COURSE TITLE		Engineering Physics	COURSE CODE	AHT-001
CO #	BCL	CO STATEMENT		
AHT001.1	C4	**Investigate** the physcial optical phenomenona using different optical systems, upto order of 3.		
AHT001.2	C3	**Apply** the concept of physical optics to use the working of Lasers and optical fiber-based communication systems using He-Ne laser.		
AHT001.3	C4	**Analyze** the properties of an electromagnetic wave and the characteristics of magnetic materials using Maxwell's equations.		
AHT001.4	C4	**Examine** the dual nature of light and particle using the Schrodinger wave equation in one dimension.		
AHT001.5	C6	**Design** the fabrication of semiconductor devices using the knowledge of semiconductor materials.		

COURSE TITLE		Introduction to Engineering Mathematics	COURSE CODE	AHT-003
CO #	BCL	CO STATEMENT		
AHT003.1	C3	**Apply** the concept of matrices, eigenvalues, eigenvectors, and applications such as system solutions and diagonalization.		
AHT003.2	C4	**Analyze** mean value theorems, and concept of extrema and error approximation to solve real life problems, extends to multivariable calculus.		
AHT003.3	C3	**Utilize** the application of definite integrals to solve multiple integral upto three variables and visualize & analyze functions using curve tracing.		
AHT003.4	C3	**Implement** theorems related to vector calculus like Gauss divergence, Stokes and Green to solve surface and volume integrals subjected to simple curves.		
AHT003.5	C5	**Evaluate** the surface areas and volumes of revolutions, and geometric analysis of mass and stability in physical systems.		

COURSE TITLE		Basic Electrical Engineering	COURSE CODE	EET-001
CO #	BCL	CO STATEMENT		
EET001.1	C3	**Apply** the knowledge of basic laws and concepts pertaining to different types of DC & AC supply systems.		
EET001.2	C3	**Apply** the Electrical installation systems concepts in real world implementation.		
EET001.3	C4	**Categorize** the working of different types of electromechanical energy conversion systems under different working conditions.		
EET001.4	C4	**Analyze** the solutions of problems related to the different network structures as an individual or in a team.		
EET001.5	C5	**Evaluate** the problems of various Electromechanical energy conversion systems with the variation of the construction and loading parameters.		

COURSE TITLE		Programming for Problem Solving	COURSE CODE	CST-001
COURSE OUTCOMES (CO)				
CO #	BCL	CO STATEMENT		
CST001.1	C3	**Design** algorithms and flow charts to develop the effective solutions for given problem..		
CST001.2	C3	**Apply** the functions and recursions to solve a given problem in different ways.		
CST001.3	C3	**Apply** programming to solve problems related to searching and sorting.		
CST001.4	C4	**Analyze** the given data types using C Programming for solution of computational problems.		
CST001.5	C3	**Demonstrate** the file handling techniques to solve basic real world problems.		

COURSE TITLE		Engineering Physics Lab	COURSE CODE	AHP-001
CO #	BCL	CO STATEMENT		
AHP001.1	C5	**Evaluate** the wavelength of different colours of light using different optical instuments.		
AHP001.2	C4	**Inspect** the quantum mechanical phenomenon using optoelectronic devices.		
AHP001.3	C3	**Estimate** the properties of electricity and magnetism.		
AHP001.4	C4	**Analyze** the characterstics of semiconductor using electronic devices.		
AHP001.5	C5	**Synthesize** the theoretical and practical aspects of of optoelectronics and semiconductors to develop comprehensive reports.		

COURSE TITLE		Basic Electrical Engineering Lab	COURSE CODE	EEP-001
CO #	BCL	CO STATEMENT		
EEP001.1	C3	**Apply** the standard procedure for the usage and measurement of different types of Electrical circuit components, measuring instruments and supply systems.		
EEP001.2	C3	**Conduc**t of experiment as an individual or a team to perform different network structures and electromechanical energy conversion systems.		
EEP001.3	C6	**Build** an elementry project using basic laws of electromagnetism.		
EEP001.4	C4	**Analyze** the responses as an individual or a team in the network structures and electromechanical energy conversion systems.		
EEP001.5	C3,A3	**Prepare** a detailed professional engineering report on network theorems, electrical machines and installation systems that suitable in the given real life application.		

COURSE TITLE		Programming for Problem Solving Lab	COURSE CODE	CSP-001
CO #	BCL	CO STATEMENT		
CSP001.1	C3	**Apply** the basic concepts of writing a program using C Language.		
CSP001.2	C3	**Apply** the Functional/modularity, user define data type and pointers that dealing with memory management to create efficient c program.		
CSP001.3	C3	*Execute* experiments as an individual or as team members using 'C' programming construct.		
CSP001.4	C4	*Examine* the experiment output that display on file or computer screen.		
CSP001.5	C3.A3	*Write* effective reports in prescribed format.		

COURSE TITLE		Engineering Graphics & Design Lab	COURSE CODE	MEP-002
CO #	BCL	CO STATEMENT		
MEP002.1	C3	**Simplify** complex objects for drawing by using orthographic projection Technique.		
MEP002.2	C3	**Apply** prior knowledge of math, science & projection techniques to construct drawing of 2-D surfaces and 3-D solids.		
MEP002.3	C3	**Adapt** to Auto CAD commands to Construct 2-D surfaces & 3-D solids.		
MEP002.4	C4	**Analyze** the given 2-D & 3-D objects based on it's actual shape, size and intricacies as an individual and in a team.		
MEP002.5	C3,A3	**Make** an effective documentation for all the drawing problems and submit its report.		

COURSE TITLE		Introduction to Digital Marketing	COURSE CODE	AHP-003
CO #	BCL	CO STATEMENT		
AHP001.1	C3	**Apply** digital marketing techniques / procedures to solve given real world problems.		
AHP001.2	C3	**Conduct** experiments as an individual or as a team by using modern digital marketing tools. (TWITTER/INSTAGRAME/SEARCH ENGINE OPTIMIZATION FACEBOOK MAKETING)		
AHP001.3	C3,A3	**Make** an effective report based on experiments.		
AHP001.4	C5	**Compare and contrast** digital marketing tools and make a effective report an individual or in team.		
AHP001.5	C5	**Investigate** the suitability of newly created digtal marketing webpage/banners through canva/Youtube Channel.		

COURSE TITLE		Self Employment and Enterpreneurship Development	COURSE CODE:	AHP-005

CO #	BCL	CO STATEMENT
AHP005.1	C2	**Understand** the management of self employment & entrepreneurship involving various activities related to professional skills .
AHP005.2	C3	**Illustrate** by the help of complex assignments to describe the emerging change in future competencies using analysis techniques.
AHP005.3	C5	**Organize** a market prospective using tools to evaluate possible self-employment areas that indicate the ability for collaboration.
AHP005.4	C5	**Assess** an effective and efficient financial & investment decision eventually leading to time and budget management.
AHP005.5	C4	**Reflect** about the cases of successful and unsuccessful entrepreneurs leading towards sustainability development in an effective and efficient leadership skills.

COURSE TITLE		Engineering Chemistry	COURSE CODE:	AHT-002

CO #	BCL	CO STATEMENT
AHT002.1	C5	**Extend** chemical science with technical aspect of Engineering Chemistry.
AHT002.2	C3	**Apply** the facts and ideas of thermodynamics in the fields of engineering.
AHT002.3	C3	**Utilize** the technical knowledge in several industries, where Engineering chemistry is used as an integral part, like: Polymer chemistry; Paints, Lubricants; Fuel, Glass etc.
AHT002.4	C6	**Solve** the problem of hard and polluted water with its treatment and different type of corrosions with its minimization.
AHT002.5	C4	**Analyze** different advance techniques of Instrumental Chemistry, like: Principal of spectroscopy, NMR and MRI spectroscopy. Elementary idea about organic reactions and synthesis of Drugs.

COURSE TITLE		Analytical Mathematics	COURSE CODE:	

CO #	BCL	CO STATEMENT
AHT005.1	C3	**Solve** wide range of differential equations, including variable separable, homogeneous, exact forms, linear & non-linear equations.
AHT005.2	C3	**Apply** mathematical techniques to analyze a higer order of ODEs, facilitating practical problems in engineering.
AHT005.3	C3	**Utilize** mathematical techniques like Lagrange's multiplier and Charpit method to solve partial differential equations, and solve problems related to heat and wave equations upto two dimensions.
AHT005.4	C4	**Analyze** complex variables, analytic functions, and calculate complex integrals using Cauchy's integral and residue theorems.
AHT005.5	C3	**Test** the convergence of sequences and series using convergence tests like comparison, D' Alembert's ratio test, Raabe's test.

COURSE TITLE		Basic Electronics Engineering	COURSE CODE:	ECT001

CO #	BCL	CO STATEMENT

ECT001.1	C3	**Apply** basic electronics devices & techniques in various applications.
ECT001.2	C3	**Implement** biasing techniques to operate BJT, FET and OPAMP in different modes.
ECT001.3	C3	**Illustrate** design issues, advantages, disadvantages and limitations of circuits using basic electronics devices.
ECT001.4	C4	**Analyze** output of electronic devices in different operating modes.
ECT001.5	C3	**Develop** competence to design basic digital circuits using gates.

COURSE TITLE		Basic Mechanical Engineering	COURSE CODE:	MET-001
CO #	**BCL**	CO STATEMENT		
MET001.1	C3	**Apply** the Basic Mechanics theory to find the forces in static and dynamic mechanical systems.		
MET001.2	C3	**Determine** the forces on mechanical systems and choose the appropriate materials and examine failure due to stresses.		
MET001.3	C4	**Analyse** appropriate dimensions of Mechanical system and calculate exact dimension for measuring instruments.		
MET001.4	C5	**Evauate** the heat and work and illustrate the power producing and power absorbing devices.		
MET001.5	C5	**Estimate** the efficiency of I.C engine and compare the of applications of I.C. Engines.		

COURSE TITLE		Engineering Chemistry Lab	COURSE CODE:	AHP-002
CO #	**BCL**	CO STATEMENT		
AHP002.1	C3	**Apply** different analytical technique of chemistry.		
AHP002.2	C3	**Analysis** of volumetric and gravimetric methods.		
AHP002.3	C3	**Apply** the different methods of water softening process.		
AHP002.4	C3	**Analyze** the methods of viscometric,surface tension and conductivity.		
AHP002.5	C5	**Utilize** the methods to synthesis of common drugs like Asiprin.		

COURSE TITLE		Basic Electronics Engineering Lab	COURSE CODE:	ECP-001
CO #	**BCL**	CO STATEMENT		
ECP001.1	C3	**Apply** basic electronics procedures to solve problems.		

ECP001.2	C4	**Analyse** output of basic electronic devices for a given problem.
ECP001.3	C3	**Conduct** an experiment as an individual or as a team by using modern tools.
ECP001.4	C4	**Examine** the ideal results based on experiments.
ECP001.5	C3	**Design** small level circuits using electronic devices.

COURSE TITLE		Basic Mechanical Engineering Lab	COURSE CODE:	MEP-001
CO #	**BCL**	CO STATEMENT		
MEP001.1	C3	**Apply** the standard procedure to estimate the strength of material for a given specimen.		
MEP001.2	C3	**Conduct** the experiment of given specimen using Universal Testing Machine and impact testing machine.		
MEP001.3	C4	**Analyse** the output of given Problem , match with starndrad value.		
MEP001.4	C4	**Examine** the ideal results carried out based on UTM and Impact testing machine.		
MEP001.5	C3,A3	**Summrize and submit a report** of performed experimental work for safe design.		

COURSE TITLE		Workshop Practices Lab	COURSE CODE:	MEP-003
CO #	**BCL**	CO STATEMENT		
MEP003.1	C3	**Apply** the standard procedure to measure the shape and size of specimen using specified instruments & tools.		
MEP003.2	C3	**Conduct** an experiment as an individual or as a team by using modern tools for machining and other workshop. practices.		
MEP003.3	C4	**Analyse** the output of given problem as an individual or as a team in the trades of fitting, carpentry, welding and machining operations.		
MEP003.4	C5	**Evaluate** the experimental results as an individual or as a team based on machining,welding,carpentory and fitting shop related operations.		
MEP003.5	C3,A3	**Prepare** a detailed professional engineering report on machining, carpentory work, fitting and welding processes that suitable in the given real life application.		

COURSE TITLE		Emerging Technology in Engineering	COURSE CODE:	AHP-004
CO #	**BCL**	CO STATEMENT		
AHP004.1	C3	**Apply** emerging techniques / procedures to solve given real world problems.		
AHP004.2	C3	**Conduct** experiments as an individual or as a team by using modern tools. (modern manufacturing,advancement in transport systemtc.)		

AHP004.3	C3,A3	**Make** an effective report based on experiments.
AHP004.4	C5	**Compare and contrast** emerging technologies and make a effective report an individual or in a team.
AHP004.5	C4	**Investigate** the suitability of electrical vehicle in order to find the architectural pattern/ Design pattern and the materials used cost estimation in a team or individually and submit a detailed report.

COURSE TITLE		Computer Applications and IOT	COURSE CODE:	CSP-002
CO #	**BCL**	**CO STATEMENT**		
CSP002.1	C3	**Perform** the experiments with Linux distributions and MS Office applications to create and manipulate documents, spreadsheets, and presentations, demonstrating advanced capabilities such as macro implementation and data visualization.		
CSP002.2	C4	**Analyze and manage** computer system utilities and software installations, including the use of system registry and control panel tools, to optimize system performance and troubleshoot issues.		
CSP002.3	C3	**Implement** the knowledge of MS Office tools and Linux commands to solve complex problems in information systems, demonstrating the ability to select and utilize appropriate software solutions for various tasks in a business environment.		
CSP002.4	C5	**Evaluate** the setup and outcomes of hardware experiments, including the dismantling and reassembling of a PC and interfacing with IoT devices like Arduino/Raspberry Pi, assessing the efficiency and accuracy of the configurations.		
CSP002.5	C3.A3	**Develop** comprehensive experiment reports that articulate the methodology, analysis, and findings from laboratory exercises, demonstrating the ability to synthesize experimental data into well-structured documents adhering to scientific reporting standards.		

COURSE TITLE		English Language Lab	COURSE CODE:	AHP-006
CO #	**BCL**	**CO STATEMENT**		
AHP006.1	C3,A3	**Apply** base of professional vocabulary for the application through reading , writing, comprehension.		
AHP006.2	C3,A3	**Apply** the dimensions of communication skills i.e reading, writing, listening, speaking.		
AHP006.3	C4,A3	**Analyse** the error free writing by being well versed in rules of english grammar in Technical styles of communication and presentation.		
AHP006.4	C4,A3	**Evaluate** at work place for presentations/official drafting and use it for document/project/report.		
AHP006.5	C5,A3	**Assess** interpersonal/ intrapersonal communication skills by voice dynamics leading to professional competence.		