapes of molecules - theories of composition covalent bonds and hybridization of atomic orbitals - redox - numbers oxidation - writing equations ionic balanced - acids and bases : Lewis - the pH scale and accounts of acids and bases and salts , lotions and organization - Alatzanat inclusions deposits and solubility constants.

Course	General Physics 1			Year
Course number	101			First
Course code	Phys			
Credit Hours	Theo	Prac.	Total	Level
	3	1	4	Two
Perquisites	-			

Course Description

Physics and Measurement - the laws of motion - Work and energy - linear momentum and collisions - rotational motion - flexibility and Hooke's Law - fluid mechanics - pressure gauges - Bernoulli's equation - viscosity and Stokes law.

Course	General Biology			year
Course number	101			First
Course code	Biol			
Credit Hours	Theo	Prac.	Total	Level
	3	1	4	One
Perquisites	-			

Course Description

The definition of biology, the apparent structure of plants (root, stalk, leave), introduction on the form and components of living and non-living plant cells, Plant tissues, Anatomical shape of plants with unilateral and bilateral lobe, the classification of plant kingdom, study of some examples from the plants kingdom, some processes of bio metabolism in plants (production, photosynthesis, breathe, animal cell, the living and non –living of cells, cell division (direct and indirect), differences between animal and plant cells, animal tissues, animal kingdom, introduction on the physiology and environment of animals.

Course	Health & Fitness			year
Course number	101			First
Course code	Htft			
Credit Hours	Theo	Prac.	Total	Level
	1	-	1	One
Perquisites	-			

Course Description

The course contains the main principals and necessary information related to every day habits which contains protection from diseases, bad habits which harm health, primary aids for injures, food and its components and nature, physical activity and maintaining body, search for social and psychological pressures and methods of dealing with them, modification of students' behavior in their everyday life.

Level Two

Course	General Physics 2			year
Course number	132			First
Course code	Phys			
Credit Hours	Theo	Prac.	Total	Level
	3	1	4	Two
Prerequisites	-			

Course Description

Coulomb Law, electric field, Electric flux, Gauss law, voltage, capacitors, Electric current, Ohm law, voltage, electric circuits and Karatkhouf Law, magnateic field, Savor law, Amber law, Faraday law, induction, circuits of AC current, electromagnetic waves.

Course	Calculus 1			year
Course number	152			First
Course code	Math			
Credit Hours	Theo	Prac.	Total	Level
	2	1	3	Two
Prerequisites	-			

Course Description

Limits and connection, Average value theory, Calculus, chain rule, calculus implicit functions, calculus o reverse function, Calculus of trigonometric functions – calculus applications, Average value and lobital theories, Infinite calculus - Calculus of trigonometric functions, Finite calculus – main theory of calculus and integration, Integration applications- exponential and logarithmic functions, Trigonometric functions inverses

Course	General English			year
Course number	129			First
Course code	Engl			
Credit Hours	Theo	Prac.	Total	Level
	3	-	3	Two
Prerequisites	-			

Course Description

The course reviews English language skills, with an emphasis on the reinforcement and expansion of comprehension through practice in reading plus complementary work on listening, speaking, and writing skills.

Course	Logic & Proof Methods			year
Course number	162			First
Course code	Math			
Credit Hours	Theo	Prac.	Total	Level
	1	1	2	Two
Prerequisites	-			

Course Description

The logic of reports and logical relations, right table, rules of inference in reports logic, first grade logic, logical inference, proof methods.

Course	Set Theory			year
Course number	172			First
Course code	Math			
Credit Hours	Theo	Prac.	Total	Level
	1	1	2	Two
Perquisites	-			

Course Description

Sets, partial sets, intersect and union, relations and their features, Valence relations, ranking relations, Functions, Unilateral functions, unilateral analogies, Numerable sets, ranking numbers,

Course	Islamic Creed			year
Course number	271			First
Course code	Islam			
Credit Hours	Theo	Prac.	Total	Level
	2	0	2	Two
Perquisites	-			

Course Description

Creed ,its definition, importance of its study, sources, features, inference methodology, pillars of faith in the light of Gebiril Hadith, its effect on the life of man and society, Nullifiers of faith, regulation of thinking. Study of thinking doctrines, fundamentalism and Christianity, Bahai, Qadianh, Zionism and freemasonry. The student will memorization: " Amma " Chapter.

Level Three

Course	Introduction to Computer			year
Course number	180			First
Course code	Math			
Credit Hours	Theo	Prac.	Total	Level
	2	1	3	Three
Perquisites	-			

Course Description

Fields of computer usage, components of computer, basic concepts of operation system and explanation of Windows as example, binary system of numbers, data presentation on computer, use computer in mathematical program, use computer in treatment of tables, use computer in preparing presentation, data base and its uses, use internet, sources available on the internet.

Course	Calculus 2			year
Course number	211			First
Course code	Math			
Credit Hours	Theo	Prac.	Total	Level
	2	1	3	Three
Perquisites	Math 101- Math 152			

Course Description

Methods of calculating integration , Improper integrations, Cone cutting, square surfaces, Hyperbolic and reverse hyperbolic functions, Polar Coordinates, Series integration, Series integration tests, Tailor theory, series and its integrations .

Course	Principles of Algebra			year
Course number	231			Second
Course code	Math			
Credit Hours	Theo	Prac.	Total	Level
	2	1	3	Three
Perquisites	Math 101- Math 172			

Course Description

Binary processes , clustering feature, neutral element and reverse, group, n group, , permutations groups , and symmetries regular polygon groups, Linger theory, rounded groups , Kelly theory, division group, symmetries regular polygon groups, theories of hermovizm.

Course	Linear Algebra			year
Course number	233			Second
Course code	Math			
Credit Hours	Theo	Prac.	Total	Level
	2	1	3	Three
Perquisites	Math 101			

Course Description

Linear equations, Gauss" and " Gauss-Jordan for reduction, linear spaces, base, dimension, internal multiplication, orthogonal vectors, Shmadat method, linear inversions, change the base, matrix, values and eigenvector, use values in transformation of matrix .

Course	General Physics 3			year
Course number	201			Second
Course code	Math			
Credit Hours	Theo	Prac.	Total	Level
	3	1	4	Three
Prerequisites	-			

Course Description

Vibrations and its types', periodical waves , Suspended waves, overlap, sound waves and their spread, resonance and air vertices , doubler phenomena , concept of heat, temperature and its measurement, thermal capacity, The first law of thermodynamics.

Course	Social System in Islam			year
Course number	272			Second
Course code	Islm			
Credit Hours	Theo	Prac.	Total	Level
	1	1	2	Three
Prerequisites				

Course Description

Society: definition, human in Islam, the principles of building society and the help of Islam, features of Islamic society, strengthen the social ties.

Family in Islam: definition, position, importance, the bases of building family, marriage and its purposes, the rights of the married couple, the rights of parents , children, relatives, the status of woman and her rights in Islam, suspicions around family system in Islam and replies : polygamy, heritage, blood money for woman, veil, divorce, birth-control, family problems: woman work, curatorship, alimony.

The students will memorize surah "Alahzab"

Level Four

Course	Introduction to Statistics			year
Course number	207			Second
Course code	Math			
Credit Hours	Theo	Prac.	Total	Level
	1	1	2	Four
Prerequisites	Math 101			

Course Description

Data representation, Central tendency scale, Scatter meter and sprain scale, Counting methods, introduction to probability theory, Conditional probability , random mutation, Separate probability distribution , The role of chi-square test , in testing social hypothesis, Confidence intervals - testing hypothesis, Frequency distribution and its diagrammatic representation

Course	Calculus 3			year
Course number	212			Second
Course code	Math			
Credit Hours	Theo	Prac.	Total	Level
	2	1	3	Four
Perquisites	Math 101, Math 211			

Course Description

Vectors, linear and superficial integrals and vector analysis theories. equations of planar and quadratic surfaces, vector functions and their natural and geometric applications, maximum and minimum values, partial derivatives, chain rule, and LaGrange multiplicand, multi-integrals, integrals in cylindrical and spherical coordinates, theories of main vector analysis.

Course	Ordinary Differential Equations			year
Course number	214			Second
Course code	Math			
Credit Hours	Theo	Prac.	Total	Level
	2	1	3	Four
Perquisites	Math 101, Math 211			

Course Description

First- degree differential equations, second- degree differential equations, higher degrees differential equations, The solutions of sequences of second-degree linear differential equations, Wiesel equations, Laplace transformations

Course	Principles of Analysis			year
Course number	242			Second
Course code	Math			
Credit Hours	Theo	Prac.	Total	Level
	2	1	3	Four
Perquisites	Math 101, Math 172			

Course Description

Real numbers features (order & cosine), some important inequalities, Open sets in real line and its features, Correlation: blazon waster theory, Oscillatory series and its convergence, Absolute and conditioned convergence, real functions end, Sequence convergence (constant, Cushitic, tiqchih sequences, lower and upper ends.

Course	Introduction to Programming			year
Course number	280			Second
Course code	Math			
Credit Hours	Theo	Prac.	Total	Level
	2	1	3	Four
Prerequisites	Math 180			

Course Description

Basic data types in programming languages, Identifiers, Variables, operators and expressions, Input and structures.

Course	Composition			year
Course number	111			Second
Course code	Arab			
Credit Hours	Theo	Prac.	Total	Level
	2	-	2	Four
Prerequisites				

Course Description

Types of writing:

(Essay, Message, Summarization, Report) and train on them

Basic grammatical rules:

(Declinable and indeclinable , signs of parsing, parsing of the verb, subject, and subject of the passive, Direct object, Adverb, specification, number, Appositives : adjective, corroborative, Syndesis, apposition)

Dictation rules

Middle and initial "Hamza" , weak " Alif " , Conjunctive Hamzah, the difference between "Al", Addition and deletion in typing words, Search in old and modern linguistic lexicon, Applications on the use of lexicons.

Level Five

Course	Algebra 1			year
Course number	331			Third
Course code	Math			
Credit Hours	Theo	Prac.	Total	Level
	2	1	3	five
Prerequisites	Math 231			

Course Description

Rings and their features, right domains, fields, ideals, quotient rings, maximum ideals, hamopherizm, field of quotient in right domains, Polynomials rings, analysis of polynomials, test the probability of factorization of polynomials single analysis domains,, Euclidean domains.

Course	Real Analysis 1			year
Course number	341			Third
Course code	Math			
Credit Hours	Theo	Prac.	Total	Level
	2	1	3	five
Perquisites	Math 242			

Course Description

Contact and regular contact of real functions, Calculus of real functions, Average value theory, Lobital theory, Ryman's integrations, basic theory of calculus and integration, Sequence and series of functions, Tailor theory, Regular convergence.

Course	Probability Theory			year
Course number	371			Third
Course code	Math			
Credit Hours	Theo	Prac.	Total	Level
	2	1	3	five
Perquisites	Math 101, Math 152			

Course Description

Random variables and probable distribution, Mathematical prediction, Conditional probability and independence (conditional and marginal distributions and correlation coefficient), some special probable distribution, Transformations of random variables, Distribution of statistical rank, Generating plucks functions.

Course	Conversions Geometry			year
Course number	373			Third
Course code	Math			
Credit Hours	Theo	Prac.	Total	Level
	2	1	3	five
Perquisites	Math 233			

Course Description

Euclidean symmetry and relation between them, Reflection, Regression, Displacement, slipping, symmetry collection, geometric transformations perspective transfer factions, Euclidean symmetry, concepts of geometry and transformation groups.

Course	Economic System in Islam			year
Course number	273			Third
Course code	Islm			
Credit Hours	Theo	Prac.	Total	Level
	2	-	2	five
Perquisites				

Course Description

The course is about the Islamic economic system (its definition, characteristics, evolution, and importance), economic problems and solutions, contemporary economic systems (capitalism and socialism), globalization (its aims and Islam's position on it), the World Bank, the World Trade Organization, property in Islam (its definition, kinds, and controls), economic freedom in Islam, production, distribution, consumption, expenditure, contracts and transactions. The course requires the students to memorize selected verses from surat Albaqarah.

Course	Literary Taste			year
Course number	152			Third
Course code	Arab			
Credit Hours	Theo	Prac.	Total	Level
	2		2	five
Perquisites				

Course Description

Definition of literary taste, its importance in Arabic language, understand legacy books, selected texts from literary texts, Genres of poetic literature (lyric, theatre, epic, educational), Genres of prose literature (wisdom, Oratory, letters, maq'am, story, play, essay, khater), comparison between old and modern literary texts, comparison between Arabic and translated foreign texts.

Level Six

Course	Algebra 2			year
Course number	332			Third
Course code	Math			
Credit Hours	Theo	Prac.	Total	Level
	2	1	3	Six
Perquisites	Math 331			

Course Description

Introduction to polynomials and reduction portability, Extension fields –simple extensions, Algebraic extensions, Geometric constructions, The inability of solving 5th grade equations, Autmorfizm of fields, Theory of autmorfizm extensions, Radical fields, Detachable extensions, Undetectable extensions, Gallia's theory, Circular extensions, Additional algebraic constructions

Course	Real Analysis 2			year
Course number	342			Third
Course code	Math			
Credit Hours	Theo	Prac.	Total	Level
	2	1	3	Six
Prerequisites	Math 242			

Course Description:

Measurement and measurable set and its features , the theories of measurable functions, Liebig classical spaces, Holder and Menokosky theory, Boreal set ,Vital set and their features, Separation and counting axioms, approximation theory

Course	Topology			year
Course number	373			Third
Course code	Math			
Credit Hours	Theo	Prac.	Total	Level
	2	1	3	Six
Prerequisites	Math 172			

Course Description

Introduction to metric spaces, Open and closed sets and limit points in metric spaces, Topological spaces, Separation and counting axioms, Internal, external and limit points, Typology generated from functions, Relative typology, Bases , local and sub-bases, Functions contact, For a finite set of topological spaces, Topological characteristics, Compactification, Correlated typology, Limit points, closed sets and set closing

Course	Statistics and its Applications			year
Course number	374			Third
Course code	Math			
Credit Hours	Theo	Prac.	Total	Level
	2	1	3	Six
Prerequisites	Math 371			

Course Description

Distribution end: convergence of random value and generating plucks function. Theory of central end, Random samples, sample distribution, T distribution, F distribution, Confidence intervals of circles and contrasts, Statistical hypotheses tests relative efficiency, Methods of estimating: point estimate, plucks method, and greatest possibility method, Contrast analysis

Course	Scientific English			year
Course number	3103			Third
Course code	Engl			
Credit Hours	Theo	Prac.	Total	Level
	2	1	3	Six
Perquisites	Engl 129			

Course Description

The Preservation of Food (reading), Dictionary work, word building, completing sentences, True / false - Questions on the text, make question from answers, shorten the sentences, make sentences adding “if”, Identification & classification. Assignment(1) - Parts of human body (reading), Dictionary work, completing sentences, True / false - : Questions on the text, make question from answers, passive sentences using “can & may”, connectives, completing definitions . Assignment(2) - Plants (reading), Dictionary work, True / false, rewriting sentence using compound words - Questions on the text, make question from answers, negative conditions, completing table. Internet based activity (1)- : Animals in Danger(reading), rewriting sentences using ‘ment’. True / false, Dictionary work.- Sounds & Noise (reading),word study, completing sentences using verbs & adjectives.

Course	Waves			year
Course number	208			Third
Course code	Phys			
Credit Hours	Theo	Prac.	Total	Level
	3	-	3	Six
Perquisites	-			

Course Description

Introduction to simple harmonic motion and its equation, Double pendulum Collection of vibratory motions, Applications on the collection of vibratory motions Lsago curves, Forced vibrations, Resonance and its applications, Diffraction phenomenon, Interference phenomenon, Polarization, Applications on polarization, Incised diffraction and its features.

Level Seven

Course	Numerical Analysis			year
Course number	411			Fourth
Course code	Math			
Credit Hours	Theo	Prac.	Total	Level
	2	1	3	Seven
Perquisites	Math 233, Math 211			

Course Description

Errors and figures representations, Equation roots, Completion, Lagarng method, Numerical integration, Numerical differentiation, Numerical solutions of non- linear equations, Numeric solutions for numerical equations, Numerical solutions of differential equations.

Course	Partial Differential Equations			year
Course number	412			Fourth
Course code	Math			
Credit Hours	Theo	Prac.	Total	Level
	2	1	3	Seven
Perquisites	Math 214, Math 212			

Course Description

Curves and integration surfaces, first –grade semi linear equations problems on the primary value of semi linear, applications of Kochi and Kovalevsky theories, Holmgren theory , law formulas of second degree equation, Laplace equation , average value feature, maximum value of homogenous functions , Drkhalt problem, Solutions by Poisson integrals, Green functions, Newman problem, Waves equations, single solutions for primary value problems, dependence ranges., Energy method, Haiqen principle, heat equation.

Course	Differential Formulas & Vector Analysis			year
Course number	443			Fourth
Course code	Math			
Credit Hours	Theo	Prac.	Total	Level
	2	1	3	Seven
Perquisites	Math 233, Math 212			

Course Description

Partial differentials, Calculus of functions, Jackopian matrices, chain rule, Implicit functions theory and its applications, inverse function theory, Differential effects, differential effects on orthogonal coordinates, Curves and linear integrals , Basic theory of calculus and integration, vectors analysis theories (Green, spacing and Stocks, External differentials of differential formulas, Differential formulas, differential formulas multiplication

Course	foundations of Geometry			year
Course number	471			Fourth
Course code	Math			
Credit Hours	Theo	Prac.	Total	Level
	2	1	3	Seven
Perquisites	Math 172			

Course Description

Deductive method, Falling axioms, Axioms and theories of interlayer, Congruence axioms and congruence main theories, Dadkin and Archimedes axioms, Neutral geometry theory (the sum of triangle angles, triangular divergent), Euclidean geometry

Course	Modern Physics			year
Course number	204			Fourth
Course code	Phys			
Credit Hours	Theo	Prac.	Total	Level
	3	-	3	Seven
Perquisites	-			

Course Description

Relativity theory, particle nature of waves, wavy nature of particles, atomic structure and atomic samples, principles of quantum mechanics, introduction to quantum theory.

Level Eight

Course	Applied Mathematics			year
Course number	413			Fourth
Course code	Math			
Credit Hours	Theo	Prac.	Total	Level
	3	-	3	Eight
Perquisites	Math 214 Math 212			

Course Description

Fourier series and integrals, First & second degree partial differential equations, variables separation, Ordinary differential equations solutions by sequences, Green's functions, integral shifts in partial differential equations, Sterhrm – Leyvoil value problems, Legendre's polynomials, Bessel's functions

Course	Number Theory			year
Course number	434			Fourth
Course code	Math			
Credit Hours	Theo	Prac.	Total	Level
	3	-	3	Eight
Perquisites	Math 331			

Course Description

Integers, divisibility, elementary numbers, an introduction to algebraic numbers
Solution of second degree equations in elementary scale , quadratic compatibility law, Jacobian symbols and quadratic formulas in two variables, Some of number theory functions, First degree Davantion equations, high degree Davantion equations N scale numbers and their features, primitive radicals.

Course	Complex Analysis			year
Course number	434			Fourth
Course code	Math			
Credit Hours	Theo	Prac.	Total	Level
	3	-	3	Eight
Prerequisites	Math 341			

Course Description

Complex numbers features, Demover's theory and complex number radicals, Analytical function and Couche and Riemann equations, Harmonic functions, Harmonic attachments, The drawer which keeps angels and its basic features Chouche theory, Chouche integration formulas, Lawrance sequence, residuals theory Calculations of some real ailing integrates, Definite and linear integration.

Course	Functional Analysis			year
Course number	484			Fourth
Course code	Math			
Credit Hours	Theo	Prac.	Total	Level
	3	-	3	Eight
Prerequisites	Math 342 – Math 362			

Course Description

Metric spaces, Ascoli Wiper theory, Banach spaces and limited linear effects over them, Banach theory, open functions, and closed graphs, Hilbert Spaces and base and Barsval theory - associated, natural, and hermitical effects, Tacking and Bolzano Verachtras theory, Standard spaces

Course	Islamic System in Islam			year
Course number	274			Fourth
Course code	Islm			
Credit Hours	Theo	Prac.	Total	Level
	2	-	2	Eight
Prerequisites				

Course Description

The course covers three main topics: (1) the political system: definition, elements of a state (homeland, community, authority, principles of Islamic rule, the rights of Muslims and non-Muslims in an Islamic state, etc.); (2)the political system in the Kingdom of Saudi Arabia: constitution, shoura, judiciary, security, etc.); (3) human rights in Islam: definition, importance, sources, basic rights (equality, freedoms, justice, security, etc.), the International Declaration of Human Rights and the Kingdom's position in it. The course also requires that the students memorize surat“Alkahf”.