Buet chemical engineering syllabus pdf

The Department of Chemical Engineering at Bangladesh University of Engineering and Technology has a diverse faculty committed to excellence in education and to expand the boundaries of knowledge and understanding of chemical systems through research. The department offers a 4-year Bachelor of Science program in chemical engineering for potential university students. This curriculum is offered to students seeking a broad and in-depth knowledge of theory, design and applications from chemical engineering and other multidisciplinary fields. In parallel with theoretical courses, students attend classes of laboratory courses, industrial visits, workshops, seminars and various training programs. The department has about 60 university students a year who earn a bachelor's degree in science and start working in the chemicals, petrochemicals, energy and other sectors or move to higher or vocational schools. Before graduation, students have the opportunity to participate in a number of professional and recreational activities. Enrolling B.Sc in the Chemical Engineering Degree Program requires students to have completed 12 years of study in the H.S.C. or GCE A Level program. Students with a minimum mortality rate in mathematics, physics, chemistry and English in the HSC examination are allowed to appear on the admission stake. The minimum GPA rate may vary each year. More specific information about the terms of admission can be obtained from the admissions page. The admission of Poite is very competitive. The admission procedure for prospective university students begins as soon as the H.S.C. exam results are published, usually in August each year. The application for admission is published in the national daily newspapers. Students with a minimum mortality rate in mathematics, physics, chemistry and English from their High Secondary Examination (HSC) are allowed to appear on the admission test. The minimum GPA rate may vary each year. Please refer to the admissions booklet for the minimum GPA limit for a specific year. After the entrance test, the top 965 students get the opportunity to study at this prestigious institution. The student ranking is posted on the basis of the entrance exam on the BUET website. Students are given the opportunity to choose a department in order in terms of merit. The ChE department currently accommodates 60 undergraduate students. Introduction to the online registration procedure students will have to make registration online of course. Before that, students must collect their account ID and password from their own halls. Students must meet their counselor before registering to talk about registration and courses to be taken. Zen Address Registration . Courses for each semester will be available on the web page, along with the classroom routine, academic calendar and exam schedule. Students should check whether the class routine and exam schedule overlap. Once the registration is completed, students must re-check if their registration status is complete. The addition/drop of courses must be done within the specified time limit, along with the approval of the course teacher and the authorized counselor. Students must re-examine whether the process is complete or not, the courses offered by the department are designed in this section within the modern concepts of chemical engineering education with a focus on the country's industrial requirements. In the curriculum of the bachelor's program, besides professional courses related to chemical engineering, there is a strong focus on acquiring comprehensive knowledge in basic sciences of mathematics, physics and chemistry. It is also important to study many subjects in the humanities and social sciences, which is expected to help the student interact more positively with the society in which he or she lives. The refore, the contents of the course from university programs provide a harmonious mix of basic sciences and engineering applications as well as their social importance. The first two years are spent on basic work in mathematics and physics, and an introduction to the basic fields of engineering. The past two years complement the development of knowledge in most major branches of chemical engineering and related topics. The third terms and subsequent terms are directly based on knowledge of the core topics gained in the first two mandates and proceed with the development of competence in specific disciplines. In the last year, students get the opportunity to choose some optional specialized courses, implement a comprehensive design and do a thesis. Design and thesis provide an opportunity to develop initiative, self-reliance, creativity and engineering governance. Bachelor of Chemical Engineering students can choose one of five specialty groups: chemical chemical engineering chemical chemical engineering chemical chemical engineering chemical chemical engineering chemical chemical engineering chemical chemical sciences basic petroleum engineering and graduate and is regularly updated to meet national and international needs. The Department has expanded its education and research in expanded chemical engineering. Some of these new areas are: bioprocessing, biochemical engineering, food safety, human health energy efficiency, industrial sustainability, advanced industrial pollution control control for more details about courses, and download bachelor's degree requirements booklet for at least 158.50 hours credit Be eligible for graduation, and this must include specific basic courses. The minimum CGPA requirement for a bachelor's degree in engineering is 2.20. Details of relevant information are available in the university brochure. Earned grades and CGPA • Courses in which the student has a D or any higher score will be counted as credits earned. • Courses in which the student receives an F score are not conducted on his earned credit. A student who obtains an F in any basic course in any semester must repeat the course. If the student receives an F in an optional course, he or she can choose to recycle or take an alternative course (if available). • F grades will not be counted for GPA accounts but will remain permanently on the row and copy sheet. • When a student repeats a course in which he has failed before, he or she will not be eligible for a better B score in this course. • If the student receives a B or better degree in a course, he or she will not be allowed to repeat the course for the purpose of improving the degree. However, if he receives a score below B, he will be allowed to repeat the cycle (only once) by complacency in the previous row. He will not be eligible for higher B grades in these courses and will not be allowed to repeat more than four courses for the purpose of improving the grade. In order to promote a high level of interaction between teacher and student, each student is appointed as a consultant and the student is free to discuss all academic and related issues with his or her or her or her or her or her or her or her or her or her or her or her or her or her or her or her son. BUET encourages a good relationship between teacher and student which improves the overall academic atmosphere. For more information, please contact: Associate Professor Of University Studies Dr. Shub Ahmed: shoebahmed@che.buet.ac.bd Download hereUNDERGRADUATE Courses Department of Chemical Engineering (Ch.E.) Ch.E.: L-1, T-1 Chem 111: Inorganic Chemistry 3.00 Credit (3 hours) / WEST) modern concept of atomic structure, periodic table and their applications, isotopes and application of radioactive isotopes, a brief discussion about noble gases, different types of chemical bonds, hybridization, molecular structure, theories of coordination compounds, application of stability of complex compounds, general treatment of elements of different groups, modern theories of acids and rules. Ch.E.: L-1, T-1 Chem 112: Inorganic Analysis-I 1.50 Credit (3 hours/h) Volumetric Analysis: Acid-base calibration, oxidation reduction calibration and iodometric calcification. Graphite measurement analysis: sulphate estimation, separation and estimation of iron, calcium, copper and zinc from their mixtures. . Ch.E.: L-1, T-2 Chem 131: Physical Chemistry-I 3.00 Credit (3 hours/neck) types of solutions, composition measures, and solubility. Dilution solutions Group properties. Solution of colloidal, thermal chemistry, the second law of thermodynamics and its applications. Chemical balance of homogeneous and heterogeneous reactions. Heat treatment of hard balance. Ionization of water and pH. Ch.E.: L-1, T-2 Chem 116: Inorganic Analysis-II 1.50 Credit (3 hours/WEST) calibration complexes. Analysis of water and some industrial products. Ch.E.: L-2, T-1 Chem 235: Physical Chemistry-II 3.00 Credit (3 hours/WEST) chemical motility, emzedis and adsorption isotherm, catalysing. Molecular spectroscopy: rotational, oscilloscope and electronic spectra of molecules. The balance phase, the base of the stage and its applications. Electrical conductivity, electrical properties of the solution. between the theory of ionic attraction. Electrochemical cells: thermodynamics of electrochemical cells, application of emf measurements. Ionic Economibria, Buffer Solutions, Henderson Equation and Application. The government's decision to re-arrest the author's case is a very high degree of injury. 1.50 Credit (3 hours/neck) split co-efficiency, constant balance through the distribution method, heat reaction by thermal measurements, heat solution solubility measurement. Measuring viscosity. Select a fixed rate. Measuring the equivalent load and melting of soluble salt. Ch.E.: L-2, T-2 Chem 221: Organic chemistry 3.00 credit (3 hours / neck) hybridization of carbon atom and covalent bonding. A comprehensive study of petal hydrocarbons with a special reference to labels, preparation method, characteristics and important uses. Types of reactions of petalyhydrocarbonhydrocarbons and their industrial applications. Structure, labels, preparation, properties, reflexes and industrial applications of the petite hydrocarbon homogenous congener. Aromatic and aromatic compounds. Preparation, characteristics, reactions and industrial applications of gasoline and its derivatives. Non-mr. vehicles and their applications. Basic concepts of organic pigments. Ch.E.: L-2, T-2 Chem 222: Organic chemistry 1.50 credit (3 hours/hour) detecting elements in organic compounds, identifying functional groups, setting various organic compounds, separating, purifying and characterizeing organic compounds. Ch. E.: L-3, T-1 Chem 323 (optional): Spectral analysis and stereoscopic chemistry 3.00 credit (3hrs/wk) A. Infrared Spectroscopy (IR): Theory, hardware, and interpretation of sample processing of the spectrum. Absorption of the characteristic group, absorption of organic molecules. Proton MRI Spectrometer (1H NMR): Introduction, sample handling machines, chemical transformation, factors affecting chemical transformation, simple rotational association, factors affecting the association constant, identification of complete NMR 1H spectra. 13C Spectral NMR: Introduction, Peak Mission, Chemical Rated and Transformation, Drug Administration and Hokor. Uv and visible spectroscopy: electronic spectroscopy theory, sampling machines, solvent effects, application. Mass spectroscopy: basic principles, instruments and sampling, isotopes and mass spectra, fragmentation, fragmentation associated with functional groups. B. Chirality stereoscopic chemistry, optical isomiri, composition, formations of rotating and cyclic compounds. Geometric isomiri, fused rings and stolen rings. Ch. E.: L-3, T-1 Chem 352: Useful methods of analysis 1.50 credit (3hrs/wk) spectroscopy, strengthening calibration, pH-calibration, Conductometric calibration. A thin layer of color. Department of Materials and Mineral Engineering (MME) MME: L-1, T-1 Chem 107: Selected topics on inorganic chemistry and physical 3.00 credit (3 hours/ WEST) modern concepts of atomic structure, advanced concepts of bonds, molecular structure, and crystal structure. A modern periodic table, transitional metal chemistry. Properties and uses of the properties and uses of noble gases. Acids and bases. Chemistry solutions. The properties of diluted solutions. Thermal chemistry. Chemical dynamics. Chemical balance. Electrochemical cells, water ionization and PH. The base stage and the stage chart. Introduction to organic polymer. Basic greed of dyes, colors and constitution. MME: L-1, T-1 Chem 114: Inorganic quantitative analysis 1.50 credit (3 hours/ WEST) Volume analysis: acid icing base, oxidation-limit calibration, Fe, Cu, and Volumetric Ca, Calibration complexometric, Determining Ca, mg in Water MME: L-1, T-2 Chem 121: Organic Chemistry (Old: Chem 221) 3.00 Credit (3 hours / Neck) hybridization of carbon atom and parity bond. A comprehensive study of petal hydrocarbons with a special reference to labels, preparation method, characteristics and important uses. Types of reactions of petalyhydrocarbonhydrocarbons and their industrial applications. Structure, labels, preparation, properties, reflexes and industrial applications of the petite hydrocarbon homogenous congener. Aromatic and aromatic compounds. Preparation, characteristics, reactions and industrial applications of gasoline and its derivatives. Non-mr. vehicles and their applications. The basic concepts of MME organic dyes: L-1, T-2 Chem 122: Organic Chemistry (Old: Chem 222) 1.50 Credit (3 hours/ WEST) detect elements in organic compounds. Definition of functional groups. Preparation of different organic compounds. Separation, purification and characterization of organic compounds. Faculty of Civil Engineering Department (CE) CE: L-1, T-1 Chem 103: Chemistry-I 3.00 Credit (3hrs/wk) Atomic Structure and Quantum Theory: Burr Theory, Heisenberg Uncertainty Principle, Schrodinger Wave Equation, Electronic Configurations properties of atoms. Electronic compositions and molecular properties: chemical bonding, bond parity theory, molecular orbital theory, particle shape, bond length, bond energy. Halogen chemistry, alkaline minerals, alkaline earth minerals, non-metals and heavy metals. Modern concepts of acids and rules. Different types of solutions. Properties of diluted solution. Thermal chemistry. Electrochemistry: voltage cells, calcific cells. colloidal and colloidal solution. Chemical and ionic iguanas. Water chemistry; Chemistry of water pollution. Cement, silica and lemon chemistry. CE: L-1/T-I Chem 114: Inorganic Quantitative Analysis 1.50 Credit (3hrs/wk) Volumetric Analysis: Acid-Alkalimi Measurement. Calibration involving red oxidation reactions: Identification Fe, Cu, and Ca volumetric. Identify ka and mg in water. CE: L-1/T-II Chem 105 (optional): Chemistry-II 3.00 Credit (3hrs/wk) Motor reactions: rate of chemical reactions; The molecular system of reflexes, different types of rate expressions, methods of determining the rate and system, the effect of temperature on the reaction rate and energy activation. Colloidal and colloidal solution: classification, preparation, purification, characteristics, preventive action and application of colloids. Chemical corrosion: an introduction to chemical corrosion, corrosion of metals and alloys in dry and humid environments, corrosion mechanism, atmospheric and soil corrosion and preventive measures. Environmental pollution chemistry: environment and its characteristics, chemistry of mineral and non-metallic pollutants, analytical techniques used in the identification of contaminants, DO, BOD, COD and threshold odor number, chemistry involved in water treatment plants, and quality of industrial wastewater. Polymers: polymer chemistry, different types of polymers and their properties, polymer degradation, tubers and composite materials. Paints and varnishes: introduction to paints and varnishes, pre-surface treatment, metal and non-metallic and organic protective coatings, and types and uses of paints. CE: L-I/T-II Chem 106: Inorganic quantitative analysis (optional) (in support of chem 105: Pre-requirements: Chem 114) 1.50 credit (3hrs/wk) gravimetric analysis: sulphate identification, nickel/zinc identification. Water analysis: acidity and alkaline, chloride estimation, determination of dissolved oxygen in determining water from water hardness: total water hardness, calcium estimation in the presence of magnesium. Determine the total solid in the water. WRE: L-1, T-1 Chem 115: Chemistry-I (Old: Chem 103) 3.00 Credit (3hrs/wk) Atomic Structure and Quantum Theory: Bohr Theory, Heisenberg Uncertainty Principle, Schrodinger Wave Equation, Electronic and the properties of atoms. Electronic compositions and molecular properties: chemical bonding, bond parity theory, molecular orbital theory, particle shape, bond length, bond energy. Halogen chemistry, alkaline minerals, alkaline earth minerals, non-metals and heavy metals. Modern concepts of acids and rules. Different types of solutions. Properties of diluted solution. Thermal chemistry. Electrochemistry: voltage cells, calcific cells. colloidal and colloidal solution. Chemical and ionic iguanas. Water chemistry; Chemistry of water pollution. Cement, silica and lemon chemistry. WRE: L-1, T-1 Chem 114: Inorganic Quantitative Analysis 1.50 Credit (3hrs/wk) Volumetric Analysis: Acid-alkali Measurement. Calibration involving red oxidation reactions: Identification Fe, Cu, and Ca volumetric. Identify ka and mg in water. WRE: L-1, T-2 Chem 105 (optional): Chemistry-II 3.00 Credit (3hrs/wk) Motor reactions: rate of chemical reactions; The molecular system of reflexes, different types of rate expressions, methods of determining the rate and system, the effect of temperature on the reaction rate and energy activation. Colloidal and colloidal solution: classification, preparation, purification, characteristics, preventive action and application of colloids. Chemical corrosion: an introduction to chemical corrosion, corrosion of metals and alloys in dry and humid environments, corrosion mechanism, atmospheric and soil corrosion and preventive measures. Environmental pollution chemistry: environment and its characteristics, chemistry of mineral and non-metallic pollutants, analytical techniques used in the identification of contaminants, DO, BOD, COD and threshold odor number, chemistry involved in water treatment plants, and quality of industrial wastewater. Polymers: polymer chemistry, different types of polymers and their properties, polymer degradation, tubers and composite materials. Paints and varnishes: introduction to paints and varnishes, pre-surface treatment, metal and non-metallic and organic protective coatings, and types and uses of paints. WRE: L-I/T-II Chem 106 Inorganic Quantitative Analysis (optional): (In support of Chem. 114: 1.50 credit (3hrs/wk) gravimetric analysis: sulphate identification, nickel/zinc identification. Water analysis: acidity and alkaline, chloride estimation, determination of dissolved oxygen in determining water from water hardness: total water hardness, calcium estimation in the presence of magnesium. Determine the total solid in the water. Faculty of Mechanical Engineering Department (ME) ME: L-1, T-1 Chem 109: Chemistry-I 3.00 Credit (3hrs/wk) Modern Concepts of Atomic Structure, Advanced Concepts of Bonds and Molecular Structure, Study of Crystal Structures, Modern Table, chemistry of transitional minerals, properties and uses of noble gases, acids, rules, chemistry solutions, diluted solutions properties, chemical balance, thermal chemistry, electrochemical cells, water ionization and suburbia, chemical kinetic, phase-based and stage charts, selected topics on organic chemistry. Introduction to organic polymer and basic concepts of dyes, color and constitution. ME: L-1, T-1 Chem 114: Inorganic Quantitative Analysis 1.50 Credit (3hrs/wk) Volumetric Analysis: Acid and Alkaline Calibration. Calibration involving oxidative reaction (identification of Fe, Cu, and Ca). Compound calibration (identifying ka and mg in water). ME: L-1, T-2 Chem 141: Chemistry of engineering materials 3.00 credit (3hrs/wk) glass: raw materials, classification, manufacturing processes and application of glasses in the chemical industry. Ceramic: Essential from the ceramic industry, raw materials, characteristics, manufacture and classification of ceramic products. Refractive materials: raw materials, properties, manufacturing and classification of refractives. Corrosion: nature, forms and types of corrosion, electrochemical mechanism and corrosion prevention. Paints, varnishes and metallic paints: the composition and application of paints, varnishes, metal paints, and methods used in applying paint on a metal surface. Carbon: carbon and graphite properties and applications, and the manufacture and application of unmanufactured industrial carbon. Polymer: classification, polymerization, polymerization mechanism and polymer processing. Plastics: basic characteristics, classification, raw materials, plastic manufacturing and some typical examples of plastic and its uses. Fiber: Types of fiber, raw materials, applications and manufacturing processes of synthetic fiber. Rubber: natural rubber sources, chemical processing of latex, raw materials, synthetic reactions and synthetic rubber properties. Lubricants: the principle of lubrication and lubricants, sources, properties, refining; mechanical and industrial importance of lubrication. Boilers feed water treatment. Department of Marine Architecture and Marine Engineering (NAME): L-1, T-1 Chem 117: Chemistry-I (Old: Chem 109) 3.00 Credit (3hrs/wk) Modern Concepts of Atomic Structure, Advanced Concepts of Bonds and Molecular Structure, Study of Crystal Structures, Periodic Table Modern, chemistry of transitional minerals, properties and uses of noble gases, acids, rules, chemistry solutions, the properties of diluted solutions, chemical balance, thermal chemistry, electrochemical cells, water and suburban tions, chemical kinetics, stage base and stage graphs, selected topics on organic chemistry. Introduction to organic polymer and basic concepts of dyes, color and constitution. Name: L-1, T-1 Chem 114: Inorganic Quantitative Analysis 1.50 (3hrs/wk) Volumetric analysis: acidic and alkaline calibration. Calibration involving oxidative reaction (identification of Fe, Cu, and Ca). Compound calibration (identifying ka and mg in water). Department of Industrial Engineering and Production (IPE) IPE: L-1, T-1 Chem 119: Chemistry-I (Old: Chem 109) 3.00 Credit (3hrs/wk) Modern Concepts of Atomic Structure, Advanced Concepts of Bonds and Molecular Structure, Study of Crystal Structures, Modern Periodic Table, Chemistry of Transitional Minerals The properties and uses of noble gases, acids, rules, chemistry solutions, the properties of diluted solutions, chemical balance, thermal chemistry, electrochemical cells, ionizing of water and suburb, chemical kinetic, phase base and charting, selected

topics on organic chemistry, introduction to organic polymer, basic concepts of pigments, color and constitution. IPE: L-1, T-1 Chem 114: Inorganic Quantitative Analysis 1.50 Credit (3hrs/wk) Volumetric Analysis: Acid icing and alkaline calibration. Calibration involving oxidative reaction (identification of Fe, Cu, and Ca). Compound calibration (identifying ka and mg in water). IPE: L-1, T-2 Chem 143: Material Chemistry 2.00 Credit (2hrs/wk) Glass: classification, manufacture and application. Corrosion, paints. Varnish and metallic paint: the composition and applications of paints, varnishes, metal paint, and methods used in applying paint on a metal surface. Polymer: polymerization, classification, polymerization mechanism and polymer processing. Plastics: basic characteristics, classification, raw materials, plastic manufacturing and some typical examples of plastic and its uses. Fiber: fiber types, synthesis and application of synthetic fibers. Rubber: natural rubber source, chemical treatment of latex, synthesis and synthetic rubber properties. Lubricants: lubricant chemistry, sources, property, refining, chemical processing, industrial importance of lubricants. Faculty of Electrical and Electronic Engineering Department (EEE) EEE: L-1, T-1 Chem 101: Chemistry-I 3.00 Credit (3 hours/WEST) modern concept of atomic structure, modern periodic table with special reference to group chemistry, the dual nature of electron and the modern concept of chemical bond, molecular properties and structure, modern concept of acids and rules. Selected topics of organic chemistry. Different types of solutions and their composition, diluted solution properties, base phase, phase diagram of single-component systems, thermomymettity, chemical kinetic, chemical ecualiria, electro-solution properties and electrochemical cells. EEE: L-1, T-2 Chem 114: Inorganic Quantitative Analysis 1.50 Credit (3 hours/WEST) Volumetric Analysis: Acid-alkaline measurement, calibrations involving red oxidation Identification Cu, Fe, CA volumetric, complexometric calibration, California identification, mg in water. Department of Computer Science and Engineering (CSE) CSE: L-1, T-2 Chem 113: Chemistry-I (Old: Chem 101) 3.00 Credit (3 hours/ West) The dual nature of the electron and the modern concept of chemical bonds, properties and molecular structure. Solutions and properties of diluted solution. Introduction to colloids and nanochemistry. Base phase, phase diagram of single-component systems. Thermal chemistry; Kirchhof equation and experimental determine the thermal values of food and fuel. Biodegradable polymer chemistry and hands. The theory of electrical intake, ionic motion, transport number. Chemistry of proteins, nucleic acids (DNA and RNA), carbohydrates and fats. Introduction to computational chemistry. CSE: L-1, T-2 Chem 114: Inorganic Quantitative Analysis 1.50 Credit (3 hours/WEST) Volumetric Analysis: PH-Alkaline Measurement, Calibrations Involving Oxidation Reaction, Cu Identification, Fe, Volumetric, Complex Calibration, Ka Identification, Mg in Water. Biomedical Engineering BME: L-1, T-1 Chem 125: Organic and inorganic chemistry 3 credits (3 hours/west) Atom structure: particles, wave nature of light, light, another form of electromagnetic radiation, atomic spectra, bor model, quantum numbers, orbital atom; periodic table: periodic table, atomic radius, ionization energy, electron convergence, electrons. Chemical bonding: different types of bonding, correlational bond details, parity bond theory (VBT), molecular engineering, Valence Shell Electron Pair Dissonance (VSEPR) theory, hybridization of orbital, molecular orbit theory (MOT). Basic concepts of oxidation and reduction of interaction. Crystal structure, solid ionic, lattice, cell unit, hydrocarbon chemistry, synthetic methods of common organic compounds, reaction mechanism of typical organic reactions, identification of the structure of organic compounds, and the basic chemistry of biomolecules. BME: L-1, T-1 Chem 126: Organic analysis cycle 1.5 credits (3 hours/west) experiments based on Chem 125 BME: L-1, T-2 Chem 127: Physical chemistry 3 credits (3 hrs/wk) General concepts: stithumrie, gas properties, liquid and steel, gas laws; Solution: solution types, solution characteristics, law of Raoults, collective properties. Electrical chemistry: conduction and electrical properties of solution, calccell, voltic cell, commercial batteries, fuel cells. Chemical kinetic: law rate, fixed rate, system, molecular, first-class and second-class reaction, Equation Arrhenius, reaction rate theories. Thermal chemistry and basic thermodynamics. Equilibrium: phase balance, chemical equisators, acidic balances, equeuliberia. BME: L-1, T-2 Chem Chemistry course 1.5 credits (3 hours/hour) experiments based on Chem 127 Faculty of Architecture and Planning Department of Urban and Regional Planning (URP) URP: L-1; T-2 Chem 123: Basic Environmental Chemistry (Old: Chem 207) 3.00 Credit (3 hours/West) introduction to ecology and its scope. Radioactivity and radioactive particles, atomic composition. Periodic table, chemical links. Acids, rules and environmental impact of HH. Focusing solutions and estimating pollutants. Organic compounds (proteins, carbohydrates, oils, PCBs, aldehyde, hydrocarbons, pesticides as organic pollutants), organic households and functional groups. Introduction to polymers and their environmental impact. Environment: environmental sectors, rock cover, hydrosphere, biosphere and atmosphere. Composition of the atmosphere, chemical species and particles in the Earth. Industrial hazards, air and water pollutants. Sources and different types of contaminants. Toxicity of contaminants. Discuss the properties of water and sewage. Properties of wastewater, concepts and measurement of DO, BOD, COD, etc. 10. Conversions of pollutants. Pollutants.