

Course details: 2nd Year Even Semester

ECE 2205 Analog Electronic Circuits II Credits : 3

BJT, FET, MOSFET multistage amplifier circuits. Frequency response of single stage and multistage amplifiers. Introduction to CMOS and its applications.

Feedback concept, Improvement of amplifier characteristics by negative feedback.

Classification, analysis of feedback amplifiers. Op-amps and its applications, integrator and differentiator, Frequency response, bandwidth and other practical limitations of op-amps, compensation techniques.

Oscillators and multivibrators. Active filters. Negative impedance converters. Times 555 and its applications.

ECE 2206 Analog Electronic Circuits II Sessional Credits : 0.75

Sessional based on the theory of course ECE 2205.

ECE 2213 Numerical Methods Credits : 3

Modeling, Computers and Error Analysis: Mathematical modeling and engineering problem solving, Programming and software, Approximations and round-off errors, Truncation errors and the Taylor series.

Roots of Equations: Bracketing Methods, Open Methods, Roots of polynomials. Linear Algebraic Equations: Gauss elimination, LU Decomposition and Matrix Inversion, Gauss-Seidel.

Curve Fitting: Least-square Regression. Interpolation: Interpolation with one and two independent variables, Formation of different difference table, Newton's forward and backward difference, Lagrange's interpolation.

Numerical Differentiation and Integration: Newton-Cotes Integration formulas, Integration of equations.

Optimization: One-dimensional Unconstrained optimization.

Numerical differentiation. Ordinary Differential Equations: Runge-Kutta Methods, Boundary-Value and Eigenvalue problems, Numerical solution of partial differential equations

ECE 2214 Numerical Techniques Sessional Credits : 1.5

Sessional based on the theory of course ECE 2213.

ECE 2215 Database Systems Credits : 3

Concepts of database systems: Files and Databases, Database Management Systems; Transaction management, Structure of a DBMS, Applications.

Entity-Relationship concepts: Entity types, Entity set, Attribute and key, Relationships, Relation types, Entity relationship, ER modeling, ER diagrams, Database design using ER diagrams, Enhanced Entity-Relationship (EER) model.

Normalization: Normal forms, Normalized Relations and Database performance; De-normalization.

Relational model: Structure of relational databases, Relational algebra, Relational algebra operations, Modification of the database, Introduction to views, Pitfalls in relational database design.

SQL: Data Definition Language, Data Manipulation Language, Basics of SQL, Query designing in SQL using aggregate functions and nested queries, Embedded SQL, Triggers, Procedures; Indexes; Declarative Constraints and Database Triggers.

Concurrency control: Lock based protocols, Timestamp based protocols, Validation based protocols, Deadlock.

Recovery system: Failure classification, Storage structure, Recovery and atomicity, Log-based recovery, Recovery with concurrent transactions, Advanced recovery techniques, RAID model.

Advanced database management systems: No SQL Systems, distributed systems, object-oriented System, Temporal, Database Security, Data Warehousing and Data Mining, Database Administration and Tuning.

ECE 2216 Database Systems Sessional Credits :1.50

Sessional based on the theory of course ECE 2215.

Math 2217 Complex Variable, Statistics & Transform Methods Credits : 3

Complex Variable : Complex number systems, analyticity, singularity, limits of continuity of a function and related theorems, Complex differentiation and the Cauchy-Riemann equations, mapping by elementary functions, Infinite series, Convergence, Line integration, Cauchy integral theorem, Cauchy integral formula, Liouville's theorem, Taylor's and Laurent's theorems, Singular points, Residue, Cauchy's residue theorem, Contour integration.

Statistics: Frequency distribution, mean, median, mode, and other measures of central tendency; standard deviation and other measures of dispersion; moments, skewness and kurtosis; elementary probability theory and discontinuous probability distributions- binomial, poisson, negative binomial, continuous probability distributions- exponential and normal distribution, characteristics, elementary sampling theory, estimation, hypothesis testing and regression analysis.

Harmonic Analysis and Laplace Transform: Periodicity, Fourier series, Dirichlet's conditions, odd and even functions, Fourier transforms and Fourier integral and their applications to solve boundary value problems. Laplace transforms, Inverse Laplace transforms, Solution of differential equation by Laplace transforms.\

Hum 2217 Industrial Management & Accountancy Credits : 3

Industrial Management: Management: Principle of Management, Management functions, Management skills, Authority & Responsibility, Span of control, Management by objective, Consultative management, Participative management, Decision Making, Manpower motivation. Human Resources Management: Manpower planning, Recruitment & Selection, Employee training & Development, Performance appraisal, Wages & Salary administration. Production Management: Plant layout: Definition, Basic layout types, Problem solving, Problem solving, Linear Programming. EOQ, Lead time, Safety stock, re-order point.

Accountancy: Basic accounting principles, Objectives of Accounting, Transaction, Double Entry systems, Accounts and its classification, Journals Cash book, Ledger, Trial Balance,

Financial statement. Cost Accounts & objectives; Costs; Classification, Preparation of cost sheet, Cost volume profit (CVP) analysis, Standard costing, Process costing

ECE 2200 Software Development Project II Credits : 0.75

Students will work in groups or individually to develop web based applications and design a web site by adding client side and server side scripting and interfacing the web applications to a database.