COURSE OUTCOME ASH-B.TECH SESSION 2018-19 (ONWARDS)	
Basics Sciences	
BS-101A	**CHEMISTRY**
BS-101A. 1	Recognize the molecular structures and extend their concept on Semiconductors.
BS-101A. 2	Characterize the structure and qualitative properties of different compounds using spectroscopic techniques.
BS-101A. 3	Apply the thermodynamic functions in electrochemistry.
BS-101A. 4	Identify different type of periodic properties and how it influences the properties of an atom.
BS-101A .5	Apply the spatial arrangement of molecules on the concept of organic reactions.
HM-101A	**ENGLISH**
HM-101A.1	Remember standard vocabulary by recalling various word formation processes for better communication.
HM-101A.2	Apply proper sentence structure and punctuation to enhance various techniques for writing precisely
HM-101A.3	Analyze the problems related to sentences through error finding for better writing and speaking skills.
HM-101A.4	Create critical thinking by emphasising on cohesion and coherence for enterpreneurship and effective listening skills.
HM-101A.5	Evaluate technicalities of language for better understanding of listening, speaking, reading and writing skills.
HM-101A.6	Understand the style of writing for better delivery of language.
BS-141A	**BIOLOGY**
BS-141A.1	Understand the structure and functions of different component of cells
BS-141A.2	Annotate the function of different biomolecules required in living cells
BS-141A.3	Understand the concept of cell division and genetic inheritance
BS-141A.4	Recall the basic concept of metabolism and energy generation in living cell
BS-141A.5	Summarize the morphology and pathogenicity of microbes invoved in human health and understanding the concept of microbial growth and
BS-141A.6	Extend the basic knowledge of living system in solving various engineering problems in related fields
BS-115 A	**SEMICONDUCTOR PHYSICS**
BS-115A.1	State the fundamentals of Solid State, Classical, Quantum and semiconductor Physics.
BS-115A.2	Differentiate between classical and quantum concept
BS-115A.3	Implement Classical and Quantum concepts to free electron theory and band theory of solids
BS-115A.4	Apply the concepts of solid State Physics and Semiconductor Physics to explain Semiconductor Devices like BJT,FET, MOSFET etc

BS-134A	PROBABILITY AND STATISTICS
BS-134A.1	Recall the basics of Probability and Statistics.
BS-134A.2	Apply the idea of basics of probability and Random variables in solving various engineering problems. This concept will help in computer network, signals and systems and optical communication.
BS-134A.3	Analyze the fundamental of Probability distribution which will be helpful in various fields like modeling, simulation and inferences on varieties of natural processes and physical phenomenon.
BS-134A.4	Identify various Measures of Central Tendencies in comprehensive manner, which will be useful in data handling, R and Python.
BS-134A.5	Categorize the problems based on applied statistics and test of significance which will be useful for data sciences, artificial intelligence and machine learning.
BS-135A	MULTIVARIABLE CALCULUS AND LINEAR ALGEBRA
BS-135A.1	Recall the basics of multivariable calculus and linear algebra.
BS-135A.2	Apply the idea of differential and integral calculus to notions of improper integrals and Solve problems using beta and gamma Function. Which will be useful to determine life span of an electrical components and conduction in semi-infinite solids.
BS-135A.3	Categorize and solve the sequence, power series and Fourier series which will be useful in digital signal processing, signal system and network
BS-135A.4	Examine the functions of several variables that is essential in most branches of engineering. Which will be useful in derivation of governing differential equations of heat transfer, fluid mechanics.
BS-135A.5	Classify the essential tools of matrices and linear algebra which will be useful in scientific computing, robotics and digital image processing.
BS-136 A	CALCULUS AND ORDINARY DIFFERENTIAL EQUATION
BS-136A.1	Recall the basics of Calculus and Ordinary Differential Equations.
BS-136A.2	Solve various types of differential equations which will be used in solving various engineering problems related to electrodynamics, quantum mechanics and fluid mechanics.
BS-136A.3	Apply multivariable calculus to find area and volume of various geometrical figures.
BS-136A.4	Simplify line, surface and volume integrals using vector calculus.
BS-136A.5	Classify the essential tools of complex differentiation and integration which will be used in control theory, signal analysis and fluid dynamics.
BS-133A	CALCULUS AND LINEAR ALGEBRA
BS-133A.1	Recall the basics of calculus and linear algebra.
BS-133A.2	Apply the idea of differential and integral calculus to notions of improper integrals and Solve problems using beta and gamma Function. Which will be useful to determine life span of an electrical components and conduction in semi-infinite solids.
BS-133A.3	Analyze the fundamental of Rolle's Theorem and Mean value theorem in engineering problems.
BS-133A.4	Construct the essential tools of matrices and linear algebra. This will be useful in scientific computing, robotics and digital image processing.
BS-133A.5	Outline the terms span, linear independence, basis, and dimension & apply these concepts to vector spaces, which will be useful in cryptography and computer graphics.

BS-119A	**ELECTROMAGNETIC THEORY**
BS-119A.1	Recall the basics of Electrostatics and Magnetostatics in vacuum
BS-119A.2	Explain the concepts of Electrostatics and Magnetostatics in a linear dielectric medium.
BS-119A.3	Simplify the problems based on electromagnetism
BS-119A.4	Apply the knowledge of Electromagnetism to Know the process of electromagnetic induction, to derive Maxwell's equations and discuss electromagnetic waves
HM-103LA	**LANGUAGE LAB**
HM-103LA.1	Recall the content of audio inputs for effective listening skills.
HM-103LA.2	Demonstrate the physiological characteristics of proper voice and diction for better speaking skills.
HM-103LA.3	Practice the worksheets related to stress and intonation on words for better fluency in language.
HM-103LA.4	Analyze everyday situations through role play activities for better presentation in corporate sector and daily life.
HM-103LA.5	Illustrate interview skills through mock interview practices.
HM-103LA.6	Implement Listening, Speaking, Reading and Writing skills through formal presentation.
BS-121LA	**ELECTROMAGNETIC LAB**
BS-121LA.1	Demonstrate measurement practices, nature of experimental errors and practical means to estimate errors.
BS-121LA.2	Experiment with the various procedures and techniques of semiconductor.
BS-121LA.3	Test for the concepts /equations related to electrostatics and electromagnetic induction to obtain quantative results.
BS-121LA.4	Measure required values and draw inferences through team work.
BS-117LA	**SEMICONDUCTOR PHYSICS LAB**
BS-117LA.1	Demonstrate measurement practices, nature of experimental errors and practical means to estimate errors.
BS-117LA.2	Experiment with the various procedures and techniques of semiconductor.
BS-117LA.3	Test for the concepts /equations related to Band theory of solids, Hall Effect, Diode characteristics, electric and magnetic field to obtain quantitative results.
BS-117LA.4	Measure required values and draw inferences through team work.

BS-103L A	CHEMISTRY LAB
BS-103LA.1	Estimate the certain properties of water in terms of calcium and magnesium ions.
BS-103LA.2	Examine the properties of various Lubricants for various industrial puposes.
BS-103LA.3	Analyse the some important physical properties like viscosity, surface tension etc of liquids
BS-103LA.4	Standardize solutions using titration, conductivity meter, pH-meter.

Mechenical Engineering

ES-109A	ENGINEERING GRAPHICS & DESIGN
ES-109A.1	Construct different curve ,scale and understand their applications
ES-109A.2	Demonstrate convention used in orthographic projections and draw the orthographic projection of points, lines, planes and solids
ES-109A.3	Construct orthographic projection of section of solids and their true shapes
ES-109A.4	Develop lateral surface of the Solids
ES-109A.5	Understand principle and draw isometric to orthographic projection and vice-versa.

ES-113LA	ENGINEERING GRAPHICS & DESIGN LAB
ES-113LA.1	Apply of the User interface and toolbox in CAD Software
ES-113LA.2	Understand to customize settings of CAD Software
ES-113LA.3	Implement customize settings to produce CAD Drawing
ES-113LA.4	Demonstrate and perform various functions in CAD software
ES-113LA.5	Discover about solid modelling and produce CAD drawing

ES-111LA	MANUFACTURING PROCESS & WORKSHOP
ES-111LA.1	Compare different manufacturing methods in industries and develop parts on CNC machine
ES-111LA.2	Demonstrate of Fitting ,Electrical and Electronics shops
ES-111LA.3	Develop jobs on Carpentry and Plastic moulding shops
ES-111LA.4	Demonstrate metal casting and develop jobs on Metal casting in foundry shop
ES-111LA.5	Classify different welding processes and develop jobs on Welding in welding shop

Computer Sciences

ES-105A	PROGRAMMING FOR PROBLEM SOLVING
ES-107L.1	Recall the fundamentals of Computer system and learn problem solving techniques.
ES-107L.2	Understand basics of C language and apply conditional statements to develop C programs.
ES-107L.3	Construct C programs using various data structures like arrays, strings and functions.
ES-107L.4	Use pointers and file handling to solve C complex problems.

ES-107LA	PROGRAMMING FOR PROBLEM SOLVING LAB
ES-107L.1	Implement various operators on given input data.
ES-107L.2	Use control statements like conditional, branching, iteration and recursion
ES-107L.3	Illustrate programs using functions and design a complete program using divide and conquer approach
ES-107L.4	Develop programs using arrays, pointers and structures

Electronics and Communication Engineering

ES-101A	BASIC ELECTRICAL ENGINEERING: ES-101A
ES-101A.1	Apply basic electrical laws & theorems to solve DC circuits.
ES-101A.2	Make use of AC fundamentals & basic mathematical principles to solve AC circuits.
ES-101A.3	Familiarize with the basics of balanced three phase system and single phase transformer.
ES-101A.4	Illustrate the working of electrical machines & electrical installations

ES-103LA	BASIC ELECTRICAL ENGINEERING LAB
ES-103LA.1	Experimentally verify the basic laws and network theorems for DC circuits.
ES-103LA.2	Plot the steady state frequency response of RLC series and parallel circuits.
ES-101LA.3	Analyse the various tests on single phase transformer.
ES-101LA.4	Demonstrate the constructional features of various electrical machines.

BS-207A	APPLIED AND COMPUTATIONAL MATHEMATICS
BS-207A.1	Identify the ordinary and partial differential equations, its formation and solutions for multivariable differential equations originated from real world problems.
BS-207A.2	Extend the topic in calculus essential for computation w.r.t parameter variations, vectors and field theory.
BS-207A.3	Apply the concept of Laplace transform and how it is useful in solving the definite integrals and intial value problems.
BS-207A.4	Analyse the tools of numerical methods in a comprehensive manner those are used in approxamiting the solutions of various engineering