Circuit theory lab manual for eee

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Home > Graduates > Academics > Programs > Bachelor’s Degree in Computer Science and Engineering (BSCSE) A. Mission and Vision A.1 Mission and Vision of the institution NSU VISION: North South University will be and will remain a centre of excellence in higher education. It will gain national and global recognition and attract students, faculty and staff from all parts of the world. NSU MISSION: The mission of North South University is to produce qualified graduates in selected disciplines, who will have productive careers or choose to undertake advanced studies.Ã¨ Our students will be: Permanent Students with Good Leadership Skills More Skilled in Oral, Written and Electronic Communication Critical Thinkers with Well-Developed Analytical Skills Ethics and Socially Responsible Champions of Diversity and Tolerance Glob A.2 Mission and Vision of the ECE Vision Department The NSU Department of Electrical and Computer Engineering wishes to be recognized as a reference model for the production of high-level graduates, undertake research to address development challenges through ECE inventions and shape the creation of a ECE industry driven by innovation in developing economies to create high-paying jobs and improve the quality of life. ECE Mission The missions of the ECE Department of NSU are: To educate our students to meet high standards of excellence in Electrical and Computer Engineering with a view to professional careers and advanced studies. Create and disseminate new knowledge through basic and applied research in Electrical and Computer Engineering. Serving as a Resource of Electrical and Computer Engineering Skills Nationally, Regionally and Internationally Providing political and development leadership for the growth of innovation has brought the Electrical and Computer Industry to Bangladesh and other developing countries. B. Program Educational Objectives (PEO) B.1 PEO Statements The Bachelor of Science in Computer Science and Engineering (BSCSE) curricula are designed to provide the fundamental principles of engineering and science, and the broad foundation of general education essential for the continued professional growth of typical graduates. The overall objective of the BSCSE degree programme is to prepare graduates to succeed in their chosen career paths. Specifically, graduates of the program will be able to: PEO1- Competence: To excel as professionals in computer science and engineering based on the skills and knowledge of problem-solving, teamwork skills and communicative skills acquired through the program. PEO2-Enhancement: Participate in lifelong learning activities that enhance their professional and personal development through continuous studies including undergraduate studies, professional training and licentiate. PEO3-Engagement: Demonstrate conscious social justice, ethical role and leadership and and andB.2 Alignment of the PEOs with the Mission of the Institute: The objectives of the program were achieved within the framework of the mission of the North South University (NSU,), the mission of the School of Physical Engineering and Science (SEPS,) and the mission of the Department of Electrical and Computer Engineering. Table 1 shows how the educational objectives of the BSCSE programme are aligned with the NSU missions. Table 1: Relationship between NSU Mission Objectives and PEOs Mission Objectives NSU Program Educational Objectives PE1 Expertise PE2 Enhancement PE3 Engagement 1. Long-term students with good leadership skills X X X 2. More proficient in oral, written and electronic communication X 3. Critical thinkers with well-developed analytical skills X X 4. Ethically and socially responsible X 5. Standards of Diversity and Tolerance X 6.Globally Aware of Commitment to Social Justice and Sustainability X The objectives of the program are designed to produce graduates who will be well educated in the fundamentals of computer science and engineering, mathematical principles and will also be able to continue professional development throughout their lives. Due to economic globalization, interdisciplinary collaboration and communication skills are becoming increasingly important. As such, we prepare graduates to function ethically and responsibly in a different environment. The program is structured to provide a curriculum and associated assessment processes that address the educational objectives of the program as described in Table 2. Table 2: Relationship between Curriculum Elements and PEO Programme Curriculum Elements Educational Objectives PE1- Competence PE2-Enhancement PE3-Engagement PE1 PE2 PE3 Basic Science, Mathematics and General Education # Option Area Courses # Laboratory Experiments ***************** ** ** Note: * slightly, *moderately, * Highly relevant C.Program constituents: The components of the engineering program include the following: Employers of program graduates Current university students Employers of faculty Graduate Program: The employers of our graduates are the main constituents of the program. The objectives of the programme are primarily based on the needs of employers. The department has a plan to periodically screen donors for of our graduates. Most of the employer’s input comes from recruiters who visit campus, especially during career fairs. Career Services department asks Career Fair industry representatives to fill out surveys that provide information for the program. Students are very actively encouraged to share their perspectives and tips for the program through student surveys and the human exchange promoted by the student newsletter and personal visits Former pupils from the faculty of the department. The annual meeting of the department provides an opportunity for discussion and feedback from pupils. The department has a plan to periodically check students. Current university students: University students are constituents of the program. Their parents and their families are considered constituents, although indirectly, due to their natural interest in the quality of the program. The chairman of the department meets with the Student Advisory Board (SAB) when necessary, but at least once a year to learn about the problems and issues faced by students. SAB is very active both in expressing concerns and in suggesting solutions to problems and recommendations for improvements. The student constituency is also consulted through graduation surveys and exit interviews. NSU departmental and non-departmental faculties are a component of the program. The faculties are involved in training courses for professional development, workshops, seminars, conferences and publications. The faculty also participates in various workshops and meetings related to the development of curricula and engineering accreditation. A.Program Outcomes (POs) A.1 PO Statements The educational results of BSCSE program students are adapted from (a) to (l) BAETE preferred results as well as the results of the program defined by the Computing Accreditation Commission (CAC) and ABET Engineering Accreditation Commission (EAC). At the end of the BSCSE course, students will demonstrate the following results (a) – (n): PO1 Engineering knowledge: Apply knowledge of mathematics, sciences, engineering foundations and engineering specialization to the solution of complex engineering problems PO2 Problem analysis: Identifying, formulating, researching literature and analyzing complex engineering problems and reaching conclusions based on the first principles of mathematics, natural sciences and engineering sciences. PO3 Design/development of solutions: Design of solutions for complex engineering problems and design of components or systems processes that meet specific needs, taking into account public health and safety, as well as cultural, social and environmental concerns. PO4 Investigation: Conduct surveys on complex issues, taking into account the design of experiments, analysis and interpretation of data and the synthesis of information to provide valid conclusions. PO5 Modern use of tools: Create, select and apply modern techniques, resources and IT tools, including prediction and modeling, to complex engineering activities, including limits. PO6 The engineer and society: Apply reasoning based on contextual knowledge to assess social, health and health issueslegal and cultural and consequent responsibilities related to professional engineering practice. PO7 Environment and Sustainability: Understanding the Impact of Professional Engineering Solutions in Social and Environmental Contexts and knowledge and the need for sustainable development. PO8 Ethics: Apply ethical principles and engage in professional ethics, responsibilities and standards of engineering practice. PO9 Individual work and teamwork: Effective operation as an individual and as a member or leader of different teams as well as in multidisciplinary contexts. Communication PO10: Effectively communicate on complex engineering activities with the engineering community and society in general. Being able to understand and write effective reports, design documentation, make effective presentations and give and receive clear instructions. PO11 Project management and finance: Demonstrate knowledge and understanding of engineering and management principles and apply them to their work as a member or leader of a team for project management in multidisciplinary environments. PO12 Permanent learning: Recognize the need and preparation and the ability to engage in independent permanent learning in the broader context of technological change. PO13 Contemporary: a knowledge of contemporary issues PO14 Software Method: an ability to apply the principles of design and development in the construction of software systems of various complexity A.2 Alignment of the results of the program to the educational objectives of the program The following Table 3 shows the relationship between the educational objectives of the program and the results of the program (a) to (n) Table 3:Â Mapping between the results of the PO program and those of the PEO program (P) Educational Objectives Programme PEO 1: PEO Competence 2: PEO Improvement 3: Commitment 1. Â Â Â PO1 Technical Knowledge X 2.Â Â Â Â Â PO2Â Problem analysis X X 3.Â Â Â Â Â Â PO3 Design/development of X solutions X 4.Â X X X 6.Â Â Â Â PO6 Â Â Â PO7 Environment and sustainability X 8.Â Â Â PO8 Ethics X 9.Â Â Â Â Â Â Â PO9 Individual work and teamwork X 10.Â Â PO10 Communication X X X X 11.Â Apply the knowledge of mathematics, sciences, engineering foundations and an engineering specialization to the solution of complex engineering problems a1. Â Â Â Â Â Â Â Â Â Â Reminds the knowledge of mathematics, science and engineering to solve engineering problems a1.Â Â Â Â Â Select the appropriate knowledge to solve computer and engineering problems a2.Â Â Â Apply the fundamental knowledge of the computer system (Scheduling methods, Data structures, Algorithms, Computer architecture, Microprocessor, Basic electronic measurement, Basic circuit analysis, Digital devicesb) Ã¨ PO2 Problem Analysis: Identify, formulate, research literature and analyze complex engineering problems and reach proven conclusions using first mathematics, natural sciences and engineering. b1. Identify the definitions, domain and requirements of problems b2. Formulate solutions to a given engineering problem b3. Research and identification of required knowledge related to problem b4. Analyze alternative solutions to a given problem, select and implement the desired solution c) PO3 Solution Design/Development: Design solutions for complex engineering problems and design system components or processes that meet specified needs with appropriate consideration for public health and safety, as well as cultural, social and environmental concerns. c) PO3 Solution Design/Development: Design solutions for complex engineering problems and components of the design system or processes that meet specified needs. 1. Definition of the specifications and requirements of the system/subsystem, component or process c2. Consider alternative projects and choose the optimal c3 solution. Consideration of technical and non-technical constraints such as environmental, social, political, ethical, health and safety and sustainability in the design process. c4. Assess whether the design solutions meet the desired need c5. Consider any applicable standards in design c6. Maintain the systematic and logical design approach to complete the project d) PO4 Investigation: conduct investigations of complex problems, consider design of experiments, analysis and interpretation of data and synthesis of information to provide valid conclusions. d1. Design and create experiments. d2. Conducting experiments and carrying out measurements. d3. Detect experimental failures and solve d4 problems. Analyze the data and interpret the results d5. Identify the key components and algorithms needed for a solution e) PO5 Modern use of tools: Create, select and apply appropriate techniques, resources and modern engineering and IT tools including prediction and modeling to complex engineering activities with an understanding of limitations. e1. Use of an appropriate technique to solve computational and engineering problems. e2. Skill required to solve the calculation problem. e3. Use of modern tools, simulation software or hardware design tools to solve computational and engineering problems f) PO6 The Engineer and Society: Applying reasoning informed by contextual knowledge to assess social, health, safety, legal and cultural issues and the consequent responsibilities related to the practice of professional engineering f) 1. Have the contextual knowledge to assess social, health, safety, legal and cultural issues in engineering solutions. f2. Consideration of non-technical issues such as social, health, legal and cultural issues in the development of the engineering solution g) PO7 Environment and Sustainability: Understanding the impact of professional engineering solutions in social and environmental contexts and knowledge and the need for sustainable development. g1. Understand the impact of engineering solutions to societyEnvironment g2.Ã¨ Ã¨ Ã Ã¨ Understanding the need for sustainable solutions to an engineering problem g3.Ã¨ Ã¨ Ã¨ Validating the sustainability of the solution to an engineering problem h) Ã¨ PO8 Ethics: Applying ethical principles and committing to professional ethics, responsibilities and practices standards of engineering practice. h1.Ã¶ ÃÃÃÃÃÃÃ Â of an engineering problem i) Ã¨ Ã Ã¨ PO9 Individual work and team work: Effective functioning as an individual and as a member or leader of different teams and in multidisciplinary contexts. i1.Ã¨ Ã¨ Ã¨ To fulfill team tasks and contribute to working in a multidisciplinary team environment i2.Ã (j) Ã¨ Ã¨ Ã¨ PO10 Communication: Communicate complex engineering activities effectively with the engineering community and with society at large. Be able to understand and write effective reports, project documentation, make effective presentations and give and receive clear instructions j1.Ã¨ Ã¨ Ã¨ Write technical reports preparation tasks, tasks etc. j2.Ã¨ Ã¨ Ã¨ Preparing multimedia presentations, posters j 3.Ã© Ã PO11 Project management and finance: Demonstrate knowledge and understanding of engineering and management principles and apply them to your work as a member or leader of a team for project management in multidisciplinary environments. k1.Ã© Ã Â Demonstrate the phases of development of engineering projects k4.Ã¨ Consideration of Economic and Financial Aspects of Engineering Projects l) Ã Analyze and evaluate computer and engineering information and manage problems for which the required knowledge is not complete. m) PO13 Contemporary Issues: m2.Ã¨ Identify recent labour market trends related to computer programs Identify other non-technical issues such as political, socio-economic, sporting, cultural etc. at national level, global levels n) PO14 software method: an ability to apply design and development principles in the construction of software systems of various complexity n1. Understand the software/system lifecycle. n2. Write documentation for each step of the development cycle. Curriculum The BS in Computer Science and Engineering undergraduate course requires a minimum of 130 credits in about 4 years (12 Semesters) to complete. The breakdown of the total credit hours of 130 semesters is as follows: Category Credit University Core 34 School of Engineering and Physical Sciences (SEPS) Core 38 CSE Maggiore Core 42 CSE Major Capstone Design Project 4 CSE Principals Elective 9 Open Electives 3 Intern/Co-op (minimum 8-12 weeks) Total Credit 130 Credits Introduction to the Physics Laboratory (CES) 1 ** Account towards General Education CES Basic Courses (42 credits) CES 173 Discrete Mathematics 3 CES 215 Programming Language II 3 CES 215Llog Programming II Laboratory 1 CES 225 Data Structures and Algorithm 3 CES 225L Data Structures and Algorithm Lab 0 CSE 231 Digital Logic Design 3 CSE 231 L Digital Analog Design Lab331L Microprocessor Interfacing & Emb. Sys Laboratory. 0 CSE 373 Design and analysis of algorithms 3 CSE 332 Organization and computer architecture 3 CSE 425 Programming language concepts 3 CSE Major Capstone Design (4 Credits) CSE 299Â Junior Design Project I 1 CSE 499A Â Senior Design Project I 1.5 CSE 499B Â Senior Design Project II 1.5 Stage/Co-op Â Â Â CSE Course 498 Stage/Co-op (minimum 8-12 weeks There is a 3 optional open credits, which a student can choose to take from any discipline. However, similar courses already followed in the core or other categories will not be counted Specialized Courses CSE (9 Credits) Specialised elective courses will provide students with a thorough understanding of a particular area of interest. Students must follow a minimum of three courses (9 credits) to meet the requirements of Specialized Courses. Students must follow at least two courses (6 Credits) from one of the following specialized optional courses and the remaining optional course (3 Credits) can be chosen from any route. CSE Specialized Elective Course List: Specialised elective courses will provide students with a thorough understanding of a particular area of interest. Students must attend at least three courses (9 credits) to meet the requirements of Specialized Courses. Students must follow at least two courses (6 Credits) from one of the following specialized optional courses and the remaining optional course (3 Credits) can be chosen from one of the following paths. CSE 418 Computer Science and TechnologyArray Bioinformatics CSE 496 Special Themes University Main Course Code and Name ENG 102 Introduction to Composition Type Credit Hours 3 Prerequisites PrerequisitesCourse Coordinator Objective & Outcome Form Download Workshop Manual Downloads Development of integrated language skills with special attention to the mechanics of the writing process and the study of grammar with special attention to syntax. Write unified and coherent paragraphs with subject sentences and control ideas. Code and Name ENG 103 Intermediate composition Type of composition Credit Hours 3 Prerequisites ENG 102/Waiver Course coordinator Objectives and Results Downloads Laboratory manual Downloads Practice of academic reading and especially of writing, with particular attention to exhibition essays. The emphasis will be on the structure and editing of the essays. Types of essays include narrative, descriptive, process, cause and effect, and comparison and contrast. Code and Name ENG 111 Public Speaking Type Credit Hours 3 Prerequisites ENG 103 Coordinator Course Objective & Outcome Form Download Lab Manual Download This course introduces students to the basic principles and practices of rhetoric. They will learn the art of public speaking which includes persuasion, creative analysis and synthesis of topics, organization, language, delivery, audience awareness and adaptation, and the use of supporting materials. Speech types will include informative, persuasive, impromptu, inspiring and special occasions. Code & Name PHI 101 Introduction to Philosophy Credit Type Hours 3 Prerequisites None Course Coordinator Objectives & Results Download Module Workshop Manual Downloads An exploration of some fundamental philosophical topics such as the nature of the mind and its relationship with the brain, knowledge, free will, justice, the brain, the brain and the brain. Existence of God and Mortality. It focuses particularly on the nature and function of philosophy. The course may focus wholly or partly on the work of one or two philosophers. Code and Name PHI 104 Introduction to Ethics Type of Ethics Credit 3 Hours Prerequisites None Coordinator Course Objectives & Results Download Module Laboratory Manual Downloads This course introduces students to the main ethical theories (virtue ethics, utilitarianism, deontology, etc.) of the Western philosophical tradition, examines the debate between universals Moral relativism and moral relativism and discusses various methods of analysis applied to contemporary moral problems, e.g. abortion, assisted reproduction techniques, organ transplantation, affirmative action, the death penalty, euthanasia, war and violence, gender roles, human rights, environmental degradation. Where appropriate, a multicultural perspective on ethical theory and moral problems will be examined. Code and Name LBA 101 Bangladesh Culture and Heritage Heritage Heritage Type Credit Hours 3 Prerequisites None Course Coordinator Objective and Results Download Module Laboratory Manual Downloads Deals with the cultural and political heritage of Bangladesh and familiarizes students with the cultural environment of the people to make them aware of the national identity of Bangladesh. Topics include the ethnic origin of people in Religious faiths, festivals, colonial heritage; culture baul; creativity in the arts and crafts; evolution of nationalism in the Eastern Bengal Pre and Post-partition, Language Movement, struggle for the autonomy and independence of Bangladesh. Code and Name LBA 102 Introduction to World Civilization Credit Type 3 Hours Prerequisites No Coordinator Course Objective and Form of Course Downloads Workshop Manual Download Focus on the values and importance of the study of the history of human civilization, especially in Egypt, Mesopotamia and Babylon; Harappa civilization and the Gandhara civilization, ancient Chinese culture and civilization; ancient Greek civilization, Muslim civilization and their influence on the European Renaissance, scientific innovations, cultural progress and religious reform. The rise of powerful national states in Europe and North America and the impact of the scientific and technological supremacy of the West on so-called backward communities are also studied. Code and Name POL 101 Introduction to Political Science Credit Type Hours 3 Prerequisites No Coordinator Course Objective & Outcome Form Download Laboratory Manual Downloads Provides students with some of the key concepts of political sciences, such as state, sovereignty, constitutionality, political culture, democracy, political party, civil society and the functioning of major political systems including Bangladesh. Address issues, institutions and structures that match our daily lives and shape our political behavior and perceptions as political animals. Code and Name POL 104 Introduction to Governance Type Credit Hours 3 Prerequisites No Coordinator Course Objective & Outcome Form Download Laboratory Manual Download Introduces students to the concept and various aspects of public governance and their relevance in Bangladesh. The topics covered include: responsibility, transparency, participation, freedom of information, good judicial system, capacity development; Bangladesh's main governance issues; role of civil society (including media, NGOs, etc.); relationship between better governance and private sector growth; donors' agenda on governance; corruption of the public sector; implications of e-governance. ECO Code and Name 101 Introduction to Microeconomics Credit Type Hours 3 Prerequisites No Coordinator Course Objective & Results Module Downloads Laboratory Manual Download Introduction to the methods and principles of microeconomics. The topics covered are: markets; consumer behaviour theory; production theory; production costs and market structure; efficiency in allocation and production. ECO Code and Name 104 Introduction to Macroeconomics Credit Type Hours 3 Prerequisites No Coordinator Course Objectives & Results Module Download Laboratory Manual Download That's what this is.introduces the principles of macroeconomic analysis, its analytical methods with current institutional and empirical problems. Topics include different national assessment methods accounting with particular emphasis on the economy of Bangladesh; issues relating to unemployment, inflation; determination of production, price, money and banking. It also provides an introductory account of monetary and fiscal policies; budget deficits and trade; and exchange rate. Code and name SOC 101 Introduction to the type of sociology Credit hours 3 Pre-requisites Course Objective and result module Download Laboratory Manual Download Provides students with an understanding of primary phenomena, concepts, issues and practices associated with sociology. The themes include explaining how societies grow and change; the reciprocal effects of economic, political, family and scientific institutions on each other and on individual life; changes and social conflicts, problems of bureaucratic growth and planned and unplanned social change. ENV Code and Name 203/ GEO 205 Introduction to Bangladesh Type Geography Credit Hours 3 Pre-requisites Objective Course & Outcome Form Download Laboratory Manual Download Basic geographical concepts and fundamental themes. Geophysical and socio-economic characteristics of Bangladesh; introduction to physical geography; forms of land; weather and climate; geography of the population; cultural and political context; natural resources; economic geography and urban regional concepts; spatial interaction between human and natural environment. Code and name ANT 101 Introduction to the type of anthropology Credit hours 3 Pre-requisites Coordinator course Objective and result module Download Laboratory Manual Download Explains the origin of culture and human society and addresses the concepts of phenomena and fundamental procedures of cultural change, the impact of culture on personality development, human relations structures etc. Students are also introduced to basic research methods that help them develop primary skills to study human behavior. Code and name BIO 103 Biology I Type of Credit Hours 4 Prerequisites No Coordinator Course Objective & Exit Module Download Laboratory Manual Download Introduction to Biology: Field, Biology, What is life? and Characteristics of living things; Chemistry of life: Atoms & elements, Molecules & bonds, Electronegative, Polar & non-polar, Diffusion & osmosis, pH; Biological Macromoleculars: Carbohydrate, Lipide, Nucleic Proteins and Acids, central dogma of molecular biology; Cellular structure and function: Description of organs and level of organization; Mobile play: Cellular cycle, Cellular division, Mitosis, Meiosis; Energy of life: Cellular breathing (anabolism and catabolism); Definition and characterization of enzymes; Photosynthesis; Biological diversity: Evolution and natural selection, origin and diversification of life on earth; Evolution of microbes andClassification; Human Physiology: Exostasis, Digestive System Food and nutrition; diabetics, cancer and heart disease. Laboratory work: laboratory: ph of food/sugar/beverages samples, observation of a single cell under optical microscope and identification of organelles, observation of bacterial growth from microbial plating, observation of antibiotic activity of saliva/lacrime, blood group, determination of sieric glucose by glucose-oxidase method. Engineering school and physical sciences (seps) courses core code and name mat 116 Pre-Calculus type credit hours 3 prerequisites no co-ordinator course objective & results form download manual lab topics include sets, system of real numbers, algebraic expressions, equation systems, functions and relationships, square functions, syntetic division, zeros of a polynomial function, exponential functions and additional logarithmics prerequisite: math of high school. code and name mat 120 Calculus-I type credit hours 3 prerequisites mat 116 coordinator of the course objective and module of the course download manual lab download covers basic calculation and analytical geometry. coordinates, charts and lines; functions and limits; differentiation; application of differentiation; integration; Logarithmic and exponential functions. code and name mat 125 type of algebra linear credit hours 3 prerequisites mat 116 or an appropriate score of the test coordinator course goal & outcome form download lab manual download concepts and basic techniques of linear algebra; includes a system of linear equations, matrices and inverses, determinants and a look at vector spaces, autovalues and motors, markov processes. code and name mat 130 calculus ii type credit hours 3 prerequisites mat 120 course coordinator objectives and results manual download module lab download according to course calculation and analytical geometry. applications of the defined integral; hyperbolic functions, inverse trigonometric and hyperbolic functions; integration techniques; improper integrals: rule Thereâ¢Hospitals; analytical geometry arguments; polar coordinates and parametric equations. code and name mat 250 calculus ii type credit hours 3 prerequisites mat 130 coordinator of the course objective and form of the course download manual lab download endless series; three-dimensional vector spaces; vector functions; partial derivatives: functions of two variables, limits and continuity, partial derivatives, differentiability and chain rule, directional and gradient derivatives, tangent planes and normal, maximum and minimum carriers of the functions of two variables. multiple integrals: double integrals, double integrals on non-rectangled regions, double integrals in polar coordinates, triple integrals, centroid, baricentre, triple integrals in cylindrical and spherical coordinates, change ofin multiples. Topics in vector calculus: Vector fields, line integrals, GreenÃÂ¢Ã¬Â¢Ã¢Ã¬Â¢Â¢Â¢ÂÂ ¢Â Â Â Â Â Â Â Â Â Â theorem, stokes theorem. Code and Name MAT 350 Mathematical Engineering Type Credit Hours 3 Prerequisites MAT 250 Course Coordinator Objective & Outcome Module Download Laboratory Manual Download First and Second Order Differential Equations. Ordinary first-order differential equations, linear differential equations with constant coefficients, Laplace transformations, power series solutions of differential equations, Bessel functions. Code and Name MAT 361 Probability and Statistics Type of Credit Hours 3 Prerequisites MAT 250 Course Coordinator Objective & Outcome Form Download Laboratory Manual Download Concept of data and variables, collection, tabulation, representation. Measures of central trends â medium, median, mode, etc. Dispersion measurements â variance, standard deviation. Random variables and their probability function, binomial probability distribution, mathematical expectations and moment generating functions, joint distribution of two random variables, stochastic independence, continuous random variables, normal distribution, central limit theorem. Programming assignments will be part of this course. Code and Name PHY 107 Physics Type Credit Hours 4 Prerequisites MAT 120 and Physics in HSC/A Level. Coordination Program Objective and Result Module Download Laboratory Manual Download Vectors, Kinematics, Newtonâ¨TMs Law, Energy and Momentum Conservation, Rotational Kinematics, Angular Moment Conservation, Collision, Compton effect, Nuclear Theory, DeBroggle, Oscillations and Waves, Gravitation. The laboratory component includes: Ã Measurement of the area of length and volume of regular-shaped solids using vernier clamp, screw gauge micrometer and spherometer. This simple experiment will introduce students to precision in measurements, error and error propagation. This knowledge is of fundamental importance, which will be applied in all subsequent experiments, free fall experiments. To find the time of fall over a given distance and determine the acceleration of free fall. Apparatus required: Light gates and timer, to study the balance of a rigid body. Equipment required: power table, pulleys and weights, To study straight motion on an inclined plane. Apparatus: table, electronic timer or lobster timer, light gate etc. Plot of v-t and a-t charts, to find the acceleration of free fall using Atwood’s machine. Apparatus: pulley, known masses and electronic timer, Measurements of static and dynamic friction coefficients. Apparatus: wooden blocks, spring scales, known weights etc., movement of a bearing ball through a resistive medium. To measure the viscosity of glycerin from the Stokes law. Apparatus: measuring cylinder, stop clock, steel ball bearings, meter rule and thermometer, harmonic movement 1. Measurement of g from simple pendulum, simple harmonic movement 2. Vibration of a vertical spring-mass system, measurements of the spring constant and acceleration of free fall, Study of Wet and Forced Harmonic Equipment: trolleys, motor, springs, motion sensors etc., Rotational motion. Measuring the moment of inertial of a flywheel, Foucaultâ¢Â¬Âs pendulum and the effect of rotation of the Earth, To study the rotational motion of a cylinder down an inclination. The objective of this experiment is to familiarize with the relationships involving angular acceleration and moments of inertia, Momentum and kinetic energy conservation in elastic collisions. Equipment: track, gliders, light gates, timers etc. Study of one-dimensional inelastic collisions. Equipment: airstrip. Code and Name PHY 108 Physics II Type Credit Hours 4 Prerequisites MAT 240, PHY 107 Course Coordinator Objective and Result module Downloads Laboratory manual Downloads Electric Charge, CoulombÃ¢Â¬Â¢Âs Law. Electric field: electric field lines, electric field lines due to a point charge, electric field lines due to an electric dipole, electric field lines due to a charge line, electric field lines due to a charged disk. Gauss’s law: Gauss’s law in cylindrical, planar and spherical symmetries. Electrical potential: Equipotential surfaces, Potential due to an electric dipole. Capacities: Parallel and serial capacitors, Capacitors with dielectric. Electric Current, Current Density, Resistivity and Resistivity, OhmÃÂ¢s Law. Circuits, Work, Energy and EMF, Single Loop Circuits, Potential Differences, Multiloop Circuits, RC Circuits. The Magnetic Field, the Law of Ampere, Solenoids and Torroids, Faraday’s Law of Induction, Alternative Currents, Maxwell’s Equations. The components of the laboratory will cover the experiments related to the topics covered in the theoretical part. Code & Name CHE 101 Chemistry I Type Credit Hours 4 Prerequisites None Coordinator Course Objective & Outcome Form Download Laboratory Manual Downloads This course covers the basics of chemistry. Topics include measurements, atomic and molecular structure, periodicity, chemical reactions, chemical bonding, stoichiometry, thermochemistry, chemical and kinetic equilibrium, laws and gas solutions. This course is suitable as a basic chemistry course or as an elective science for students who have a degree in science, engineering or math. Once completed, students will be able to- Define chemistry as the study of the subject, apply the basic concepts in their future studies and apply safe lab skills to solve problems in a cooperative environment. Laboratory work: Introduction of the analytical balance, verification of the law of defined proportions, estimation of the Avogadro number, standardization of HCl, acid-base titration, determination of density. Code and Name EEE 452 Engineering Economics Type Required, Lecture Credit Hours 3 None Course Coordinator Objective and Outcome Module Download the workshop manual Download Course summary: Time value of money and the mathematics of finance, Figures of merit (NPV, IRR, BC, etc.) in making engineering and business planning decisions. After taxes imposed (ATA) using the economic account format. Risk analysis and evaluation. Financial accounting. It focuses on the key aspects of modern management of the telecommunications and IT sector, such as service engineering, billing, human resources, management, maintenance, planning, customer relations, supply chain, evolving technologies, regulatory policies, solutions engineering, outsourcing, strategies development. Principles of management of engineering projects. Â Course objectives:Â Â The objectives of the course are to interpret the principles of the economy in the context of engineering, technology and innovation management explain the evaluation of the production function, and to infer the role of technology on the market production and operation economy to illustrate the life cycle of technology, the nature of innovations, models of dissemination of innovation, models of dissemination of innovation and management decisions to address them. explain the design economy for production (DFM) explain the concept of financing such as risk capital financing and risk capital, time value of money and assessment of intangible assets, and relate them to the management of technological and innovative projects. illustrate the project management principles, including planning, programming and allocation of resources, project budget cost control and contract management. EEC Code and Name 110 Engineering Design (EEE 154) Credit Type 1 Hours Requirements No Coordinator Course Objective and Form of Course Downloads Laboratory Manual Download Introduction: lettering, numbering and header; flat geometry. Projection (solid geometry). Development and true form: cube, pyramid, cone, prisma; section and true form. Isometric design, oblique design. Plan, elevation and section of engineering structures; Details of beam reinforcement, columns, suns, stairs, etc. Introduction to CAD (Computer Aided Design). Code and Name CSE 115 Programming language I Type Core, Engineering, Lecture Credit Hours 3 Prerequisites No Coordinator Dr. Ahsanur Rahman Course Objective & Outcome Form Download Lab Manual Download Course Summary: This is the first course in computer programming and is required for all computer and engineering courses. This course introduces the basic concepts of structured programming. The topics covered include computer foundations and numerical systems, algorithms and flow diagrams, basic programming constructs: syntax and semantics of a superior language, variables, expressions, operators, simple I/Os on consoles and files, conditional and iterative control structures, passage of functions and parameters, dynamic allocation of memory; structuresarrays, structures, strings and processing; and testing and debugging strategies. Course Objectives: The objectives of this course are to learn the basic notions of computers, hardware, hardware, hardware,use an integrated development environment (IDE) to write, compile and execute programs that involve a small number of source files, use with expertise key programming elements such as: variable statement, data types and simple data structures (arrays, strings and structures), decision-making structures, loop structures, functions/methods, input and output for consoles and text files, apply debugging techniques and tests to identify and resolve errors and determine the effectiveness of a program, know professionalism, deontological codes and responsible conduct. CSE 115L Programming language I Lab Type Core, Engineering, Lab Credit Hours 1 Requirements No Coordinator Course Objectives and Results Module Downloads Lab Manual Download Course Summary: This is the first computer programming course and is required for all computer and engineering courses. This course introduces the fundamental concepts of structured programming. The topics covered include computer foundations and numerical systems, algorithms and flow diagrams, basic programming constructs: syntax and semantics of a higher-level language, variables, expressions, operators, simple I/Os on consoles and files, conditional and iterative control structures, passage of functions and parameters, dynamic allocation of memory; basic data structures: arrays, structures, strings and processing; and testing and debugging strategies. Course Objectives: The objectives of the course are: learning the basic notions of computers, hardware, software and numerical systems, familiarizing with the basic terminologies used in computer programming, skillfully transforming problem solutions into a standard programming language, using an integrated development environment (IDE) to write, compile and run programs that involve a small number of source files, use skillfully basic programming elements including: variable statement, data types and simple data structures (arrays, strings and structures), decision structures, loop structures, functions/methods, input and output for consoles and text files, apply debugging techniques and tests to detect and resolve errors and determine the effectiveness of a program, know professionalism, ethical codes and responsible conduct. Main Courses Code and Name CSE 215 Programming Language II Type Core, Engineering, Lecture Credit Hours 3 Prerequisites CSE173 Programming Language I Coordinator Course Objective & Outcome Form Download Lab Manual Download Course Summary: This course introduces basic concepts and object-oriented programming techniques. Real computer programs are built by applying object-oriented programming concepts and using an OOP language. Java ischosen as a programming language in this course. The following topics are dealt with in this course: Java syntax with elementary programming, primitive data types, strings, operators, instructions, arrays and methods, introduction to OOP, classes and objects, builder, polymorphism, abstract classes and interfaces, IO file operations, exception management in Java, GUI, multithreading, generic and related concepts. Course Objectives: The objectives of the course are to acquire basic knowledge of elementary programming such as variables, conditional and iterative execution, arrays and methods in Java; to understand the attributes of object-oriented programming (encapsulation, polymorphism, etc.) and OOP concepts as an overload method, overwriting method, static and dynamic binding, class abstract, interface, visibility modifiers; design a programming solution using the object-oriented programming concept, and apply exception management concepts, GUI graphical user interface, event-driven programming, multithreaded programming, generic in Java; introduce Java SDK and Java IDE tools to develop Java applications with debugging; working in a project team to support as a team member in the development of applications. Laboratory type Required, Engineering, Lab Credit Hours 1 Prerequisites CSE173 Programming language I Coordinator Course Objective & Outcome Form Download Laboratory Manual Download Course Summary: This course introduces the basic concepts and techniques of object-oriented programming. Real computer programs are built by applying object-oriented programming concepts and using an OOP language. Java is chosen primarily as a programming language in this course. The following topics are dealt with in this course: Java syntax with elementary programming, primitive data types, strings, operators, instructions, arrays and methods, introduction to OOP, classes and objects, builder, polymorphism, abstract classes and interfaces, IO file operations, exception management in Java, GUI, multithreading, generic and related concepts. Course Objectives: The objectives of the course are to acquire basic knowledge of elementary programming such as variables, conditional and iterative execution, arrays and methods in Java; to understand the attributes of object-oriented programming (encapsulation, polymorphism, etc.) and OOP concepts as an overload method, overwriting method, static and dynamic binding, class abstract, interface, visibility modifiers; design a programming solution using the object-oriented programming concept, and apply exception management concepts, GUI, event-driven programming, programminggeneric Java tools; introduce Java SDK and Java IDE tools to develop Java applications with debugging; work in a project team to assist as a team member in developing applications. Code and Name CSE 173 Discrete Mathematics Type Core Core 3 hours Prerequisites CSE 115, CSE 115L Course Coordinator Objective & Result Module Download workshop manual Course summary: This course introduces students to discrete mathematical structures. Topics include sets, relations, functions, propositional and predicate logic, rules of inference, test methods, theoretical concepts of number such as mod, congruence, GCD, LCM, etc., mathematical induction, basic counting techniques such as product rule, sum rule, inclusion and exclusion principles, division rule, permutation The combination, the principle of pigeon-hole, etc., as well as the introduction to graphs, the introduction to relapse sequences, relapse ratios. Course Objectives: The objectives of this course are to construct mathematical arguments using propositions, predicates, logical connective, quantifiers, and rules of inference and verify them, select the appropriate test methods (e.g. direct test, contradiction test, contradiction test, proof of existence, etc.) to build simple mathematical tests, identify types and properties of sets, relationships, functions, graphs and demonstrate simple mathematical properties of them describe This course is based on an introduction to the theory and practice of data structuring techniques. Topics include internal data representation, abstract data types (ADTs), stacks, queues, list structures, recurring data structures, trees, regraphs and networks. The concept of object orientation as a technique of data abstraction will be introduced. Course Objectives: The objectives of this course are to introduce the basic data structures for storing and retrieving ordered or unordered data using arrays, linked lists, binary trees, cumulations, charts and hash tables. Introduce the concept of problem domain analysis and leverage domain functionalities to improve the efficiency of data management. data structures. develop the concept of asymptotic analysis using Big-O techniques to compare different algorithmic solutions. Code & Name CSE 225L Data Structures and Algorithms Laboratory Type Credit Hours Mandatory 0 Prerequisites CSE 215 (Computer Programming II) Course Coordinator Objective & Outcome Form Download Laboratory Manual Course summary: This course is based on an introduction to the theory and practice of data structuring techniques. Topics include:data representation, abstract data types (ADTs), stacks, queues, list structures, recurring data structures, trees, regraphs and networks. The concept of object orientation as a technique of data abstraction will be introduced. Course Objectives: The objectives of this course are to introduce the basic data structures for storing and retrieving ordered or unordered data using arrays, linked lists, binary trees, cumulations, charts and hash tables. Introduce the concept of problem domain analysis and leverage domain functionalities to improve the efficiency of data management. data structures. develop the concept of asymptotic analysis using Big-O techniques to compare different algorithmic solutions. Code & Name CSE 231 Digital Logic design Core Type, Engineering, Lesson Credit Hours 3 Prerequisites CSE173 Discrete Mathematics Coordinator Course Objective & Outcome Form Download Lab Download Manual Course Summary: This course provides an introduction to logic design and basic tools for designing digital logic systems. A basic idea of number systems will be provided, followed by a discussion on combined logic: logical gates, Boolean algebra, minimization techniques, arithmetic circuits (antenna, subtractions), basic digital circuits (decoders, encoders, multiplexers, turn registers), programmable logic devices (PROMs) PAL, PLA). The course will then cover sequential circuits: flip flops, state transition tables and diagrams, state minimization, state machines, design of synchronous/asynchronous counters, design of RAM/ROM. An introduction to programmable logic will also be provided. Manual experience will be provided through the project on the design of a sequential logic system. This course has a separate mandatory lab session every week as CSE 231L. Course Objective: The objectives of this course are to introduce the operation of Boolean logic and Boolean Algebra to teach students how to use Boolean Algebra and K-maps to realize minimum/optimum dual-level combined circuits to exposed students in the process of introductory design of combined circuits and sequential circuits to teach latin operation flip-flops, counters and registers. to explain how to analyze and design sequential circuits built with various flip-flops. to introduce using the simulation tool for digital system design. Code & Name CSE 231L Digital Logic design Lab Type Required, Engineering, Lab Credit Hours 0 Prerequisites CSE173 Discrete Mathematics Coordinator Course Objective & Outcome Module Download Laboratory Manual Course Summary: This course provides an introduction to logic design and basic tools for designing digital logic systems. A basic idea of the systems will be provided numbers, followed by a discussion on the combined logic: Logical gates, boolean algebra, minimization techniques, arithmetic circuits (antenna, subtraction), basic digital circuits (decodri, encoders, multiplexers, turn registers), programmable logical devices (PROM, PAL, PLA). The course will then cover the sequential circuits: sequential:state transition tables and diagrams, state minimization, state machines, synchronous/asynchronous meter design, RAM/ROM design. An introduction to programmable logic will also be provided. Practical experience will be provided through a project on the design of a sequential logic system. This course has a separate mandatory lab session every week as CSE 231L. Course Objective: The objectives of the course are to introduce the workings of Boolean logic and Boolean algebra to teach students how to use Boolean algebra and K-maps to create minimum/optimal dual-level combined circuits for students exposed to the process of introductory design of combinational and sequential circuits for teaching how locks, flip flops, bankers and registers work to explain how to analyze and design sequential circuits built with various flip flops. to introduce the use of simulation tools for the design of digital systems. Code and Name CSE 299 Junior Design Course Type Core Credit Hours 1 Prerequisites Completion of 60 credits Course Coordinator Objective and Module Downloads Laboratory Manual Downloads Course summary: This is an intermediate level design course, after a student has gained enough experience in programming, algorithms, data structures up to 200 courses of study. basic level, mathematics and basic courses. This “Junior Design Course” involves multidisciplinary teams of students who build and test IOT devices, websites, mobile applications (IOS and Android) or engineering processes. Design of projects selected from proposals submitted by students, or recommended by the course teacher, or problems with the design of textbooks. The instructor acts as a supervisor and assists students in forming and organizing the design team, preparing the project proposal, carrying out the design process, planning and managing the project, reviewing the project, simulating and testing the project, preparing drawings, specifications, etc. Performance is evaluated through oral presentation of the proposal and demonstration of completed projects, writing of reports, actual use of IT knowledge, design process, management and planning etc. Course Objectives: The objectives of this course are to supervise groups of students finding an appropriate IT/engineering solution using IT/engineering knowledge To develop a clear and quantifiable statement of performance requirements. Develop technical specifications for performance requirements Select and implement the desired solution and evaluate the results. Organize student meetings, teach how to take diary notes and keep teamwork in a group Teach to write proposals and comprehensive reports of project, presentation and demonstration of the project To train to manage finance and time planning while working in multidisciplinary team EEE code and name 141 Electrical circuits I Type Core, Engineering, Lesson Credit hours 3 Pre-requisites MAT 120 (Calculus and Analytic Geometria I) Coordination course Coordination& Outcome Form Download Laboratory Manual Downloads Course summary: Formulation and solution of equations of circuits using various techniques of circuit analysis, including Ohmâ¦’s law, Kirchhoff’s laws, mesh and nodal analysis, superposition, source conversion, Thevenina’s theorem, the theory of the Nortonâ¦ theorem and the maximum power transfer theorem. Next we will discuss the transient analysis of RC and RL circuits in series, followed by a brief introduction of capacitors and inductors. This course has a separate mandatory lab session every week as EEE 141L. Course Objectives: The course aims to introduce the basic laws of circuits applied to simple DC circuits to calculate voltage, current, equivalent resistance and power. analyze complex circuits with nodal and mesh methods. simplify circuit analysis using various circuit theorems. examine trans analysis RC and RL circuit controllers as standard. laboratory setting. Code and Name EEE 141L Electrical Circuits I Lab Type Core, Engineering, Lab Credit Hours 1 Prerequisites MAT 120 (Calculus and Analytic Geometry I) Course Coordinator Course Objective and Module Downloads Laboratory Manual Downloads Course Summary: Formulation and solution of equations of circuits using various techniques of circuit analysis, including the law of Ohmâ¦, Kirchhoffâ¦ laws, mesh and nodal analysis, overlap, source conversion, Thevenin theorem, Norton’s theorem and maximum power transfer theorem. Next we will discuss the transient analysis of RC and RL circuits in series, followed by a brief introduction of capacitors and inductors. This course has a separate mandatory lab session every week as EEE 141L. Course Objectives: The course aims to introduce the basic laws of circuits applied to simple DC circuits to calculate voltage, current, equivalent resistance and power. analyze complex circuits with nodal and mesh methods. simplify circuit analysis using various circuit theorems. examine trans analysis RC and RL circuit controllers as standard. laboratory setting. Code and Name EEE 111/ ETE 111 Analogue Electronics-I Type Required, Engineering, Lecture Credit Hours 3 Prerequisites EEE 141/ETE 141 Electrical Circuits-I Coordinator Course Objective & Outcome Form Download Lab Download Course Summary: This course examines various electronic devices used in the design of analogue electronics. Includes basic knowledge of semiconductor devices. The focus is on diodes, BJT and TEF. Also included are characteristics and models of small and large signals, analysis and design of elementary electronic circuits. This course has separate mandatory lab sessions each week such as EEE 111L. Course The objectives of the course are to possess a solid knowledge of semiconductor devices used in the design of analog analog electronicslearn the skills needed to use electronic devices in the design of practical circuits to solve practical problems. acquire the ability to conduct, analyze and interpret experiments, and apply experimental results to improve circuit processes or systems. Code and Name EEE 111L/ ETE 111L Analog Electronics-I Type of lab Required, Engineering, Lab Credit hours 1 Prerequisites EEE 141/ETE 141 Electrical Circuits-I Coordinator Course Objective & Outcome Form Download Lab Manual Download Course Summary: This course examines various electronic devices used in the design of analog electronics. Includes basic knowledge of semiconductor devices. The focus is on diodes, BJT and TEF. Also included are characteristics and models of small and large signals, analysis and design of elementary electronic circuits. This course has separate mandatory lab sessions each week such as EEE 111L. Course Objectives: The objectives of the course are to have a solid knowledge of semiconductor devices used in the design of analog electronics to acquire the skills needed to use electronic devices in the design of practical circuits to solve practical problems. to acquire the ability to conduct, analyze and interpret experiments and apply experimental results. to improve processes or circuit systems. Code and Name CSE 311 Database Systems Type Core Credit Hours 3 Prerequisites CSE 225 Course Coordinator Objective & Outcome Form Download Laboratory Manual Download Course Summary: This course introduces students to database management systems for the first time in their undergraduate course. The disadvantages of the flat file system are demonstrated and the advantages of relational database systems are introduced. The course examines the logical organization of databases: the entity-relationship model; hierarchical, network and relational data models and their languages. Functional dependencies and normal shapes are discussed.Ã Query language design, implementation and optimization; security and integrity; competition control, different index levels, e.g. tree-based and hash-based indexes. Access costs are compared for the different alternatives. This course has separate mandatory lab sessions every week in a separate CSE 311L course which has 0 credits, but students (as a group) use hands on SQL queries and as a culmination, build a real database system with a front-end. The evaluation of the lab work is transferred to the theoretical part of the course. Course Objectives: The objectives of this course are to make students understand the advantages of using a database system over flat files. to familiarize students with Introduce the conceptual design from the analysis of requirements using E-R diagrams and also mapping ER diagrams into relational schemes. to introduce the basics and use of relational algebra that underlie SQL. SQL. transform a relational design into a physical database using popular commercialized databases, e.g. Oracle, MySQL etc. to demonstrate and show the evils of redundancy by introducing the concepts of functional dependencies and their types. design full-fledged physical database systems with less redundancy and more optimized. to build their independent projects emphasizing the data requirement. Code and Name CSE 311L Database Systems Type of Laboratory Core Credit Hours 0 Prerequisites CSE 225 Course Coordinator Objective and result Module Download Laboratory Manual Course Summary: This course introduces students with database management systems for the first time into their undergraduate studies. Disadvantages of the flat file system are demonstrated and advantages of relational database systems are introduced. The course examines the logical organization of databases: the entity’s relationship model; hierarchical, network and relational data models and their languages. Functional dependencies and normal forms are discussed. Design, implementation and optimization of query languages; security and integrity; concurrency control, different level of indexes, e.g., tree-based indexes and hash are introduced. Access costs are compared for different alternatives. This course has separate mandatory lab sessions every week in a separate CSE 311L course which has 0 credits, but students (as a group) use their hands on SQL queries and as a climax, build a complete database system including a front-end. The evaluation of the laboratory work is carried to the theoretical part of the course. Course Objectives: The objectives of this course are to make students understand the benefits of using the database system on flat files. to get students familiar with analyzing the particular requirements of an organization’s data requirements To introduce conceptual design from the analysis of requirements using E-R diagrams and also mapping ER diagrams into relational schema. to introduce to turn relational design into physical database design using popular commercial databases, e.g., Oracle, MySQL etc. to demonstrate and show the evils of redundancy by introducing the concepts of functional dependencies and their types. to design full-fledged physical database systems with less redundancy and more optimized. to build their independent projects emphasizing the data requirement. Code and Name CSE 323 Operating Systems Design type Core Credit Hours 3 Prerequisites CSE 332 Course coordinator Objective and result Module Download workshop manual Course summary: Operating Systems Design: Introduction to the structure of modern operating systems. Topics include the structure of systems asynchronism, mutual exclusion, deadlocks, monitors, process state transition, interrupted, context switching, storage management for real and virtual storage, processor scheduling, processor, management of auxiliary storage, performance of computer systems, network and security. Course Objectives: The objectives of this course are to compare, analyze and judge various operating systems that build blocks focused on process management and memory management. (knowledge) Build a system solution on any hardware platform that can talk to hardware in a group project. (design) Demonstrate a contemporary operating system where students look at the Android operating system. (contemporary knowledge) Code and Name CSE 327 Software Engineering Type Core Credit Hours 3 Prerequisites CSE 311 Coordinator Course Objective & Reddit Form Download Laboratory Manual Summary: follows the life cycle of the software – from needs, specifications and phases of design through the construction of actual software. Topics include programming team management, programming methodologies, debugging aid, documentation, evaluation and measurement of software, verification techniques and testing, and maintenance, modification and portability issues. Course Objectives: The objectives of this course are to give students an appreciation of the complexity involved in deception, design, implementation and delivery of modern software systems. Students should appreciate what makes quality software and how topics/software engineering method can be effective to provide such quality products. The course will present theoretical material and create opportunities for students to apply what they learn in class and from other sources. Code and name CSE 331 Microprocessor Interfacing & Embedded System type required, Engineering, Credit Hours Course 3 Pre-requisites CSE 332, Computer Organization & Architecture Coordinator Course & Outcome Module Download Laboratory Manual Course Summary: This course provides an introduction to the fundamental concept of microprocessor architecture and integrated systems based on microprocessor. A basic idea of the internal and external architecture of the 8086 microprocessor will be provided as a result of the 8086 microprocessor physical pin diagram. The course will also cover other peripheral devices of a microprocessor-based system, such as RAM 6116, PIO 8255 Controller and 7-Segment Display. The course will then cover the programming languages for the interfacing: Assembly language followed by Interrupt and data conversion algorithm. A brief introduction to the Microcontroller 8051 will also be provided. Simulation software tool: the 8086 emulator will be introduced in the laboratory classes to do simulation-based project work. This course has a separate compulsory laboratory session each week as CSE 331L Course Objectives: The objectives of this course are – to introduce the internal and external architecture of8086 to explain the interconnection of microprocessor and different peripheral devices to introduce the mounting language for the direct manipulation of the microprocessor 8086 to introduce the simulation tool, i.e. 8086 for simulation-based works Code and Name CSE 331L Microprocessor Interfacing & Embedded System Lab Type Required, Engineering, Lab Credit Hours 0 Pre-requisites CSE 332, Computer Organization & Architecture Coordinator Course Objective & Outcome Form Download Lab Download Course Summary: This course provides an introduction to the fundamental concept of microprocessor architecture and microprocessor embedded systems based on processors. A basic idea of the internal and external architecture of the 8086 microprocessor will be provided, followed by the physical diagram of the 8086 microprocessor. The course will also cover other microprocessor-based peripherals such as RAM 6116, PIO 8255 Controller and Display 7 segments. The course will then take care of the programming languages for the interface: Assembly language followed by Interrupt and data conversion algorithm. A brief introduction to the 8051 microcontroller will also be provided. Simulation software tool: the 8086 emulator will be introduced in the laboratory classes for the realization of simulation-based projects. This course has a separate laboratory session mandatory each week as CSE 331L Course Objectives: The objectives of this course are “introducing the internal and external architecture of the 8086 microprocessor to explain the interconnection of the different microprocessor and peripheral devices to introduce the Assembler language for the direct manipulation of the 8086 microprocessor to introduce simulation tool i.e. 8086 emulator for simulation based on the simulation works Code and name CSE 332 Organization of the computer and Architecture Type Required Course, Engineering, Preferences + Lab Credits This course introduces students to the basic concepts of computers, their design and their operation. It includes the definition of the architecture of the machine instruction set, its use in creating a program and its implementation in the hardware. The course addresses the bridge between logical gates and executable software, and includes programming in both assembly language (software representative) and HDL (hardware representative). It will be modern computer principles that use a typical processor and emphasize system-wide problems, understanding process performance and using abstraction as a tool for managing complexity. It will then explain how efficient memory systems are designed to work closely with the processor. Subsequently, it will introduce input/output systems (I/O) that reunite the processor and memory with a wide range of devices. Â Objective of the course: The course aims to develop the basic knowledge of the IT organization: roles ofmain memory and input/output devices. evaluate/measure the performance of a computer system for comparison with other systems similar to those of architectural design. to develop a RISC processing element to define the processor specifications and the architecture of the instruction set. to understand memory organization, including cache structures and virtual memory schemes. Code and Name CSE 373 Algorithm Design and Analysis Type Core Credit Hours 3 Prerequisites CSE 225 Â” Data Structure and Algorithms, MAT 361 Â” Probability and Statistics Course Coordinator Objective & Outcome Form Download Lab Manual Download Course Summary: This course introduces the basic methodologies for design and performance. analysis of efficient algorithms and practical methods. Different algorithms are presented for a given computational task and their relative merits are assessed on the basis of performance measures. The following important calculation problems will be discussed: sorting, search, divide-and-conquer elements, dynamic programming and greedy algorithms, advanced data structures, graphical algorithms (shortest path, crossing trees, crossing trees), string matching, NP completeness. Course Objectives: The objectives of this course are to analyze the asymptotic performance of algorithms. write rigorous correctness tests for algorithms. demonstrate familiarity with the main algorithms and data structures. apply important algorithmic design paradigms and analysis methods. synthesize efficient algorithms in common design situations. Engineering. Code and Name CSE 325/CSE 425 Concepts of Programming Language Type Core Credit Hours 3 Prerequisites CSE 327 Course Coordinator Objectives & Results Download Module Workshop Manual Downloads Course summary: The course addresses the fundamental concepts of the different programming languages by addressing the design problems of the various linguistic constructs, examining the design choices for this construction in some of the most widely used languages and critically compare the design alternatives of the language. In particular, the course covers “Programming Paradigm and Language Categories, Language Design & Evolutions, Syntax & Semantics, Lexical Analyzers and Syntaxes, Names, Scopes & Links, Data Types & Control Type, Abstract Data Types, Declarations & Expressions, Subprogrammes, Object Programming-Oriented, Competition, Ex Course Objectives: The objectives of the course are to illustrate the programming paradigms, principles, basic concepts and techniques involved in the design and implementation of the main programming languages to elaborate key programming concepts of the main imperative, declarative and object-oriented languages, their merits and limitations to familiarize, competition control, and exception management functional and logical programming language concepts, their purposes and applications Code and name CSE 498/EEE 498/ETE 498/ETE 498 Research Typecredit hours 0 Pre-requisites completion of 80

credits co-ordinator course goal & outcome form download lab manual download course summary: This course is designed to provide students with cooperative internship/work experience in the public and private sector related to electrotechnical, electronics, telecommunication and computer technology or through advanced research in relevant academic fields. students will work there, prepare a detailed report and present in front of a departmental committee. Course Objectives: the objectives of the course are: gain practical experience in the field. acquire knowledge of the field in which the internship takes place. apply the knowledge and skills acquired in a working environment. develop a greater understanding of career options and define more clearly personal career goals. develop and refine oral and written communication skills identify areas for future development of knowledge and skills. code and name CSE499A/EEE499A/ETE499A senior design i type required, engineering, lab hours 1.5 prerequisites completion of at least 100 credit hours including all major basic courses, math and science courses, ethics, language and communication. Objective course coordinator & manual download module of the workshop download course summary: this is a senior level course, after a student completed all the major required basic courses, mathematics and basic sciences. This “capstone design course” involves multidisciplinary teams of students who build and test systems, components or engineering processes tailored to their needs. design of selected projects based on the problems presented by students, teachers and local industry; preference is given to industrial projects as they are more suitable for achieving the objectives of the course; didactic phase includes (for example): communication, drafting of reports, visual media, design process (requisites/specifics/objections, synthesis/analysis, project evaluation, implementation, maintenance, feasibility, economic and social influence.) preparation of proposals, evaluation, management and planning of projects, contracts etc.; the performance phase includes (for example): design team training and organization, design proposals, implementation of project design, planning and management process, project revisions, project simulation and testing, documentation preparation, drawings, specifications, etc. written and oral presentation of the completed projects. course objectives: The aim of this course is to identify an engineering and/or computer problem, build an appropriate strategy to solve the problem systematically with certain constraints of resources, budgets,etc. design a system, component or process to meet desired needs within realistic constraints use modern techniques, skills and tools needed for engineering practice. identify feasibility, manufacture, and and of a system/subsystem that will be developed within the framework of the project create an environment to work effectively in a group on a multidisciplinary project to achieve a common goal identify and validate the impact of considerations and economic, environmental, social, political, ethical, health and safety constraints in the phases of development of the project. Art, requirements analysis reports, design reports, final reports, etc. demonstrate an understanding of ethical and professional responsibility in a development phase of the project Code and Name CSE499B/EEE499B/ETE499B Senior Design II Type Required, Engineering, Lab Hours 1.5 Pre-requisites Completion of CSE499A/EEE499A/ETE499A di Senior Design Coordinator This is a senior level course, after a student has completed all the major required basic courses, mathematics and basic sciences. This “capstone design course” involves multidisciplinary teams of students who build and test systems, components or engineering processes tailored to their needs. Design of selected projects based on the problems presented by students, teachers and local industry; preference is given to industrial projects as they are more suitable for achieving the objectives of the course; Teaching phase includes (exemplary): communication, drafting of reports, visual media, design process (requisites/specifics/objections, synthesis/analysis, project evaluation, implementation, maintenance, feasibility, economic and social influence). preparation of proposals, evaluation, management and programming of projects, contracts etc.; The performance phase includes (for example): training and organization of the design team, design proposals, implementation of the design, planning and project management process, project revisions, project simulation and testing, documentation preparation, drawings, specifications, etc., written and oral presentation of completed projects. Course Objectives: The objectives of the course are: to familiarize students with the fundamental principles of the design process by realizing a real project that solves a real problem. make students able to identify and define problems. familiarize students with problem solving mechanisms, design alternatives, planning, implementation and adequate documentation. analyse the influence of costs, material resources, performance criteria and ethical and safety issues. Introduction to numerical methods for science and engineering students, topics include mobile comma computation, linear equation systems, function approximation and integrals, nonlinear equation and numerical solutionordinary differential equations; discusses various applications in science and engineering; includes some programs such as as the routine use of high-quality mathematical library. routine.

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