

FIRST YEAR**GENERAL COURSES PROGRAM****FIRST SEMESTER**

Ser. No.	Course Code	Title	Lecture Hrs.	Units	Corequisite(s)
1	GES101	Math I	4	12	-
2	GES111	English I	3	9	-
3	GES121	Arabic Language	2	6	-
4	GES131	Probability and Engineering Statistics	3	9	-
5	GES141	Engineering Drawing	3	6	-
6	GES151	Engineering Physics	4	12	-
7	GES161	Engineering Physics Lab	3	3	GES151
			22	57	-

SECOND SEMESTER

Ser. No.	Course Code	Title	Lecture Hrs.	Units	Prerequisite(s)
1	GES102	Math II	4	12	GES101
2	GES112	English II	3	9	GES111
3	GES122	General Chemistry	3	9	-
4	GES132	Computer Languages (C++)	3	9	-
5	GES142	AutoCad	3	6	GES141
6	GES152	Engineering Statics	4	12	GES101, GES151
7	GES162	Communication Skills	2	6	-
Total			22	63	-

SYLLABUSES OF THE COURSES**FIRST SEMESTER:****GES101 Math I** 4 lecture hours per week, (4 +8) = 12 units

Sets. Real and complex number systems. Functions and their graphs. Vectors in the plane and space. Determinants, solutions of a system of linear equations. Limits and continuity of functions. Derivatives, derivatives of elementary functions, Roll's and Mean Value theorems, maxima, minima and graph sketching, applications of l'Hopital rule.

GES111 English I 3 lecture hours per week, (3 +6) = 9 units

This course is designed for the first year students of Engineering during the first semester of their academic year. It consists of two parts: a) a short refresher course in ordinary English to help bridge the gap between school and university standards; aural/oral approaches and techniques are used; and,

b) a lengthy intensive course in scientific English to enable the students to understand their lectures and textbooks on engineering topics.

GES121 Arabic Language 2 lecture hours per week, (2 +4) 6 units

Grammar: Verbal sentence, nominal sentence and numbers. Literature and poetry: studying several examples from Quran and poems from different eras. Writing and dictation.

GES131 Probability and Engineering Statistics 3 lecture hours per week, (3 +6) = 9 units

Descriptive statistics with graphical summaries. Basic concepts of probability and its engineering applications. Commonly used distributions for discrete and continuous random variables. Confidence intervals. Hypothesis testing. Correlation and simple linear regression.

GES141 Engineering Drawing 3 lecture hours per week, (3+3) = 6 units

Use and care of drawing instruments and equipment. Freehand sketching. Orthographic projections, sectioning and dimensioning of single machine elements. Isometric drawing and dimensioning. Thread dimensioning, standard M/C elements assembly, Steel structure drawing.

GES151 Engineering Physics 4 lecture hours per week, (4 +8) = 12 units

Units, Dynamics involving Newton's Law of Gravitation and to problems involving both stationary and moving ideal fluids. linear momentum, in one or two dimensions. Rotational dynamics of rigid bodies and the angular momentum. Simple harmonic oscillators such as the simple pendulum, a mass connected to a spring, a mass connected to two or more springs, the physical pendulum. Vectors 2 and 3 dimensions, including the 3 dimensional properties of vectors such as torque and angular momentum. Potential and kinetic energy and work done.

Electric field; Electric charge; Electric fields; Dipoles; Continuous charge distributions. Coordinate systems; Gradients; Line and surface integrals. Electric potential, E from V. Electric potential, equipotentials. Continuous charge distributions. Gauss's law. Conductors and capacitors. Current, Resistance, Ohm's Law. Magnetic fields: Creating magnetic fields - Biot-Savart; Ampere's law. Faraday's law; Maxwell's equations.

GES161 Engineering Physics Lab 3 lecture hours per week, (3 +0) = 3 units

Laboratory work includes experiments on the acceleration of gravity g, Hook's Law, Young's modulus, surface tension, thermal conductivity and specific heat, frequency measurements. and the velocity of sound. Charge and electric field, Magnetic field.

SECOND SEMESTER:

GES102 Math II 4 lecture hours per week, (4+8) 12 units Prerequisite: GES101

Definite integral, fundamental theorem of calculus. Exponential and logarithmic functions, hyperbolic functions. Techniques of integrations. Geometrical and physical applications of the definite integral. Functions of several variables, partial derivative. Maxima and minima and Lagrange's multipliers. Line integrals. Double integrals in rectangular and polar coordinates. Series, power series, Taylor's theorem.

GES112 English II 3 lecture hours per week, (3 +6) = 9 units

This course is designed for first-year students of Engineering during the second semester of their academic year. It consists of two parts:

- A more advanced course in ordinary English to improve students' standards in the four basic language skills; the aural/oral approach and modern techniques are adopted; and,
- A still more intensive course in scientific English to enable the students to pursue their higher and more complex studies in engineering.

GES122 Engineering Chemistry 2 lecture hours per week, (2+4) = 6 units

Introduction to atomic and electronic structure, chemical bonding, molecular structure and bonding theories, properties of liquids, solids and solutions, chemical equilibrium, kinetics, thermodynamics, metal complexes, organic compounds and nuclear chemistry.

GES132 Computer Languages (C++) 3 lecture hours per week, (3+6) = 9 units

Basic programming and programming structure, computer organization, data representation, control structures, manipulation of strings, arrays, structures, and pointers. Computer solutions to a variety of problems using the C programming language. Debugging and verification techniques.

GES142 AutoCad 3 lecture hours per week, (3+3) = 6 units Prerequisite: GES141

Introduction to CAD tool, Understanding and drawing simple 2D objects, Coordinate systems, Modifying drawing objects. Drawing in layers, creating complex drawings, Sectioning, Hatching, Text, Blocks, Dimensioning, Isometric views, Fits and Tolerance, Symbols for welding, Surface finish, Threaded parts, electronics, Solids and surfaces, Extracting views from model space into paper space, Creating layouts in Paper space, Plotting a drawing, Plotting from model space.

GES152 Engineering Statics 4 lecture hours per week, (4 +8) 12 units, Prerequisite: GES101, GES151

Forces on particles and rigid bodies in two and three dimensions. Equilibrium of forces on particles and rigid bodies in two and three dimensions. Centroids and centres of gravity. Moments of inertia. Second moments of areas. Parallel-axes theorem. Mass moment of inertia. Friction. Reactions, shearing forces, bending moments and axial forces in statically determinate beams.

GES162 Communication Skills 2 lecture hours per week, (2+4) 6 units.

Interpersonal Communication is a skills course. It is intended to help students understand the importance of communication in all aspects of their academic and personal life. The method of instruction is problem-based learning, giving students the opportunity to be the center of the learning process. The very vital communication skills will be learned by the student through solving four problems that cover an introduction to the subject, the listening skill clusters, assertion skills, and finally conflict management. The main aim of the course is to enable students to communicate effectively with their peers, faculty members, family members, friends, and society at large. It is a given that ineffective communication leads to all sorts of failed relationships at school, at work, and even at home with parents, siblings, and children. The course will give students an added advantage by being able to develop and nurture flourishing relationships that not only help them to.