K.D.K.COLLEGE OF ENGINEERING, NAGPUR

Department of Basic Science and Humanities

(First Year)

FIRST SEMESTER (CBCS)- COURSE OUTCOMES

BESI-1T	**Mathematics - I**
CO101.1	Apply the concept of maxima, minima and successive differentiation in the analysis of engineering problems.
CO101.2	Understand the significance of derivatives of functions of several variables and use it to find series approximation to the function of two variables, extreme values of the function and functional relationship.
CO101.3	Apply the concept of matrices for analysis of system of linear equations, finding linear and orthogonal transformations.
CO101.4	Solve ordinary differential equations using elementary techniques and apply it to formulate mathematical models for simple electrical circuits.
CO101.5	Solve higher order differential equations by using various techniques and apply the concept to solve problems in engineering field.
BESI-2T	**Applied Physics**
CO102.1	Apply concepts in interference and diffraction to solve relevant numerical problems and to relate to relevant engineering applications.
CO102.2	Recall basic concepts of dual nature of matter and radiation and apply them to interpret Compton effect and Davisson and Germer experiment and to solve related numerical problems
CO102.3	Find how to extend the basic quantum concepts to interpret the wave function Ψ and to relate them to the idea of wave packet and Schrodinger equation

CO102.4	Recall the basic concepts of crystal structure and apply them in solving numerical problems based on them and in relating to applications for determination of crystal structure.
CO102.5	Relate the basic idea of total internal reflection to the propagation of light in an optical fiber and make use of the fiber concepts to solve numerical problems and relate to applications in engineering.
CO102.6	Find how to extend the basic concepts of motion of charged particles in electric magnetic fields to solve numerical problems and to relate to applications in electron optic devices and CRO
BESI-2P	**Applied Physics Practical**
CO102.1	Measure the various electrical and electronics based parameters viz. A.C. Voltage, frequency, phase shift and time period using CRO.
CO102.2	Apply the concept of interference in Newton's ring experiment to determine the radius of curvature of the lens. Apply the concept of diffraction, birefringence for the various optical based devices using Sodium light. Apply the concept of fiber optic cables to determine the numerical aperture of the fiber cables and to get acquainted with its use in daily life.
CO102.3	Work effectively in a small team to complete a complex set of tasks.
BESI-3T	**Energy and Environment**
CO103.1	Obtain the knowledge of solid and gaseous fuels and their Calorific value determination
CO103.2	Recognize the type of liquid fuels and their uses in IC engines.
CO103.3	Apply the knowledge about the use of alternative sources of energy.
CO103.4	Differentiate the types of waste and its management.
CO103.5	Analyze the impacts of Industrial pollution and its control.

CO103.6	Develop innovative ideas for use of advanced materials in sustainable development.
BESI-3P	**Energy and Environment Practical**
CO103.1	The practical knowledge of handling chemicals.
CO103.2	Analyzing a broad foundation in energy and environment that stresses scientific reasoning and analytical problem solving with a molecular perspective.
CO103.3	Experimental techniques using modern instrumentation.
BESI-4T	**Communication Skills**
CO104T.1	Students will be able to overcome barriers of communication.
CO104T.2	Students will acquire public speaking skills and handle group situations professionally.
CO104T.3	Students will be able to comprehend passages and compose paragraph.
CO104T.4	Students will be able to construct error free and meaningful sentences in English.
BESI-4P	**Communication Skill practical**
CO104P.1	Students will be able to overcome listening barriers of communication.
CO104P.2	Students will be able to enhance their comprehending skills and speaking skills.

CO104P.3	Students will be able to give effective presentations and handle group situation professionally.
CO104P.4	Students will be able to use figurative language in their formal as well as informal communication.
BESI-5T	**Engineering Graphics**
C105.1	The learner will able to understand the basic knowledge of engineering graphics such as instruments,lines,dimensioning techniques,scales, sheet layout.Construct the various engineering curves using the drawing instruments and basic of orthographic projection through drawing the projection of point and line.
C105.2	The learner will able to understand projections of different types of planes(2D) and solids(3D) and will be able to draw different views of plane and solids.
C105.3	The learner will able to understand concept of sectioning and development of lateral surfaces of solid and will able to represent it.
C105.4	Apply the visualization skill to draw a simple isometric projection/view from given orthographic views precisely using drawing equipment.
BESI-5P	**Engineering Graphics Lab**
C106.1	Draw the fundamental engineering objects using basic rules and able to construct the lines,simple geometries. Construct the various engineering curves using the drawing instruments.
C106.2	Draw two dimensional and three dimensional objects,precisely using drawing equipment.
C106.3	Draw the development of lateral surfaces for cut section of geometrical solids precisely using drawing equipment.
C106.4	Draw a simple isometric projection from given orthographic views precisely using drawing equipment.

BESI-6T	Basics of Civil and Mechanical Engineering
C106.1	Introduction to what constitutes Civil Engineering. Identifying the various areas available to pursue and specialize within the overall field of Civil Engineering. Highlighting the depth of engagement possible within each of these areas.
C106.2	Exploration of the various possibilities of a career in this field. Understanding the vast interfaces this field has with the society at large. Providing inspiration for doing creative and innovative work.
C106.3	Showcasing the many monuments, heritage structures, nationally important infrastructure and impressive projects to serve as sources of inspiration. Highlighting possibilities for taking up entrepreneurial activities in this field. Providing a foundation for the student to launch of upon an inspired academic pursuit into this branch of engineering.
C106. 4	Discuss several manufacturing process and identify suitable process. Explain various types of mechanism and its application.
C106. 5	Describe and compare the conversion of energy from renewable and non-renewable energy sources.
C106. 6	List down the type of road vehicles and their specifications; illustrate various basic parts and transmission system of a road vehicle.