محتـويات مقـــررات برنامج
Courses' Content
الرياضيات
Mathematics

كلية العلوم
جامعة أسيوط

كلـية العـــلوم

ج م ٠١٥						لغة انجليزية(1)	

الدرجات					الساعات		
oral	ACT	Mid_T	Prac	Wr.	CH	P/T	L
10	10	30	0	50	2	-	2

English Language (1) — UR015

1- Listening & Speaking:
A- (Listening): This part of the course aims at training the students for listening and understanding udio-visual material
B- (Speaking): This part helps the students to speak simple and correct short sentences fluently.
2- Reading:
This part aims at training students for correct reading, building up vocabulary and promoting grammatical structures.
3- Writing:
 This part helps the students to spell English words correctly and to use the punctuation marks.
4- Grammar:
This part aims at providing the students with knowledge of the grammar of the target language, and its basic
 structures.
5- Translation:
This part aims at developing the students' abilities in translating scientific texts both into and from English.

ج م ٠٢٠						لغة انجليزية(2)	

الدرجات					الساعات		
oral	ACT	Mid_T	Prac	Wr.	CH	P/T	L
10	10	30	0	50	2	-	2

English Language (2) — UR020

II- English Language (2): 2 hours per week in the 2nd term
Terminology:
This course aims at introducing the students to the Morphology of the traget language . The students study the structure of words. They start with understanding the meaning of a morpheme, then they learn the different types of morphemes, after that they intensively learn the use of affixes. Finally, they end with learning lists of scientific terms in the different fields of science with an increasing ability to guess the meaning of any new term, escially after studying prefixes & suffixes as mentioned above.

ج م ٠٥٠						قضايا مجتمعية	

الدرجات					الساعات		
oral	ACT	Mid_T	Prac	Wr.	CH	P/T	L
10	10	30	0	50	0	-	

Societal Issnes — UR050

ج م ١١						ادارة اعمال	

الدرجات					الساعات		
oral	ACT	Mid_T	Prac	Wr.	CH	P/T	L
10	10	30	0	50	2	-	2

Management — UR011

ج.م ٠١٢						تاريخ العلوم	

الدرجات					الساعات		
oral	ACT	Mid_T	Prac	Wr.	CH	P/T	L
10	10	30	0	50	2	-	2

History of Science — UR012

The importance of studying history of science
An overview on the science of ancient scientists
Presentation of the history of most prominent theories in mathematics and physics
Presentation of the history of the most important developments of biological sciences (embryogenesis, photosynthesis, genetic engineering, reproduction).
Philosophical reflections of modern biology.

وكيل الكلية لشئون التعليم والطلاب

Means of honoring scientists

الدرجات					الساعات				١٣ م ج	التغذية الصحية
oral	ACT	Mid_T	Prac	Wr.	CH	P/T	L			
10	10	30	0	50	2	-	2		**Healthy Feeding**	**UR013**

1- A healthy diet and our body
2- Components of healthy diet: carbohydrates, lipids, proteins, minerals, vitamins, and fiber.
3- Healthy eating pyramid.
4- How to read and interoperate nutrition facts.
5- Feeding control and the factors that regulate the quantity of food intake especially Leptin and Ghrelin
6-Physiology of the Human digestive system (digestion, absorption, metabolism and elimination)
7- Anabolic and catabolic hormones.
8- Definition and calculation of basal metabolic rate (BMR).
9- Body mass index and body volume index.
10- Feeding abnormalities (Obesity and malnutrition)
11- Definition and types of food additives with E number.
12- Example for some popular diseases (bronchial asthma, hypertension, anemia, coronary artery disease, hepatitis, diabetes mellitus, Alzheimers

الدرجات					الساعات				١٤٠ م ج	التفكير العلمى
oral	ACT	Mid_T	Prac	Wr.	CH	P/T	L			
10	10	30	0	50	2	-	2		**Scientific Thinking**	**UR014**

The nature of scientific thinking
Characteristic of scientific thinking
The importance of scientific thinking for the renaissance of societies
Obstacles of scientific thinking practices
Science and non-science
Distinguish between facts and myths
Scientists' personality
Using scientific thinking to identify and solve problems
Different scientific approaches to solving the problems

الدرجات					الساعات				١٦ .م ج	لغة عربية
oral	ACT	Mid_T	Prac	Wr.	CH	P/T	L			
10	10	30	0	50	2	-	2		**Arabic Language**	**UR016**

الدرجات					الساعات				١٠٠رك	الحاسب الالى
oral	ACT	Mid_T	Prac	Wr.	CH	P/T	L			
10	10	10	20	50	2	2/-	2		**Computer Sciences**	**MC100**

Fundamentals of programming and computer languages - Algorithm and Flowcharts - Elements of Language under case - Basic Instructions in Language under case - Control Instructions - Arrays and dimension statement – Subprograms - Some applications.

الدرجات					الساعات				١٠٠ر	رياضيات عامة (1)
oral	ACT	Mid_T	Prac	Wr.	CH	P/T	L			
10	10	30	0	50	3	-/2	2		**Mathematics (1)**	**M100**

Calculus: Functions of one variable - Limits and Continuity - Derivatives - Applications of Differentiation - Taylor and McLauren series,   Indefinite and definite integrals.
Algebra: Mathematical induction - series - Partial fractions - Matrices and systems of linear equations -

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Approximate solutions of non-linear equations.

١٠٥ر	رياضيات عامة (2)
M105	**Mathematics (2)**

الدرجات					الساعات		
oral	ACT	Mid_T	Prac	Wr.	CH	P/T	L
10	10	30	0	50	3	-/2	2

Calculus: Techniques of integration - Definite integrals and their properties– improper integral – numerical integration - Applications of definite integrals.
Geometry: Coordinate systems in the plane - Straight lines and circles in general forms - Conic sections - Geometric transformations in the plane - Coordinate systems in the space - The plane and the straight lines in the space and surfaces of revolution of second order.

١٠٠ ف	فيزياء عامة (1)
P100	**Physics (1)**

الدرجات					الساعات		
oral	ACT	Mid_T	Prac	Wr.	CH	P/T	L
10	10	10	20	50	3	3/-	2

Physical quantities - Units and dimensional analysis - Vectors - The laws of motion in one- and two-dimensions and its applications - Newtown's second Law of motion and its applications. Work and energy - Heat and heat conduction - The kinetic theory of gases - Specific heat of gases - First law of thermodynamics.
 12 Experiments related to the above topics.

١٠٥ف	فيزياء عامة (2)
P105	**Physics (2)**

الدرجات					الساعات		
oral	ACT	Mid_T	Prac	Wr.	CH	P/T	L
10	10	10	20	50	3	3/-	2

The nature and propagation of light - Reflection and refraction at plane surface - Lenses & Mirrors, Eye's structure and camera - Microscopes and Telescopes - Coulomb law and electrostatic fields - Electrostatic potential- Capacitance and dielectrics- Electric current, DC circuits and Krichhoff's Rules-Magnetic field and magnetic force - Electromagnetic induction.
12 Experiments related to the above topics.

١٠٠ك	كيمياء عامة (1)
C100	**Chemistry (1)**

الدرجات					الساعات		
oral	ACT	Mid_T	Prac	Wr.	CH	P/T	L
10	10	10	20	50	3	3/-	2

(A):Atomic Spectra – Electron Orbital and Quantum Numbers – Quantum Energy Levels in Atoms – Basic Concepts of Bonding Electronegativities – Lewis Structure – The Octat Rule – Dipolemoment – Resonance Hybridization in Molecules – Geometrics of Molecules – Orbital Configuration for Diatomic Molecules.
(B):State of Matter – Introduction in Surface and Colloids Chemistry – Electrolytic Cell – Electrochemical Cells – Potential of Electrode (Selected practical experimentals)

١٠٥ك	كيمياء عامة (2)
C105	**Chemistry (2)**

الدرجات					الساعات		
oral	ACT	Mid_T	Prac	Wr.	CH	P/T	L
10	10	10	20	50	3	3/-	2

(A): Chemical Equilibrium – Ionic Equilibrium – Basic of Qualitative Analysis – Solution Chemistry.
(B):Introduction on Organic Chemistry-Bonding in Organic compounds – Hybridization in Carbon Compounds – Physical Properties of Org. Compounds – Nomenclature, Synthesis and Chemical Reactions of alkanes, alkenes and alkynes
(Practical: Selected practical experiments)

١٠٠ج	اساسيات الجيولوجيا
G100	**Principles of Geology**

الدرجات					الساعات		
oral	ACT	Mid_T	Prac	Wr.	CH	P/T	L
10	10	10	20	50	3	3/-	2

Origin of Planet Earth: Constituents of the Earth's crust (crystals, minerals, rocks) – Classification of rocks
Internal Processes: Dynamics, structures and plate tectonics – Development of structural traps and ore deposits
External Processes: Weathering – Erosion – Wind action – Geological work of waters (surface, groundwater, seas and oceans) – Formation of hydrocarbons and sedimentary ores – Development of stratigraphic traps
Time scale: Geologic timescale and fossil records

	حيوان عام	١٠٠ح
	General Zoology	**Z100**

الدرجات					الساعات		
oral	ACT	Mid_T	Prac	Wr.	CH	P/T	L
10	10	10	20	50	3	3/-	2

Protoplasm - Organization and function of animal cell - Study of the animal tissues - Life functions - Introduction to early development of animals - Characters and classification of the major animal phyla

	نبات عام	١٠٠ن
	General Botany	**B100**

الدرجات					الساعات		
oral	ACT	Mid_T	Prac	Wr.	CH	P/T	L
10	10	10	20	50	3	3/-	2

Cell structure – plant tissues – Anatomy of primary plant organs – Classification of plant kingdom – General aspects of virus, bacteria, algae and fungi – Flower structure, inflorescences and fruits – Selected families of flowering plants

	اخلاقيات وآداب المهنه والسلامة المهنية	F٣٠٠
	Scientific Ethics&Safety	**F300**

الدرجات					الساعات		
oral	ACT	Mid_T	Prac	Wr.	CH	P/T	L
10	10	30	0	50	2	-	2

Definition of Ethics and Professional Ethics- Sources of the ethical principles- Benefits- Common mistakes about the professional ethics- Ethics of university teaching , research and authoring and supervising - Citation and Plagiarism-Intellectual property Ethics teacher pre-university- Ethics and the ethics of practicing the profession of medical laboratory- Biological ethics - Ethics of Computer and multimedia- Ethics in works in general- Professional Reports-Role models– Ethics and behavior- Vocational training- Training on the preparation and issuance of the Code of ethics in the work - Code of Ethics for certain related professions. Occupational Safety: Public safety conditions - signs extension - scientific laboratory safety –Securing facilities from fire hazards– First aid - safety in industrial buildings - a list of conditions of safety and prevention-Crisis and emergency management.

	تفاضل وتكامل متقدم	٢١١ر
	Advanced Calculus	**M211**

الدرجات					الساعات		
oral	ACT	Mid_T	Prac	Wr.	CH	P/T	L
10	10	30	0	50	3	-/2	2

Functions of several variables - Partial Derivatives and their applications - Multiple integrals (double – triple) and their applications - Line and Surface integrals - Using Mathematica, and Matlab programs for graphing some Surfaces and calculate some integrals.

	معادلات تفاضلية (1)	٢١٢ر
	Differential Equations (1)	**M212**

الدرجات					الساعات		
oral	ACT	Mid_T	Prac	Wr.	CH	P/T	L
10	10	30	0	50	3	-/2	2

Formation of ordinary Differential Equations (ODE's) - ODE's of first Order and first Degree – ODE's of first Order and higher Degrees - Applications – Linear ODE's of higher Orders with constant Coefficients and its applications - Linear ODE's of higher Orders with Variable Coefficients - Simultaneous Linear ODE's.

	جبر خطى وهندسة فراغية	٢٢١ ر
	Linear Algebra and Geometry	**M221**

الدرجات					الساعات		
oral	ACT	Mid_T	Prac	Wr.	CH	P/T	L
10	10	30	0	50	3	-/2	2

وكيل الكلية لشئون التعليم والطلاب

Vector spaces – Linear transformations – Properties of linear transformations (range and kernel) - Algebra of linear transformations- Eigenvalues and Eigenvectors -Inner product spaces- Self adjoint transformations Bilinear and quadratic forms. Reduction of quadratic forms in Rn – Applications in Geometry.

الدرجات					الساعات			رياضيات متقطعة	٢٢٣ ر
oral	ACT	Mid_T	Prac	Wr.	CH	P/T	L		
10	10	30	0	50	2	0	2	**Discrete Mathematics**	**M223**

Sets – Relations – Equivalence relations – Mappings – Binary operations - Counting – Rules of inference – Graph theory – Graphs and multigraphs – Planar graphs – Colorations, Trees – Boolean Algebra – Duality – Basic theorems – logic Gates and Circuits.

الدرجات					الساعات			الميكانيكا النيوتونية	٢٣١ر
oral	ACT	Mid_T	Prac	Wr.	CH	P/T	L		
10	10	30	0	50	3	-/2	2	**Newtonian Mechanics**	**M231**

Statics in plane - Applications on equilibrium of two-dimensional force systems - Statics in space – Friction - Center of gravity and centroid - Virtual work - Kinematics of a particle in a straight line - Kinematics of a particle in a plane - Relative motion in a plane - Kinetics of a particle - Simple harmonic motion - Central orbits – Dynamics of a rigid body in a plane.

الدرجات					الساعات			الميكانيكا التحليلية	٢٣٢ر
oral	ACT	Mid_T	Prac	Wr.	CH	P/T	L		
10	10	30	0	50	3	-/2	2	**Analytical Mechanics**	**M232**

Dynamics of a particles in three dimensions - Rotating axes – Components of velocity and acceleration in different coordinate systems – Faucolt's pendulum – Dynamics of rigid body in three dimensions - Eulerian angles – Moment of inertia – Equations of motion – Euler`s equations - Impulsive motion - Motion of a system of particles - Constraints - Generalized Coordinates - Lagrang`s equations – Hamilton`s canonical equations - Ignorable or cyclic coordinates - Routh`s equations - Phase space-Liouville`s theorem – Hamilton`s principle of least action - Canonical or contact transformation - Invariants – Hamilton-Jacobi equation.

الدرجات					الساعات			احتمالات (1)	٢٤٢رأ
oral	ACT	Mid_T	Prac	Wr.	CH	P/T	L		
10	10	30	0	50	3	-/2	2	**Probability (1)**	**MS242**

Sample Space - Random Variables - Some Discrete Distributions - Some Continuous Distributions - Bivariate and Multivariate Random Variables - Some special bivariate Distributions.

الدرجات					الساعات			البرمجة الشيئية	٢٥١رك
oral	ACT	Mid_T	Prac	Wr.	CH	P/T	L		
10	10	10	20	50	3	2/-	2	**Object-oriented Programming**	**MC251**

Objects and classes - Understanding class definitions - Object interaction - Grouping objects - More sophisticated behaviour - libraries - Well-behaved objects - testing, maintaining, debugging - Designing classes.

الدرجات					الساعات			هياكل بيانات	٢٥٢رك
oral	ACT	Mid_T	Prac	Wr.	CH	P/T	L		
10	10	10	20	50	3	2/-	2	**Data Structure**	**MC252**

Data representation – arrays and matrices – lists stacks and queues – hashing – binary trees, balanced and B-trees – splay trees and tree traversals using stacks – expression trees – expressions and conversions – graphs – graph algorithms – minimum-cost spanning trees – inheritance – exceptions, interface and design by contract – basic design patterns and reuse.

كلية العلوم جامعة أسيوط

كلية العــــلوم

٢٢٥ف مبادىء الفيزياء الحديثة — Principles of Modern Physics — P225

الدرجات					الساعات		
oral	ACT	Mid_T	Prac	Wr.	CH	P/T	L
10	10	10	20	50	3	2/-	2

Principles modern physics - Black-body radiation - Planck's law of radiation, photo-electric effect - The Hydrogen atom, Rutherford model of the atom - Bohr's theory, Sommerfeld's theory - Compton effect - Dual nature of matter, De Broglie waves, the uncertainty principle. Introduction to the special theory of relativity.

٢٢٦ف كهرباء و تيار متردد — Electricity and AC Current — P226

الدرجات					الساعات		
oral	ACT	Mid_T	Prac	Wr.	CH	P/T	L
10	10	10	20	50	3	3/-	2

RL and RC circuits, stored energy - RLC circuit under its different conditions. Alternating current: RL and RC circuit analyses - Analyses of AC circuits in terms of complex numbers - AC transient current for RL, RC and RLC circuits.

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٣١٢ ر تحليل حقيقى (1) — Real Analysis (1) — M312

الدرجات					الساعات		
oral	ACT	Mid_T	Prac	Wr.	CH	P/T	L
10	10	30	0	50	3	0	3

Real number systems - Real sequences - Continuous functions - Differentiation - Riemann integral- Sequence of functions- Measure on the real numbers.

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٣١٣ ر معادلات تفاضلية(2) — Differential Equations (2) — M313

الدرجات					الساعات		
oral	ACT	Mid_T	Prac	Wr.	CH	P/T	L
10	10	30	0	50	3	0	3

Existence and uniqueness Theorems – Series solution – Ordinary Differential Equations in three variables – Partial Differential Equations (first Order – Linear of higher orders with constant and variable coefficients).

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٣١٤ ر نظم ديناميكية — Dynamical Systems — M314

الدرجات					الساعات		
oral	ACT	Mid_T	Prac	Wr.	CH	P/T	L
10	10	30	0	50	3	0	3

Introduction on dynamical systems – Stability analysis – The method of averaging – Chaos theory - Lorenz equations- Fractals sets - Lyapunov exponents – Hamiltonian systems

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٣١٥ ر موضوعات مختارة فى الرياضيات (1) — Special Topics in Mathematics — M315

الدرجات					الساعات		
oral	ACT	Mid_T	Prac	Wr.	CH	P/T	L
10	10	30	0	50	3	0	3

Elected by Math. Dept. to meet new directions in Mathematics.

٣١٧ر نظرية الاعداد — Numbers Theory — M317

الدرجات					الساعات		
oral	ACT	Mid_T	Prac	Wr.	CH	P/T	L
10	10	30	0	50	3	0	3

Integers-Divisibility- Prim numbers- Prim factorization- Euclidean algorithm- fundamental theorem of arithmetic – Fermat's number – linear and quadratic, Diophantine equations - congruence – Chimes remainder theorem – Euler theorem – special congruences – applications in computer sciences.

M319 — Tensors (ممتددات) — ٣١٩ر

الدرجات					الساعات		
oral	ACT	Mid_T	Prac	Wr.	CH	P/T	L
10	10	30	0	50	3	0	3

n-dimensional spaces – Coordinate transformations - First and second order tensors - Covariant and contravariant - Lows of transformations - Higher order tensors – Algebraic operations on tensors – Metric form – Metric tensor and its conjugate - Christoffel symbols of first and second kinds - Covariant derivative - Intrinsic derivative - Physical and geometrical applications.

M321 — Theory of Groups (نظرية الزمر) — ٣٢١ر

الدرجات					الساعات		
oral	ACT	Mid_T	Prac	Wr.	CH	P/T	L
10	10	30	0	50	2	0	2

Groups – Permutation groups – Subgroups – Co-sets – Normal subgroups – Cyclic groups – Factor group – Lagrang's theorem – Homomrphism –Isomorphism.

M322 — Theory of Rings and Fields (نظرية الحلقات والحقول) — ٣٢٢ر

الدرجات					الساعات		
oral	ACT	Mid_T	Prac	Wr.	CH	P/T	L
10	10	30	0	50	2	0	2

Rings – Commutative rings – ring with identity, Division rings, Internal domain, Fields, Subring , Ideal , Principal ideal, Quotient rings, Ring Homomorphism and ring isomorphism, subfield – Order integral domain – Integers Quotient numbers, Real numbers complex numbers and Gausian numbers, The filed of polynomials.

M323 — Numerical Analysis (1) (تحليل عددى(1)) — ٣٢٣ر

الدرجات					الساعات		
oral	ACT	Mid_T	Prac	Wr.	CH	P/T	L
10	10	30	0	50	3	0	3

Errors in Numerical computation - Solutions of Non-linear Equations - Direct and Iterative Methods for Solving Linear Systems - Interpolation and Polynomial approximations - Numerical differentiation - Numerical Integration.

M326 — Operation Research (1) (بحوث العمليات (1)) — ٣٢٦ر

الدرجات					الساعات		
oral	ACT	Mid_T	Prac	Wr.	CH	P/T	L
10	10	30	0	50	3	0	3

Standard form of the Linear Programming Problems (LPPs) – Methods for solving LPPs - Sensitivity analysis - Network flow problems – Integer programming – Shortest path problems.

M331 — Mathematical Foundations of Quantum Theory &Statistical (الاسس الرياضية لميكانيكا الكم والميكانيكا الاحصائية(1)) — ٣٣١ر

الدرجات					الساعات		
oral	ACT	Mid_T	Prac	Wr.	CH	P/T	L
10	10	30	0	50	3	-/2	2

Comparison between classical mechanics and optics – Old quantum theory – Particle wave duality – Schrodinger wave equation – Wave function – Uncertainty principle – Solution of Schrodinger equation in one and three dimensions – Thermodynamics – Condition for statistical equilibrium – Micro canonical distribution – Canonical distribution – Ideal gas – Maxwell–Boltzmann distribution of velocities – Applications.

M332 — Mathematical Foundations of Electromagnetic Theory and (الاسس الرياضية لنظرية الكهرومغناطيسية والنسبية الخاصة (1)) — ٣٣٢ر

الدرجات					الساعات		
oral	ACT	Mid_T	Prac	Wr.	CH	P/T	L
10	10	30	0	50	3	-/2	2

Vector Analysis - Principal equations of Electromagnetic fields in space - Electrostatic field in space - Slow & Quasi steady Motion- Principal Equations of Electromagnetic Field in Substances - Electrostatic field in material medium - Electromagnetic field in material medium - Special theory of Relativity – Relativistic mechanics- particles mechanics- applications.

		طرق رياضية	٣٣٤ ر
		Mathematical Methods	**M334**

الدرجات					الساعات		
oral	ACT	Mid_T	Prac	Wr.	CH	P/T	L
10	10	30	0	50	2	0	2

Laplace transforms - Gama, Beta, Bessel, Lagender and Hermite functions - Laplace transforms of special functions - Solutions of some differential equations using Laplace transforms - Solutions of integral equations -Fourier series - Equivalent forms of Fourier`s integral theorem - The convolution theorem for Fourier transforms - Applications of Fourier integrals and transforms.

		موضوعات مختارة فى الرياضيات التطبيقية (1)	٣٣٥ر
		Special Topics in Applied Mathematics	**M335**

الدرجات					الساعات		
oral	ACT	Mid_T	Prac	Wr.	CH	P/T	L
10	10	30	0	50	3	0	3

Elected by Math. Dept. to meet new directions in Applied Mathematics

		عمليات عشوائية وتطبيقاتها	٣٤٦رأ
		Stochastic Processes and its applications	**MS346**

الدرجات					الساعات		
oral	ACT	Mid_T	Prac	Wr.	CH	P/T	L
10	10	30	0	50	3	0	3

Role of the theory of stochastic processes – Normal processes and covariance stationary processes – counting processes and Poisson processes – Renewal counting processes – Morkov chain : discrete parameter – Markov chains: continuous parameter.

		حزم البرامج الرياضية والاحصائية	٣٠٠رك
		Mathematical and Statistical Packages	**MC300**

الدرجات					الساعات		
oral	ACT	Mid_T	Prac	Wr.	CH	P/T	L
10	10	10	20	50	3	2/-	2

Using the mathematical and statistical packages (Matlab, Mathematica, Min Tab, SPSS, …etc) for matrices – Functions – Graphics – Data Fitting – Applied Statistics

		مقدمة فى الحسابات	٣٥٦رك
		Introduction to Scientific Computations	**MC356**

الدرجات					الساعات		
oral	ACT	Mid_T	Prac	Wr.	CH	P/T	L
10	10	10	20	50	3	2/-	2

Practical introduction to computational problem solving. Floating point arithmetic, conditioning and stability of algorithms – Mathematical software packages, MATLAB, Maple (etc) – Spreadsheets programs – Traditional programming languages; C and FORTRAN – Nontraditional programming environments – applications.

		مبادىء فيزياء الجوامد	٣٥٠ف
		Introduction to Solid State Physics	**P350**

الدرجات					الساعات		
oral	ACT	Mid_T	Prac	Wr.	CH	P/T	L
10	10	10	20	50	3	3/-	2

Crystal structure - Reciprocal lattice, X-ray diffraction in crystals - Lattice vibrations and thermal properties - Defects in crystals (point defects and 1-d, 2-d and 3-dimensional defects) - Free electron mode and electric properties – Theory of dielectrics.

محتـــويات مقـــــررات برنامج
Courses' Content
الرياضيات
Mathematics

كلية العلوم

كلية العلوم جامعة أسيوط

الدرجات					الساعات					
oral	ACT	Mid_T	Prac	Wr.	CH	P/T	L		مقال وبحث	٤٠٠ر
10	0	0	0	90	2	0	2		Research projector Article	M400

الدرجات					الساعات					
oral	ACT	Mid_T	Prac	Wr.	CH	P/T	L		تحليل دالى	٤١١ ر
10	10	30	0	50	2	0	2		Functional Analysis	M411

Metric spaces - Banach Fixed Point Theorem - Normed and Banach spaces - Inner product and Hilbert spaces.

الدرجات					الساعات					
oral	ACT	Mid_T	Prac	Wr.	CH	P/T	L		تحليل مركب	٤١٢ر
10	10	30	0	50	3	0	3		Complex Variables	M412

Complex Numbers - Elementry functions - Limits and continuity - Complex Sequences - Complex Series - The Derivatives - Complex Integration - Contour integrals, and different types - Complex functions transformation - linear and bilinear transformation – Applications.

الدرجات					الساعات					
oral	ACT	Mid_T	Prac	Wr.	CH	P/T	L		تحليل حقيقى(2)	٤١٣ر
10	10	30	0	50	3	0	3		Real Analysis (2)	M413

Functions on sets – Measurable Sets – Measurable Functions – Measurable Space – Abstract Integration – Convergence Theorems – Lebsgue Integration – Borl's measure - LP-Space – Riesz Representation – Differentiation and absolute Continuous – Inner Measures – Outer Measure – Product Measure.

الدرجات					الساعات					
oral	ACT	Mid_T	Prac	Wr.	CH	P/T	L		معادلات تفاضلية جزئية	٤١٤ر
10	10	30	0	50	3	0	3		Partial Differential Equation	M414

الدرجات					الساعات					
oral	ACT	Mid_T	Prac	Wr.	CH	P/T	L		نظرية القياس والتكامل	٤١٧ ر
10	10	30	0	50	3	0	3		Measure Theory and Integration	M417

Measurable functions – measure and Lebesge integral - convergence in measure – fatou's lemma - measure space – Radon theorem - product measures –Integral operators.

الدرجات					الساعات					
oral	ACT	Mid_T	Prac	Wr.	CH	P/T	L		توبولوجى وهندسة تفاضلية (1)	٤٢١ ر
10	10	30	0	50	3	-/2	2		Topology and Differential Geometry (1)	M421

Topology of the real line - topological spaces – relative topology- base and sub bases - Vector Fields - Frenet formulae for an arbitrary curve - Congruent Curves.

وكيل الكلية لشئون التعليم والطلاب

محتـويات مقـــررات برنامج

Courses' Content

الرياضيات

Mathematics

كلية العلوم

كلية العـــلوم

الدرجات					الساعات				
oral	ACT	Mid_T	Prac	Wr.	CH	P/T	L	نوبولوجى وهندسة تفاضلية (2)	٤٢٢ ر
10	10	30	0	50	3	-/2	2	**Topology and Differential Geometry (2)**	M422

Homeomorplism and topological property – Separation Axioms – Compactness - Surfaces and differentiable manifolds – Normal curvature and Geodesic Gaussion curvature - Integration an Riemannian Manifolds.

الدرجات					الساعات				
oral	ACT	Mid_T	Prac	Wr.	CH	P/T	L	تحليل عددى (2)	٤٢٤ ر
10	10	30	0	50	3	0	3	**Numerical Analysis (2)**	M424

Iterative methods for linear system - Approximation theory – Eigenvalues - Numerical solutions of the initial value problems - Numerical solutions of the boundary value problems - Numerical solutions of partial differential equations.

الدرجات					الساعات				
oral	ACT	Mid_T	Prac	Wr.	CH	P/T	L	موضوعات مختارة فى الرياضيات (2)	٤٢٧ ر
10	10	30	0	50	3	0	3	**Special Topics in Mathematics**	M427

Elected by Math. Dept. to meet new directions in Mathematics

الدرجات					الساعات				
oral	ACT	Mid_T	Prac	Wr.	CH	P/T	L	هيدروديناميكا و مرونة (1)	٤٣١ ر
10	10	30	0	50	3	-/2	2	**Hydrodynamic & Elasticity(1)**	M431

Analysis of Stress - Analysis of Strain - Generalized HookE`s Law – Applications - Motion of compressible fluid turbulence motion – equation turbulence motion Deduced energy equation – mass transform through porous and non porous medico – Applications.

الدرجات					الساعات				
oral	ACT	Mid_T	Prac	Wr.	CH	P/T	L	هيدروديناميكا و مرونة(2)	٤٣٢ر
10	10	30	0	50	3	-/2	2	**Hydrodynamic & Elasticity(2)**	M432

Motions of compressible fluid - equation of turbulence motion – Deduced energy equation - mass transfer through porous and non porous media - Applications

الدرجات					الساعات				
oral	ACT	Mid_T	Prac	Wr.	CH	P/T	L	الاسس الرياضية لميكانيكا الكم والميكانيكا الاحصائية(2)	٤٣٣ر
10	10	30	0	50	3	-/2	2	**Mathematical Concepts of Quantum & Statistical Mechanics (2)**	M433

Linear operators – Principle postulates – Quantum mechanical viewpoint of harmonic oscillator – Quantum angular momentum – Motion in a central field – Hydrogen atom – Some approximation methods – Grand canonical ensemble – Theory of real gases – Bose–Einstein and Fermi–Dirac perfect gases – Internal partition function – Applications.

الدرجات					الساعات				
oral	ACT	Mid_T	Prac	Wr.	CH	P/T	L	نمذجة رياضية	٤٣٤ر
10	10	30	0	50	3	0	3	**Mathematical Modeling**	M434

Principles of Mathematical models – Steps in building Math. – Model.- Approxiximation of Models(representation of dada, algebraic equations, differential equations, ….)- the relation of models to data- sources for errors- Adjusting data – Evaluation of Math – Model – Maths. For models- Optimization – Applications (Economic – Trafic – inflation – Population – Physics and engineering).

وكيل الكلية لشئون التعليم والطلاب

الدرجات					الساعات			موضوعات مختارة فى الرياضيات التطبيقية (2)	٤٣٦ر
oral	ACT	Mid_T	Prac	Wr.	CH	P/T	L	Special Topics in Applied Mathematics (2)	M436
10	10	30	0	50	3	0	3		

Elected by Math. Dept. to meet new directions in Applied Mathematics

الدرجات					الساعات			الاسس الرياضية لنظرية الكهرومغناطيسية والنسبية الخاصة(2)	٤٣٧ر
oral	ACT	Mid_T	Prac	Wr.	CH	P/T	L	Mathematical Foundations of Electromagnetic Theory and	M437
10	10	30	0	50	3	-/2	2		

Principal Equations - Slow and Quasi Steady Motion - Motion of Charged Particles Under Electric and Magnetic Fields - General Solution of Dalambert Equations - Theory of radiation - Propagation of Electromagnetic Waves.

الدرجات					الساعات			احصاء رياضى	٤٤٢رأ
oral	ACT	Mid_T	Prac	Wr.	CH	P/T	L	Mathematical Statistics	MS442
10	10	30	0	50	3	0	3		

Distribution of Functions of Random Variables – Sampling distributions - Point Estimation - Interval Estimation - Hypothesis Testing.

الدرجات					الساعات			تطبيقات الحاسب فى الرياضيات	٤٦٩رك
oral	ACT	Mid_T	Prac	Wr.	CH	P/T	L	Computer Applications in Mathematics	MC469
10	10	10	20	50	3	2/-	2		

Some applications in numerical analysis, operation research, differential equations and statistics using applications software

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