COURSE LISTS

Cve 204- Strenght Of Materials 2units

- 1. Force equilibrium free body diagrams. Concept of stress, strain; Tensile test. Young's moduli and other strength factors.
- 2. Axially loaded bars, composite bars, temperature stresses and simple and indeterminate problems.
- 3. Hoop stresses in cylinders and rings. Bending moment, shear force and axial force diagrams for simple cases,
- 4. Simple torsion and application.

EEE204- basic electrical engineering 3units

- 1. Circuits elements, DC and AC circuits, Basic circuit laws and theorems. Resonance, power, power factors, 3-phase circuits.
- 2. Introduction to machines and machine designs. Physics of devices
- 3. Discharge devices, semi-conductors, diode and transistors. Transistor characteristics, devices and circuits;
- 4. Electrical and electrical power measurements. Instrumentation systems including transducers, signal conditioners, and read out devices. Oscilloscope, recorders, bridges.
- 5. Measurement of voltage, current, resistance, impedance, frequency, phase difference, electric power, energy, force, displacement, temperature, flow, pressure, and other engineering parameters.

ENG 202- 3units

- 1. Partial Differentiation: Functions of several variables, continuity and partial derivatives. Total differentials, approximate calculations using differentials. Chain rule. Implicit differentiation.
- 2. Series representation of functions (Maclaurin & Taylor's), Taylor's Theorem.
- 3. Extremum problems,(analytic method) without and with constraints, Lagrange multipliers, global extremum.

- 4. Ordinary Differential Equations: Definition, degree, order, linear, nonlinear, solution. First order equations, separable variables, equations reducible to separable form, exact equations, integrating factors, homogenous differential equations.
- 5. Modeling of engineering systems leading to first order differential equations- electric circuit, mixing/dilution, radioactive decay, bacterial culture.
- 6. 2nd order differential equations with constant coefficients, homogeneous, non-homogeneous, complementary functions, particular integrals, D-operator method.
- 7. General linear second-order differential equations (without using matrices).Power series solution, Legendre's differential equation. Modeling of engineering systems leading to 2nd order differential equations- electric circuit, Mechatronics oscillations-free and forced, resonance.
- 8. Matrices and Determinants: Solution of system of linear equations by determinants. Linear dependence and independence, rank of a matrix. General system of linear equations, existence and properties of solution, Gaussianelimination. Matrix inverse by elementary matrices, adjoint, and partitioning methods. Characteristic polynomial, characteristic equation, eigenvalues and eigenvectors.

ENG 204- 3units

- 1. The aim of this practical course is to train the students on how to build simple electronic circuit which can solve problems, and to let them have a basic knowledge of the main units of every device which are electronically designed. Working with Resistors and Diodes, Bridge Circuits, Oscilloscopes and Capacitors, Relays and Transistors;
- 2. Fluid Mechanics experiments;
- 3. Strength of Materials experiments and some other experiments.

MEE204-1unit

- 1. Tools and machines for woodwork; Metal cutting: various cutting tools, saws, files, flame cutting, abrasive cutting; Metal joining: various welding techniques, soldering, screws, nuts, bolts, riveting
- 2. Casting techniques: Sand moulding, centrifugal, die casting and investment casting; Heat Treatment;
- 3. Principles of rolling-hot and cold rolling, defects in rolled products; Drawing and deep drawing;
- 4. Introduction to the economics of production processes; Individual project; Machine operation practice.
- 5. Use of hand tools, and safety measures in these fields

MEE 206 – 2units Fluid Mechanics

- 1. Introduction: Properties of fluids: Density, Pressure, surface tension, viscosity, compressibility etc.
- 2. Fluid statics. Buoyancy of floating bodies. Fluid dynamics. Basic conservation laws.
- 3. Friction effects and losses in laminar and turbulent flows in ducts and pipes. Dimensional analysis and dynamic similitude

MEE208-1 unit Engineering Drawing II

1. Auxiliary Projections; Mechanical Drawings of machines parts – Cams, Gears, Couplings, Bearings, Pipes, Joints and valves; Structural Drawing – material representation, dimensioning of structural details and welds, wood and concrete structures, structural detailing; Introduction to CAD/CAM, Area of its applications and important. How CAD/CAM works. Extensive introduction to CAD package i.e. AutoCAD. Hand-on practical approach is used especially for CAD application

MTE204- 2unit CAD II

CVE 202 – 2 unit Introduction to civil eng.

- 1. Civil engineering as a profession, the functions, training and responsibilities.
- 2. Overview of sub disciplines of civil engineering.
- 3. Stages of engineering project execution, including conception, feasibility studies, detailed design, preparation of bill of quantities and contract documents.
- 4. Roles of different grades of workers on a project laborers, artisans, technologist, engineers, project planning techniques.

GST202 – 2 units Peace studies and conflict resolution

The course looks at basic definition of peace and conflict; it exposes the student to concepts in;

- 1. Peace studies and conflict analysis.
- 2. Conflict resolution, transformation and Mediation processes in peace education are evaluated for students understanding.
- 3. Moreover, environmental factors, human rights issues and gender related conflicts in Africa are treated in relation to development and peace building.
- 4. Students are taken through theories in Peace Studies in explaining ethnicity, religion and major causes of violent conflict in Africa.

GST204- 1 Units Resources management and organizational behaviour

The entrepreneur as a team leader and coach. Managerial skills and roles.

- 1. Emerging trends in the workplace;
- 2. Changing demographics and the impact of technology.
- 3. Emphasis on team work
- 4. Job design, Behavioral consideration on job design. Physical consideration in job design.
- 5. Practicum: Students of like mind work together in an organization-like group performing different roles.

NOTE: You will find the outline of some courses here differing from what is being done in class. This can be as a result of lecturer changes or curriculum change..

Thanks JOSE OFFICIAL MEDIA

Jost