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

١٥٠م ج	لغة انجليزية(1)
UR015	English Language (1)

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.

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

٢٠٠م ج	لغة انجليزية(2)
UR020	English Language (2)

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.

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

٥٠٠م ج	قضايا مجتمعية
UR050	Societal Issnes

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

١١م ج	ادارة اعمال
UR011	Management

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

١٢٠م.ج	تاريخ العلوم
UR012	History of Science

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.

Means of honoring scientists

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

التغذية الصحية	١٣ م ج
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		
oral	ACT	Mid_T	Prac	Wr.	CH	P/T	L
10	10	30	0	50	2	-	2

التفكير العلمى	١٤٠م ج
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		
oral	ACT	Mid_T	Prac	Wr.	CH	P/T	L
10	10	30	0	50	2	-	2

لغة عربية	١٦ .م ج
Arabic Language	UR016

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

الحاسب الالى	١٠٠رك
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		
oral	ACT	Mid_T	Prac	Wr.	CH	P/T	L
10	10	30	0	50	3	-/2	2

رياضيات عامة (1)	١٠٠ر
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 -

Approximate solutions of non-linear equations.

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

١٠٥ر	رياضيات عامة (2)
M105	Mathematics (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.

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

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

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.

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

١٠٥ف	فيزياء عامة (2)
P105	Physics (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.

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

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

(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)

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

١٠٥ك	كيمياء عامة (2)
C105	Chemistry (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)

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

١٠٠ج	اساسيات الجيولوجيا
G100	Principles of Geology

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

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

حيوان عام	ح١٠٠
General Zoology	Z100

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

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

نبات عام	ن١٠٠
General Botany	B100

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

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

اخلاقيات وآداب المهنه والسلامة المهنية	F٣٠٠
Scientific Ethics&Safety	F300

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.

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

معادلات تفاضلية لغير طلاب الرياضيات	٢١٤ر
Differential Equations for non-Mathematics students	M214

Formation of ordinary differential equations (ODE's) - ODE's of first order and first Degree – ODE's of first order and higher degrees – Applications – Numerical solution of ODE's of the first order and the first Degre – Linear ODE's of higher Orders with constant Coefficients - Linear ODE's of higher orders with Variable Coefficients (Euler and Lagrange methods) .Applications.

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

احصاء حيوى	٢٤١رأ
Biostatistics	MS241

Some basic probability concepts – Some important sampling distributions – Estimation Hypothesis testing – Analysis of variance - Regression and correlation – Multiple regression and correlation – Goodness of fit test.

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

ف٢٢٥	مبادىء الفيزياء الحديثة
P225	Principles of Modern Physics

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.

الدرجات					الساعات		
oral	ACT	Mid_T	Prac	Wr.	CH	P/T	L
10	10	10	20	50	4	3/-	3

ك٢١٠	كيمياء عضوية(1)
C210	Organic Chemistry(1)

Organic Reactions Mechanisms – Chemistry of Carbonyl Compounds
Practical : (Selected practical experiments)

الدرجات					الساعات		
oral	ACT	Mid_T	Prac	Wr.	CH	P/T	L
10	10	10	20	50	4	3/-	3

ك٢١٢	كيمياء عضوية (2)
C212	Organic Chemistry(2)

Aromatic Compounds – Heterocyclic Compounds
(Practical : Selected practical experiments)

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

ك٢١٤	الكيمياء العضوية البيئية الخضراء
C214	Environmental and Green Chemistry

Agrochemistry – Environmental Organic Chemistry – Green Chemistry

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

ك٢٢٠	كيمياء غير عضوية (1)
C220	Inorganic chemistry (1)

Chemistry of the main groups (S, P- block elements): General properties of the main group elements of the first group to the seven group element- use of main group elements in industry. (in a glasses, conductors, and semiconductors – fertilizers

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

ك٢٣٠	كيمياء فيزيائية(1)
C230	Physical Chemistry (1)

Chemical thermodynamics: Thermodynamics concepts- First law of thermodynamics- second law- Entropy changes of enthalpy and entropy with temperature-Gibb's free energy function and chemical potentials. Chemical kinetics: Concept and terminologies of chemical kinetics- Reaction rate laws- Effect of temperature on reaction rates- Theory of reaction rates

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

ك٢٣٢	كيمياء فيزيائية(2)
C232	Physical Chemistry (2)

Phase rule: Concept and terminologies of phase rule, phase rule equation, One , Two, Three component systems and their applications. Colloids: Preparation, properties- The stability of hydrophilic and hydrophobic sols. gels- Emulsions and Foams. Electrochemistry(I): Ionic conductivity and applications- Electrochemical cells and electrode potentials- The Nernst equation- Primary and secondary cells- Fuel cells.

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

ك٢٣٤	كيمياء حاسوبية
C234	Computational Chemistry

Schrödinger equation- approximated methods- different computational methods.

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

ك٢٤٠	مقدمة فى التحليل الكيميائى الكمى
C240	Introductory Quantitative Analysis

Statistical treatment of Analytical Data, Activity and Systematic Treatment of Equilibrium, Acid-Base equilibrium, Types of titration in volumetric analysis, Gravimetric analysis, Fundamentals of potentiometry & Principles of UV, Vis-Spectrophotometry
(Practical: Selected practical experiments)

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

٢٣١ ج	بلورات ومعادن
G231	Mineral and Crystals

Crystallography: Introduction - Elements of symmetry - Crystal forms - Crystal systems and classes – Physical properties.
Minerals: Atomic structures - Nature and origin of the minerals -Isomorphism and polymorphism - Continuous and discontinuous reaction series - Silicate and non-silicate minerals.

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

٢٩١ن	ميكروبيولوجيا عامة
B291	General Microbiology

Taxonomy of Prokaryotes – benefit and harmful effect of bacteria – bacterial cell structure – growth of bacteria – general characters of fungi – Fungal classifications – Myxomycota, Mastigomycota and Zygomycota

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

٢٠١ت ج	Systems and creative thinking
Comm 201	Systems and creative thinking

Introduction, Internal systems, Memory, Frontiers of creativity, Barriers to creativity, Barriers to innovation.

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

٣٠٠رك	حزم البرامج الرياضية والاحصائية
MC300	Mathematical and Statistical Packages

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

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

٣٢٣ ف	فيزياء حيوية
P323	Biophysics

Studying DNA and biopolymers - Cell membranes and membrane potentials - Electrical activity of nerve cells - Fundamentals of measuring circuits and systems - Temperature and pressure measurements - Measuring cell potentials.

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

مبادىء فيزياء الجوامد	٣٥٠ف
Introduction to Solid State Physics	P350

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.

الدرجات					الساعات		
oral	ACT	Mid_T	Prac	Wr.	CH	P/T	L
10	10	10	20	50	4	3/-	3

كيمياء فراغية واطياف	٣١١ ك
Stereochemistry and Spectroscopy	C 311

Spectroscopy (I) (UV, IR) – Spectroscopy (II) (MS, NMR) – Stereochemistry – (Practical: Spectroscopy and Stereochemistry)

الدرجات					الساعات		
oral	ACT	Mid_T	Prac	Wr.	CH	P/T	L
10	10	10	20	50	4	3/-	3

كيمياء حيوية ومنتجات طبيعية	٣١٢ك
Biochemistry and Natural Products	C 312

Biochemistry (I): Chemistry of carbohydrates – Amino acids & Proteins
Natural Products (I):– Lipids Terpenes - Steroids.
(Practical: Biochemistry)

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

الكيمياء الضوئية والوسائط النشيطة	٣١٣ك
Photochemistry & Regative Intermediato	C313

Photochemistry – Reactive Intermediates

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

الكيمياء العضوية التخليقية المتقدمة	٣١٤ك
Advanced Organic Synthesis	C 314

Selectivity in Organic Synthesis – Protecting groups in Organic Synthesis – Enolate Reactions – Oxidation and reduction Reactions

الدرجات					الساعات		
oral	ACT	Mid_T	Prac	Wr.	CH	P/T	L
10	20	20	50	0	1	3/-	1

معمل كيمياء غير عضوية(1)	٣٢٠ك
Inorganic Chemistry Laboratory (1)	C320

Preparation of simple and double salts – preparation of metal complexes – characterization by spectrophotometric and conductometric methods.

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

كيمياء غير عضوية (2)	٣٢١ ك
Inorganic Chemistry (2)	C321

Transition elements: An introduction to transition elements – general properties of the first transition series and their compounds.
Coordination compounds: Coordination compounds and double salts – application of coordination compounds –nomenclature – preparation – isomerism – stability – oxidation states – nature of bonding- Huggin's suggestion – investigation of structures. Coordination polymer.

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

ك٣٢٤	كيمياء غير عضوية (3)
C324	Inorganic Chemistry(3)

Inner transition elements: Relation between lanthanides and actinides - f-block elements and d-block elements – chemistry of some important elements – method of separation – properties of the compounds – oxidation state – Spectral and magnetic properties
Coordination chemistry: Crystal field theory complexes of weak and strong field ligands – ligand field and molecular orbital theories – stability constant of complexes – Johen Toiller effects.

الدرجات					الساعات		
oral	ACT	Mid_T	Prac	Wr.	CH	P/T	L
10	20	20	50	0	1	3/-	0

ك ٣٣١	معمل الكيمياء الفيزيائية (1)
C331	Physical Chemistry Laboratory (1)

Experiments based on: Chemical kinetics, Phase rule, and electrochemistry.

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

ك٣٣٢	كيمياء فيزيائية(3)
C 332	Physical Chemistry (3)

Quantum chemistry: Pre-Schrödinger equation- Schrödinger equation and its application to translational, vibrational, and rotational motion of a particle. Theory of gases: The kinetic molecular gas model- numerical values of molecular velocities and their distribution in three dimensions – Average quantities from the distribution law – equipartition principle - the molecular gas collisions and the mean free path, Tronsport properties.
Molecular spectroscopy: Types and patterns of free energies of gas molecules- experimental and theoretical treatment for studies on rotational vibrational, Raman and electronic spectra- spectral analysis using NMR and ESR.

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

ك ٣٣٣	الكيمياء النووية والاشعاعية
C 333	Nuclear and Radiation Chemistry

Radioactivity- nature of radioactive rays and its types – the kinetics of radioactive decay and growth- structure of nuclei- the nuclear potential- nuclear reactions and nuclear reactors- nuclear fission.

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

ك٣٣٤	كيمياء التأكل
C 334	Corrosion Chemistry

Principles of corrosion- electrochemical reactions (polarization and passivity)- Forms of corrosion- Anodic and cathodic protection.

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

ك٣٤٢	كيمياء تحليلية(1)
C 342	Analytical Chemistry (1)

Atomic Spectroscopy, Ultraviolet/Visible spectrophotometry and Infrared Spectrometry, Polarography & Amperometry, Conductometry & Coulometry and Modern Voltametric Techniques, Introduction to Analytical Separation and the Need for Quality Assurance .
(Practical: Selected practical experiments).

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

٣٤٣ ك	كيمياء تحليلية بيئية
C343	Environmental Analytical Chemistry

Environmental Sampling – Analysis Using Modern Instrumental Techniques – Chemistry of Natural Water – Water Pollution – Waste Water Treatment – Environmental Toxicology – Analysis of Selected Contaminants (Heavey Metals and Organometalic compounds).

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

٣١٨ح	بيولوجيا جزيئية وخلية
Z 318	Cell and Molecular Biology

The cell theory. Membranous organelles. Non-membranous organelles. The cell inclusions. The nucleus. Cell division. DNA & RNA synthesis and structure. DNA structure- Genome organization in prokaryotic and eukaryotic cell- DNA replication and repair - Translation - Gene expression in eukaryotes Recombinant DNA techniques.

الدرجات					الساعات		
oral	ACT	Mid_T	Prac	Wr.	CH	P/T	L
10	0	0	0	90	2	0	2

٤٠٠ك	مقال او بحث
C400	Research projector article

An essay or research article in one of the different fields of chemistry

الدرجات					الساعات		
oral	ACT	Mid_T	Prac	Wr.	CH	P/T	L
10	10	10	20	50	4	3/-	3

٤١١ ك	كيمياء البترول والكروماتوجرافيا
C 411	Petroleum Chemistry and Chromatography

Chromatography – Petroleum Chemistry and Petrochemicals
(Practical.: Chromatography & Petroleum)

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

٤١٢ك	كيمياء عضوية تطبيقية
C 412	Applied Organic Chemistry

Dyes and Textiles – Material Science and Polymers
(Practical: Dyes and Textile, Polymers)

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

٤١٤ك	موضوعات مختارة فى الكيمياء العضوية
C 414	Selected Topics in Organic Chemistry

Topics Suggested by the Department.

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

٤٢٢ك	كيمياء غير عضوية (4)
C 422	Inorganic Chemistry (4)

Organometallic compounds of transition element – carbonyl and their type of bonding – aryl and cyclopentadienyl azo cyanide and nitrasol complexes.

Solution chemistry of coordination compounds: Stability of complex ions in aqueous solution - step wise formation of complexes – thermodynamic parameters – chelate effect, on stability of complexes.

٤٢٣ ك	موضوعات مختارة من الكيمياء الغير عضوية
C 423	Special topics in inorganic chemistry

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

The title and topics are to be determined by the chemistry Department

٤٣١ ك	معمل كيمياء فيزيائية(2)
C 431	Physical chemistry Lab(2)

الدرجات					الساعات		
oral	ACT	Mid_T	Prac	Wr.	CH	P/T	L
10	20	20	50	0	1	3/-	0

Experiments based on: surface chemistry, catalysis and electrochemistry (II)

٤٣٢ ك	كيمياءالسطوح والكيمياء الكهربية
C 432	Surface Chemistry and Electrochemistry

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

Solid state: Semiconductors, doping of semiconductors, non-stoichiometric compounds, point defects.
Surface& Catalysis: Gas adsorption- Langmuir and BET theories- pore analysis by adsorption. Introduction and basic concepts of catalysis and catalysts.
Electrochemistry (II): Structure of ionic electrical double layer- irreversible processes- types of the potential difference – cathodic and anodic protection against corrosion.

٤٣٤ ك	الحفز التطبيقى
C 434	Applied Catalysis

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

preparation and characterization- Homogeneous and heterogeneous catalysis- Role of catalytic reactions in the chemical industry- Synthesis of methyl alcohol- Synthesis of different chemicals from ethyl alcohol- Esterfication reaction
(Practical: Selected practical experiments)

٤٣٧ ك	موضوعات مختارة فى الكيمياء الفيزيائية
C 437	Selected Topics in Physical Chemistry

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

Topics to be suggested by chemistry Departm¬ent

٤٤١ ك	كيمياءتحليلية (2)
C 441	Analytical Chemistry (2)

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

(II A): Quality Control Quality, Assurance in Chemical Analysis and GLP Requirements, Introduction to Chemometrics, Analysis of Gaseous Pollutants, Water Analysis, HPLC, Automated methods of analysis, X-ray, GMS and ICP.
Analytical Chemistry (II B): General Principles of Analytical Biochemistry, Biosensors, Biochemical uses of Isotopes, Immunological Methods, Enzyme Assay Methods, Separation of Amino Acid Mixtures, Separation of Proteins, Separation of Lipid Mixture, Methods of Nucleic Acid Analysis
(Practical: Selected practical experiments)

٤٤٤ ك	موضوعات مختارة فى الكيمياء التحليلية
C444	Special topics in Analytical Chemistry

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

٤٥٣ ك	الكيمياء الصناعية
C 453	Industrial Chemistry

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

Silicate Technology (Ceramics – Glass – Fertilizers – Cement)
Energy and Raw materials – Paper industry – Pigments, Paints, Varnishes and Printing Inks.