

بيان بالمقرارات وتوصيف المقرارات

under

1- الفرقة الإعدادية

الترم الاول

Course Title	Engineering Mathematics (1) a
Course Code	PME0101

Course Contents

Topics
Mathematical system (ring-field)
Boolean algebra
Introduction to linear algebra
Theory of linear system of algebraic equations- Gauss elimination method
Theory of partial fraction
Theory of complex numbers
Numerical computation of roots of equations – Transcendental functions algebraic equations
Types of functions
Limits and continuity
First derivative for transcendental functions
Higher order derivative
Applications of derivative
Applications in approximations and error estimation

Course Title	EngineeringMechanics
Course Code	PME0003

Course Contents

Topics
<i>Applications on space vectors, resultant of a group of forces.</i>
Moments.
Equivalent couples, equivalent wrench, equation of equilibrium for the rigid body.
Types of supports, equilibrium under the effect of coplanar forces.
Equilibrium of groups of space forces.
Equilibrium of a rigid body under the effect of a group of forces and space couples.
Center of masses(a group of particles-areas)
Moment of inertia (parallel- principle axes – areas)



Course Title	Engineering Physics (1) a
Course Code	PME0102

Course Contents

Topics
Units and dimension and applications –Electric charge, Coulomb’s law, conservation of charge
Simple harmonic motion, definitions, uniform circular motion– Electric field,

electric field lines, electric field of a point charge
Mass-spring system, angular simple harmonic oscillator – Principle of superposition, electric fields of a group of point charges
Simple and physical pendulums, energy stored– Electric fields of charge distributions
Damped and forced simple harmonic motions and resonance–Electric dipoles, A dipole in an electric field
Gravitational force, gravitational field – Electric flux, Gauss's law
Gravitational potential energy, Planets and satellites – A charged isolated conductor, Cylindrical symmetry, and applications of Gauss's law
Kepler's laws of planetary motion –Planar symmetry, Spherical symmetry and more applications
Fluids at rest, density and pressure –Electric potential energy, electric potential, equipotential surfaces
Measuring pressure devices, Archimedes's principle – Calculating the potential from the field, potential of a group of point charges
Motion of ideal fluids, Bernoulli's equation – Potential due to an electric dipole and a continuous charge distribution, calculating the field from the potential
Viscosity applications and Stoke's law –Capacitance and its calculations, parallel plate capacitors
Deformation of solids, Moduli of elasticity - Energy stored in an electric field, capacitance with a dielectric
Poisson's ratio and applications –Electric current, current density, Kirchhoff's laws



Course Title	Engineering Chemistry
Course Code	PME0104

Course Contents

Topics
Gaseous state

Solutions
Chemical thermodynamics
Fuels and combustion
Electrochemistry
Cements and building materials
Water treatment
Pollution (air, water, soil)
Pollution control and abatement
Fertilizers

الترم الثانى

Course Title	Engineering Mathematics (1) b
Course Code	PME0201

Course Contents

Topics
General equation of second degree
Condition to represent pair of straight lines, circles Coaxial circles and conic sections (parabola-ellipse-hyperbola)
Translation and rotation of axes, Space coordinates (Cartesian-cylindrical-spherical)
Straight line equations, Plane, Sphere and Surface of solid of revolution
Indefinite integral (theorems and integrals for elementary functions)
Methods of integration (tables, substitution, by parts, partial fraction and reductions)
Definite integral and Improper integrals and Mean value theorem

for definite integrals
Application of definite integrals
Numerical Integration

Course Title	Engineering Mechanics
Course Code	PME0003

Course Contents

Topics
Position displacement, velocity, and acceleration of a particle
Trajectory of planer Motion of a particle
Description of the planer - Motion in Cartesian coordinates.
Trajectory of planer Motion of a particle
Projectiles (their velocity, acceleration, rang, and trajectory equation)
Restricted Motion of a particle along a straight line Description of motion in natural coordinates and polar coordinates
Relative motion between particles
Simple Harmonic Motion of a particle, Restricted Motion of a particle along a circular path
Newton's laws of motion, Motion in resistive medium
Variable mass and its applications
Principle of work and kinetic energy, Conservative forces, principle of conservation of mechanical energy

Course Title	Engineering Physics (1) b
Course Code	PME 0202

Course Contents

Topic
Kinetic theory of gases, applications, examples and problems; First law of thermodynamics, cyclic processes, definitions, examples, discussion and application; Second law of thermodynamics, definitions, entropy; Carnot's heat engine, efficiency and performance of an engine, applications.
Magnetic field (effects on moving charge, current-carrying wires and loops) and applications; Sources of magnetic field (Biot-Savart law, long straight wire, Ampere's law, applications).
Temperature, units and thermometers; Heat capacity and specific heat; Latent heats; Mechanisms of heat transfer: conduction, convection, and radiation.
Electromagnetic induction (flux, Faraday's law, Lenz's law, induced electric field); Inductance (self and mutual inductance, LR circuits, LC oscillations); Alternating current circuits (R, L, C in AC circuits, RLC series circuit and resonance)

Course Title	Technical English
Course Code	***02H1

Course Contents

Topics
Technical reading passages and comprehension questions
Grammatical rules and structural patterns used in technical writing
Technical term study
Technical articles for translation from English to Arabic and vice versa

2-الفرقه الاولى مدني

الترم الاول

Course Title	EngineeringMathematics(2) a
Course Code	PME1105

Course Contents

Topics
Differentiation and integration of functions of several variables.
Partial derivatives.
Taylor and Maclurin of function of several variables.
Differential equations.
Methods of solutions of first order differential equations.
N- Order differential equations using differential operators.
Euler equation
Applications of solving differential equations of RLC electrical circuits in time domain (over damped, under damped and resonance cases)

الترم الثانى

Course Title	EngineeringMathematics(2) b
Course Code	PME1205

Course Contents

Topics
Expansion of periodic functions by Fourier series.
Sum of some numerical series
Barsval equality
Laplace transform and its applications in solving differential equations
System of linear differential equations of constant coefficients and its solution by matrices- Applications
Partial differential equations (definitions- properties and normal forms)
Methods of solution of partial differential equations (D'alembert method, method of separation of variables)
Applications of solving Partial differential equations

3-الفرقه الاولى كهرباء

الترم الاول

Course Title	EngineeringMathematics(2) a
Course Code	PME1106

Course Contents

Topics
Differentiation and integration of functions of several variables.
Partial derivatives.
Taylor and Maclurin of function of several variables.
Differential equations.

Methods of solutions of first order differential equations.
N- Order differential equations using differential operators.
Euler equation
Applications of solving differential equations of RLC electrical circuits in time domain (over damped, under damped and resonance cases)

الترم الثانى

Course Title	EngineeringMathematics(2) b
Course Code	PME1206

Course Contents

Topics
Expansion of periodic functions by Fourier series.
Sum of some numerical series
Barsval equality
Laplace transform and its applications in solving differential equations
System of linear differential equations of constant coefficients and its solution by matrices- Applications
Partial differential equations (definitions- properties and normal forms)
Methods of solution of partial differential equations (D'alembert method, method of separation of variables)
Applications of solving Partial differential equations

4-الفرقه الاولى ميكانيكا

الترم الاول

Course Title	EngineeringMathematics(2) a
Course Code	PME1107

Course Contents

Topics
Differentiation and integration of functions of several variables.
Partial derivatives.
Taylor and Maclurin of function of several variables.
Differential equations.
Methods of solutions of first order differential equations.
N- Order differential equations using differential operators.
Euler equation
Applications of solving differential equations of RLC electrical circuits in time domain (over damped, under damped and resonance cases)

الترم الثانى

Course Title	Engineering Physics (2)
Course Code	EMP1108

Course Contents

Topic
Mechanical Transverse Waves: Types of waves, Amplitude, phase, frequency, period, propagation speed of a wave
Mechanical waves propagating along a stretched string, and the speed of this of this wave, energy and power of a wave traveling along a string.
Wave equation, Principle of superposition of waves, interference of waves.
Wave addition using phasors, reflection and transmission of waves, standing waves, resonance.
Sound Waves: Speed of sound waves, relation between displacement and pressure

amplitude.
Interference of sound waves, sound intensity and sound level, sound standing waves in pipes.
Beats, the Doppler effect, supersonic waves and shock waves.
Light Interference: Light propagation as a wave, Huygen's principle, wavelength and index of refraction.
Young's experiment and locating fringes, coherence.
Intensity in double-slit interference, combining more than two waves.
Interference from thin Films, Newton's rings.
LightDiffraction: Diffraction by a single slit: Locating the minima, intensity in single-slit diffraction.
Diffraction by a circular aperture, resolvability.
Diffraction combined with interference in a double-slit experiment, diffraction gratings, width of lines, dispersion and resolving power.

Course Title	EngineeringMathematics(2) b
Course Code	PME120

Course Contents

Topics
Expansion of periodic functions by Fourier series.
Sum of some numerical series
Barsval equality
Laplace transform and its applications in solving differential equations
System of linear differential equations of constant coefficients and its solution by matrices- Applications
Partial differential equations (definitions- properties and normal forms)
Methods of solution of partial differential equations (D'alembert method, method of separation of variables)

Applications of solving Partial differential equations

5-الفرقة الثانيه اتصالات

الترم الاول

Course Title	Engineering Mathematics (3) a
Course Code	PME2110

Course Contents

Topics
Numerical solution of linear and nonlinear algebraic equations
Curve fitting and interpolation
Numerical differentiation and integration
Numerical methods for solving ordinary differential equations (initial and boundary).
Numerical methods for solving partial differential equations

الترم الثانى

Course Title	Engineering Mathematics (3) b
Course Code	PM2210

Course Contents

Topics
Vector analysis
Fourier's series
Fourier transform
Solution of partial differential equation in three dimension

Numerical solution of partial differential equations
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6-الفرقة الثانيه حاسبات

الترم الاول

Course Title	Engineering Mathematics (3) a
Course Code	PME2111

Course Contents

Topics
Numerical solution of linear and nonlinear algebraic equations
Curve fitting and interpolation
Numerical differentiation and integration
Numerical methods for solving ordinary differential equations (initial and boundary).
Numerical methods for solving partial differential equations
Discrete mathematics – Number theory – Relations, functions and Graph theory

الترم الثانى

Course Title	Engineering Mathematics 3 (b)
Course Code	PME2211

Course Contents

Topics

Complex numbers
Functions of complex variables
Complex Integration
Elementary functions
Residue Theorem
Conformal mapping
Series Solution
Special Functions
Solution of partial differential equation in three dimension
Fuzzy set and fuzzy relations

7- الفرقه الثانيه كهرباء بور

الترم الاول

Course Title	Engineering Mathematics (3) a
Course Code	PME2109

Course Contents

Topics
Numerical solution of linear and nonlinear algebraic equations
Curve fitting and interpolation
Numerical differentiation and integration
Numerical methods for solving ordinary differential equations (initial and boundary).
Numerical methods for solving partial differential equations

Solution of three dimensional Laplace equation using separations of variables in Spherical and cylindrical coordinates.

الترم الثانى

Course Title	Engineering Mathematics (3) b
Course Code	PME2209

Course Contents

Topics
Complex numbers
Functions of complex variables
Complex Integration
Elementary functions
Residue Theorem
Conformal mapping
Series Solution
Special Functions
Solution of partial differential equation in three dimension

8-الفرقه الثانيه ميكانيكا بور

الترم الاول

Course Title	Engineering Mathematics (3) a
Course Code	PME2113

Course Contents

Topics

Complex numbers
Functions of complex variables
Complex Integration
Elementary functions
Residue Theorem
Conformal mapping
Series Solution
Special Functions
Solution of partial differential equation in three dimension

9- الفرقه الثانيه ميكانيكا انتاج.

الترم الاول

Course Title	Engineering Mathematics (3) a
Course Code	PME2112

Course Contents

Topics
Complex numbers
Functions of complex variables
Complex Integration
Elementary functions
Residue Theorem
Conformal mapping
Series Solution
Special Functions

Solution of partial differential equation in three dimension

10-الفرقه الثالثه اتصالات

Course Title	Engineering Mathematics (4)
Course Code	PME3115

Course Contents

Topics
Set theory and its applications, Probabilities and Conditional probabilities
Random variables and application in communication systems
Probability density functions
Continuous and discrete probability functions
Special functions (Gamma, Beta functions error function and Bessel functions)
Central limit theorem

11-الفرقه الثالثه كهرباء بور

Course Title	Engineering Mathematics (4)
Course Code	PME3114

Course Contents

Topics
Set theory and its applications, Probabilities and Conditional probabilities
Random variables and application in communication systems
Probability density functions
Continuous and discrete probability functions

Special functions (Gamma, Beta functions error function and Bessel functions)
Central limit theorem