2nd Year Odd Semester

EEE 2100 Electrical Shop Practice
Contact hours/week: 3 Credits:1.5
Electrician's tools, splices, soldering, code practices. Electrical and electronic symbols, Safety rules, electricity rules and electricity codes. Electrical wiring system design drawing and estimation for residential and commercial house wiring and Industrial installation wiring. Use of meggers, Insulation test, Grounding earth resistance measurement using earth resistance tester. Battery charging.

EEE 2103 Electronics II
Contact hours/week: 3 Credits:3
BJT, FET, MOSFET multistage amplifier circuits. Frequency response of single stage and multistage amplifiers. Introduction to CMOS and its applications.
Introduction to operational amplifiers: Basic linear and non linear applications. Frequency response, bandwidth and other practical limitation of op-amps, compensation techniques. Feedback concept, Improvement of amplifier characteristics by negative feedback. Classification, analysis of feedback amplifier. Sinusoidal oscillators: Concept and its classification. Active filters. Negative impedance converters.

EEE 2104 Electronics II Sessional
Contact hours/week: 3 Credits:1.5
Sessional based on the theory of course EEE 2103.

EEE 2105 Electrical Machine I
Contact hours/week: 3 Credits: 3
Transformer: Ideal transformer- transformation ratio, no-load and load vector diagrams; actual transformerequivalent circuit, regulation, short circuit and open circuit tests. Three phase transformer and its connections; Vector group of three phase transformers; Phase conversion.
Three Phase Induction Motor: Rotating magnetic field, equivalent circuit, vector diagram, torque-speed characteristics, effect of changing rotor resistance and reactance on torque-speed curves, motor torque and developed rotor power, no-load test, blocked rotor test, starting and braking and speed control; Induction generator.
Single Phase Induction Motor: Theory of operation, equivalent circuit and starting.

EEE 2106 Electrical Machine I Sessional
Contact hours/week: 3 Credits: 1.5
Sessional based on the theory of course EEE 2105.

ME 2101 Basic Mechanical Engineering
Contact hours/week: 3 Credits: 3
Study of fuels. Steam generation units with accessories and mountings. Study of steam generation and steam turbines. Introduction to internal combustion engines and their cycles. Study of SI and CI engines and gas turbines with their accessories. Refrigeration and air conditioning with their application. Refrigeration equipment: compressors, condensers and evaporators.
Type of fluid machinery. Study of impulse and reaction turbine. Pelton wheel and Kalpan turbine. Study of centrifugal and axial flow machines. Pumps, fans, blowers and compressors. Study of reciprocation pumps.

ME 2102 Basic Mechanical Engineering Sessional
Contact hours/week: 3/2 Credits: 0.75
Sessional based on the theory of course ME 2101.

Math 2101 Engineering Mathematics III
Contact hours/week: 3 Credits: 3
Vector Analysis: Review of vector algebra: Addition and subtraction of vectors, Scalar and vector product of two vectors and their geometrical interpretation, Triple products and multiple products, Linear dependents and independents of vectors. Vector Calculus: Differentiation and Integration of Vectors together with elementary applications, Definition of line, Surface and volume Integrals, Gradient, Divergence and curl of point functions, various formulae, Gauss's theorem, Stoke's theorem, Green's theorem.
Fourier Analysis: Real and complex form of Fourier series, Finite transform, Fourier Integral, Fourier transforms and their uses in solving boundary value problems of wave equations.
Laplce Transforms: Definition Laplace transforms of some elementary functions, Sufficient conditions for existence of Laplace Transforms, Inverse Laplace Transforms, Laplace Transforms of derivatives. The unit step function, Periodic function, Some special theorems on Laplace Transforms, Partial fractions, Solutions of differential equations by Laplace Transforms, Evaluation of improper integrals.

IPE 2111 Legal Issues and Management for engineers
Contact hours/week: 3 Credits:3
Business and industrial law: Law of contract, elements of valid contract. Consideration, Parties competent to contact. Sale of goods, hire and purchase. Negotiable instrument.
Industrial law in Bangladesh: various ordinance payments of wages, legislation relating employment in industries, factories, shops and agriculture, trade union act.
Human resources management in business: Human factors and motivation, leadership, group decision making
and communication, job gradation, process of performance appraisal and reward systems, managing information for decision and management information systems.

Marketing management: Understanding marketing management, developing marketing strategies, conducting marketing research, analyzing consumer and business market, identifying market segments and targets, dealing with competition.
Safety: Evolution of modern safety concepts, industrial hazard, safety and risk management, productivity, worker health and safety, proactive management techniques for safety management, safety standards and regulations for engineering works, fire safety, hazardous materials.