

**DON BOSCO INSTITUTE OF TECHNOLOGY, MUMBAI
DEPARTMENT OF ELECTRONICS & TELECOMMUNICATION
COURSE OUTCOMES**

CAY- (Odd semester, 2021-22)

Course Name:	BEE		
Course Code	FEC105		
Faculty Name:	Ms. Pratibha Dumane, Ms. Gejo George		
Year	1	Sem	I

CO Number	Course Outcome
FEC105.1	Students will be able to define the various laws, theorems, terms related to dc circuits, ac circuits, generation of three phase voltage, transformers and motors.
FEC105.2	Students will be able to explain the fundamental concepts related to dc circuits, ac circuits, generation of three phase voltage, transformers, motors and generators.
FEC105.3	Students will be able to solve problems by applying fundamentals laws, theorems of electricity to given dc and ac circuits and transformers.
FEC105.4	Students will be able to analyse the various parameters related to dc circuits, single phase and three phase ac circuits and transformers.
FEC105.5	Students will be able to evaluate the given single phase, three phase ac circuits, and transformers.
FEC105.6	Students will be able to simulate dc and ac circuits involving independent sources.

Course Name:	Applied Mathematics - III		
Course Code	ECC301		
Faculty Name:	Dr. Revathy Sunderajan		
Year	2	Sem	III

CO Number	Course Outcome
ECC301.1	Students will be able to Demonstrate the knowledge of Laplace transforms, inverse Laplace transforms Fourier Series and integral, Vector algebra and calculus, Complex variable and Bessel Functions
ECC301.2	Students will be able to Understand Milne-Thomson method to find $f(z)$, expand the periodic function by using Fourier series and complex form of Fourier series Plot the image of the curve from Z-plane to W-plane
ECC301.3	Students will be able to apply Laplace transform to solve diff. equations. Apply appropriate theorem of vectors in engg. subjects Apply appropriate transforms in telecommunication engineering
ECC301.4	Students will be able to Demonstrate an ability to identify, formulate, analyze and synthesis complex engg. problems using Laplace transforms, Fourier series and transforms, mapping, vectors and Bessel's functions
ECC301.5	Students will be able to work as a team by participating in the content beyond syllabus activity and peer learning happens through tutorial
ECC301.6	Students will be able to Participate and succeed in competitive exams.

Course Name:	Electronic Devices and Circuits		
Course Code	ECC302		
Faculty Name:	Dr. S. S Mande		
Year	2	Sem	III

CO Number	Course Outcome
ECC302.1	Students will be able to describe the operation of various semiconductor devices like pn junction , BJT, MOSFET and JFET and their applications.
ECC302.2	Students will be able to explain and discuss various types of semiconductor devices along with their I-V Characteristics and output waveforms with references to electronics circuits.
ECC302.3	Students will be able to apply the concept and derive the expressions for various performance measures of analog electronics circuits.
ECC302.4	Students will be able to analyze and relate circuit parameters with performance parameters
ECC302.5	Students will be able to evaluate and select suitable components to obtain proper performance of Amplifier circuits for the given specification
ECC302.6	Students will be able to design basic biasing circuits using BJT and MOSFET for a given specification and application

Course Name:	Digital System Design		
Course Code	ECC303		
Faculty Name:	Madhavi S. Pednekar		
Year	2	Sem	III

CO Number	Course Outcome
ECC303.1	Students will be able to understand types of digital logic, digital circuits and logic families with examples.
ECC303.2	Students will be able to analyze, design and implement various combinational and sequential logic circuits.
ECC303.3	Students will be able to develop a digital logic and apply it to solve real life problems.
ECC303.4	Students will be able to construct digital logic systems using various logic gates, combinational and sequential circuits.
ECC303.5	Students will be able to classify different types of memories and PLDs.
ECC303.6	Students will be able to simulate and implement basic combinational and sequential circuits using VHDL/Verilog.

Course Name:	Network Theory		
Course Code	ECC304		
Faculty Name:	Ms.Pratibha Dumane, Mr. Jithin Issac		
Year	2	Sem	III

CO Number	Course Outcome
ECC304.1	The student will be able to learn the basic terminologies related to analysis of electrical circuits, Graph Theory & Two Port Networks.
ECC304.2	The student will be able to describe and identify the different theorems, parameters & terminologies used in the analysis of electrical circuits.
ECC304.3	The student will be able to apply the concepts of electrical circuit theory and compute the transient and steady state response of R, L, C circuits & Two Port Networks.
ECC304.4	The student will be able to analyze the effect of circuit elements on the stability and output characteristics of an electrical network.
ECC304.5	The student will be able to judge and select suitable components in order to make the output of a electrical network stable and in accordance with given requirements.
ECC304.6	The student will be able to design/synthesize electrical circuits as per given specifications.

Course Name:	Electronic Instrumentation and Control Systems		
Course Code	ECC305		
Faculty Name:	Ms. Namita Agarwal, Ms. Gejo George		
Year	2	Sem	III
CO Number	Course Outcome		
ECC305.1	Students will be able to define and describe the basic terms and characteristics associated with electronic instruments. They will be able to define and describe the basic concepts of control systems.		
ECC305.2	Students will be able to explain the principle of operation and discuss about the measurement of electrical and non-electrical parameters using transducers and bridges. The students will be able to understand the purpose of a control system and its usefulness in various applications through examples.		
ECC305.3	Students will be able to apply their knowledge to find solutions to problems using transducers and bridges. Students will be able to apply the knowledge of Block diagram reduction and Signal flow graph rules to derive the mathematical model of a control system.		
ECC305.4	Students will be able to analyze and compare the various transducers and bridges. They will be able to analyze time domain and frequency domain parameters for a given system using various techniques. They will be able to analyze stability conditions using appropriate criterias.		
ECC305.5	Students will be able to evaluate transient and steady state error parameters of a system for different standard test signal.		
ECC305.6	Students will be able to create models of different systems through simulation and analyze different parameters.		

Course Name:	Electronic Devices and Circuits Lab		
Course Code	ECL301		
Faculty Name:	Dr. S. S. Mande		
Year	2	Sem	III
CO Number	Course Outcome		
ECL301.1	Students will be able to acquire a basic knowledge of working of various equipments , identifying various components and mounting the components on breadboard.		
ECL301.2	Students will be able to understand working of rectifier with filter circuits and regulators and will be able to obtain the output waveforms and determine the performance parameters and compare with the theoritical value.		
ECL301.3	Students will be able to understand the working of small signal amplifiers and obtain its transfer and output characteristics and determine the parameters graphically.		
ECL301.4	Students will be able to obtain the frequency response of single stage amplifiers and determine the small signal volatge gain and determine the bandwidth.		
ECL301.5	Students will be able to apply the concept of stablity factor and analyse various biasing circuits of BJT and JFET		

Course Name:	Digital System Design Lab		
Course Code	ECL302		
Faculty Name:	Ms. Madhavi S. Pednekar		
Year	2	Sem	III

CO Number	Course Outcome
ECL302.1	Students will be able to identify various Digital ICs and basic building blocks of digital system design
ECL302.2	Students will be able to reduce, implement and verify the logical expressions using logic gate ICs.
ECL302.3	Students will be able to design and implement combinational circuits like adder, subtractor, multiplexer, code converters etc.
ECL302.4	Students will be able to identify and understand working of various types of flip flops and their inter conversions.
ECL302.5	Students will be able to design and implement basic sequential circuits such as counters, registers etc.
ECL302.6	Students will be able to acquire basic knowledge of VHDL/Verilog basic programming.

Course Name:	Electronic Instrumentation and Control Systems Lab		
Course Code	ECL303		
Faculty Name:	Ms. Namita Agarwal, Ms. Gejo George		
Year	2	Sem	III

CO Number	Course Outcome
ECL303.1	Students will be able to simulate and verify the principle and characteristics of various transducers.
ECL303.2	Students will be able to experimentally demonstrate and measure the values of R,L,C using bridges.
ECL303.3	Students will be able to simulate and verify the time domain specifications for a given system using open source simulation tool.
ECL303.4	Students will be able to plot and analyze the time/frequency response of a given system.
ECL303.5	Students will be able to inspect the stability of a system using various techniques.

Course Name:	Skill Lab: C++ and Java Programming		
Course Code	ECL304		
Faculty Name:	Deepali Kayande		
Year	2	Sem	III

CO Number	Course Outcome
ECL304.1	Understand object oriented programming concepts and implement using C++ and Java
ECL304.2	Comprehend building blocks of OOPs language, inheritance, package and interfaces.
ECL304.3	Articulate exception handling methods.
ECL304.4	Implement different programming applications using packaging.
ECL304.5	Implement multithreading in object oriented programs.
ECL304.6	Percept the Utility and applicability of OOP

Course Name:	Mini Project 1A		
Course Code	ECM301		
Faculty Name:	Mr. Jithin Isaac, Ms.Madhavi S. Pednekar, Dr. Ashwini Kotrashetti		
Year	2	Sem	III

CO Number	Course Outcome
ECM301.1	Students will be able to To create the electronics circuit for particular application/experiment.
ECM301.2	Students will be able to To Design and simulate the circuits by putting together the analog and digital components
ECM301.3	Students will be able to To Learn the technique of soldering and circuit implementation on general purpose printed circuit board (GPP).
ECM301.4	Students will be able to To Realize the PCB design process and gain up-to-date knowledge of PCB design software.
ECM301.5	Students will be able to To Utilize the basic electronic tools and equipment's (like DMM, CRO, DSO etc.)
ECM301.6	Students will be able to To Analyse hardware fault (Fault detection and correction)

Course Name:	Digital Communications		
Course Code	ECC501		
Faculty Name:	Namita Agarwal		
Year	3	Sem	V

CO Number	Course Outcome
ECC501.1	Students will be able to define and describe the basic concepts of information theory as applied to modern communication systems.
ECC501.2	Students will be able to understand and explain the methods of baseband and bandpass modulation and demodulation.
ECC501.3	Students will be able to apply the concepts of Information Theory in source coding and channel coding.
ECC501.4	Students will be able to analyze and compare the performance of various digital modulation techniques.
ECC501.5	Students will be able to evaluate the performance of optimum baseband detection techniques in the presence of white noise.
ECC501.6	Students will be able to formulate and design error control systems for reliable communication.

Course Name:	RSA		
Course Code	ECC504		
Faculty Name:	Dr. Ashwini Kotrashetti		
Year	3	Sem	V

CO Number	Course Outcome
ECC504.1	Students will be able to define and describe basic terminologies of probability theory.
ECC504.2	Differentiate continuous and discrete random variables and their distributions.
ECC504.3	Apply the fundamental concepts and methods of probability and random variables to develop an understanding of the key distribution, models and their interrelationships.
ECC504.4	Analyze properties of random variables or its probability distributions so as to compute their statistical operations.
ECC504.5	Students will be able to determine and justify the type of the random process.
ECC504.6	Analyze probabilistic model used for characterizing a random signal.

Course Name:	Discrete Time Signal Processing		
Course Code	ECC502		
Faculty Name:	Dr. Satishkumar Chavan		
Year	3	Sem	V

CO Number	Course Outcome
ECC502.1	Students will be able to know the discrete time signals, systems and DSP processors along with their various properties.
ECC502.2	Students will be able to understand the concepts of various tools to be used in analysis of discrete time systems.
ECC502.3	Students will be able to compute various parameters of discrete time systems and processors.
ECC502.4	Students will be able to analyze the discrete time systems and processors for measuring the performance of digital filters.
ECC502.5	Students will be able to evaluate the discrete time systems and processors for its better utilization in various applications.
ECC502.6	Students will be able to design the discrete time systems for effective use in various applications.

Course Name:	Digital VLSI		
Course Code	ECC503		
Faculty Name:	Dr. Sudhakar Mande		
Year	3	Sem	V

CO Number	Course Outcome
ECC503.1	Students will be able to Know various tools and processes used in VLSI Design (Knowing)
ECC503.2	Students will be able to explain working of various CMOS combinational and sequential circuits (Understanding)
ECC503.3	Students will be able derive expression for performance parameters of various building blocks like CMOS inverter (Applying)
ECC503.4	Students will be able to relate performance parameters with design parameters of VLSI Circuits (Analyzing)
ECC503.5	Students will be able to select suitable circuit and design style of given specifications. (Evaluating)
ECC503.6	Students will be able to design and realize various combinational and sequential circuits for given specifications (Designing)

Course Name:	DATA COMPRESSION AND CRYPTOGRAPHY		
Course Code	ECCDLO5012		
Faculty Name:	Madhavi Pednekar		
Year	3	Sem	V

CO Number	Course Outcome
ECCDLO5012.1	Students will be able to define data compression and data encryption and to describe different types/algorithms of compression and encryption techniques with their applications in the areas of Telecommunication.
ECCDLO5012.2	Students will be able to select suitable compression techniques for specified lossless and lossy audio and video applications.
ECCDLO5012.3	Students will be able to apply various compression techniques for text and video compression and number theory concepts to solve the cryptographic problems.
ECCDLO5012.4	Students will be compare between symmetric and asymmetric cryptography and also describe different symmetric cryptographic techniques and standards.
ECCDLO5012.5	Students will be able to analyze different public key cryptography algorithms and also describe methods that provide the goals for integrity, confidentiality and authentication.
ECCDLO5012.6	Students will be able to describe system security facilities designed to protect a computer system from security threats and also appreciate ethical issues related to system security.

Course Name:	DCOM LAB		
Course Code	ECL 501		
Faculty Name:	Namita Agarwal		
Year	3	Sem	V

CO Number	Course Outcome
ECL 501.1	Students will understand basic concept of digital communication and explain the basic concepts of digital modulation techniques.
ECL 501.2	Students will be able to experimentally demonstrate the different digital modulation techniques.
ECL 501.3	Students will be able to implement line coding methods using Scilab software.
ECL 501.4	Students will be able to simulate various coding techniques and analyze the simulation results.
ECL 501.5	Students will be able to collect, analyze and interpret data to form and support conclusions.
ECL 501.6	Students will be able to design source and channel codes as per specifications.

Course Name:	Discrete Time Signal Processing Lab		
Course Code	ECL502		
Faculty Name:	Dr. Satish Chavan		
Year	3		V

CO Number	Course Outcome
ECL 502.1	Students will be able to know the syntax of the language (MATLAB/Scilab/Octave) that is used for programming DTSP lab work.
ECL 502.2	Students will be able to understand the use of correct approach for a particular simulation.
ECL 502.3	Students will be able to apply suitable looping techniques to get desired results.
ECL 502.4	Students will be able to analyze the discrete time systems for measuring the performance of digital filters.
ECL 502.5	Students will be able to choose suitable filter for a given specifications.
ECL 502.6	Students will be able to design the filters for its effective use in the medical and audio applications.

Course Name:	DVLSI Lab		
Course Code	ECL503		
Faculty Name:	Dr. Sudhakar Mande		
Year	3	Sem	V

CO Number	Course Outcome
ECL503.1	Students will be able to write spice code for given combinational and sequential CMOS circuits.
ECL503.2	Students will be able to perform various analysis like operating point, dc, transient etc of given CMOS circuit
ECL503.3	Students will be able to evaluate performance of given CMOS circuits.
ECL503.4	Students will be able to draw layout of given CMOS circuit and also able extract various parasitic using open source layout tool like Magic
ECL503.5	Students will be able to design, simulate, and verify CMOS circuit for given specifications

Course Name:	Professional Communication & Ethics - II		
Course Code	ECL504		
Faculty Name:	Sachin Sugave		
Year	3	Sem	V

CO Number	Course Outcome
ECL504.1	Identify issues related to society, health, safety and prepare a comprehensive report in a pre-specified format gathering information from primary and secondary sources using research tools and analyzing the collected information to recommend technological solution with due consideration to environment and society through a well defined process
ECL504.2	Evaluate the social situation, identify business opportunities, and propose business offers in the prescribed format
ECL504.3	Demonstrate conceptual awareness of interpersonal skills through the given activities
ECL504.4	Plan and execute a meeting with the help of agenda
ECL504.5	Identify and solve professional and ethical problems in the given sample business situations and demonstrate knowledge of table etiquette and a sense of presentability in terms of dressing and grooming.
ECL504.6	Prepare their employability through resume, presentation skills, group discussions and mock interviews.

Course Name:	Mini Project 2A: Embedded System Jithin Isaac, Aparna Telgote, Freda C.		
Course Code	ECM501		
Faculty Name:	Jithin Isaac		
Year	5	Sem	V

CO Number	Course Outcome
ECM501.1	Students will be able to understand embedded systems with design & BoM metrics.
ECM501.2	Students will be able to learn about 32 bit microcontrollers and programming in Embedded C.
ECM501.3	Students will be able to Implement Embedded systems integration with different sensors and peripherals as IoT.
ECM501.4	Students will be able to Implement Embedded systems with different communication protocols as IoT.
ECM501.5	Students will be able to Analyze concepts of Real time operating systems.
ECM501.6	Students will be able to Design embedded system applications using sensors, peripherals and RTOS

Course Name:	Microwave Engineering		
Course Code	ECC701		
Faculty Name:	Freda Carvalho		
Year	4	Sem	VII

CO Number	Course Outcome
ECC701.1	Students will have comprehensive knowledge and skills associated to Microwave passive, active components and Microwave integrated circuits
ECC701.2	Students will develop a capacity to write and explain the theoretical concepts related to Microwave passive & active components.
ECC701.3	Students will develop the ability to apply knowledge to solve problems and derive equations on working of microwave devices . They will be able to utilise the principles of microwave engineering towards solving problems of microstrip, coupled lines and strip lines.
ECC701.4	Students will develop the ability to analyse the working of matching networks and modes of waveguides, striplines, microstriplines and coupled lines
ECC701.5	Students will be able to evaluate the specifications to design of microwave devices. They will be able to compare and recommend a suitable device for the given application or measurement.
ECC701.6	Students will design a network of a microwave subsystem for the given required specification.

Course Name:	MCS		
Course Code	ECC702		
Faculty Name:	Aparna T		
Year	4	Sem	VII

CO Number	Course Outcome
ECC702.1	Students will able to understand GSM, CDMA concepts and architecture, frame structure, system capacity, services provided
ECC702.2	Students will compare the 1G,2G,3G,4G with respect to data rate, frame structure, modulation schemes used, advantages and limitations
ECC702.3	Identify the emerging technologies for upcoming mobile communication systems.
ECC702.4	Students will able to evaluate and analyze various propagation path loss models and their impact on received signal strength.
ECC702.5	Students will able to simulate live wireless networks and analyze the simulation results
ECC702.6	Students will able to design a cellular network which will take care of trade off between capacity and signal to Interference ratio

Course Name:	Optical Communication		
Course Code	ECC703		
Faculty Name:	POONAM C		
Year	4	Sem	VII
CO Number	Course Outcome		
ECC703.1	The students should be able to describe the various theories and principles used in optical transmission using the Ray and waveguide transmission theory.		
ECC703.2	The students will be able to explain principles and characteristics of various types of fibers, sources, detectors, various fiber optic components, various methods used in fiber fabrication and losses in fiber		
ECC703.3	The students should be able to apply various theories of fiber optics for selecting the right component in the fiber optics network design for improving the receiver performance.		
ECC703.4	The students will be able to classify and analyze the various kinds of fibers, optical sources and detectors and other components based on their electrical specifications, characteristics and requirements and will be able to analyze the link.		
ECC703.5	The students should be able to evaluate various fiber parameters, number of modes, losses, quantum efficiency, bit error rate, non linearity and the link power budget and rise time budget for any given fiber link		
ECC703.6	The students should be able to design a optical fiber communication links using appropriate components for any topographical scenario.		

Course Name:	INTERNET COMMUNICATION ENGG- ELECTIVE		
Course Code	ECCDLO 7033		
Faculty Name:	APARNA T.		
Year	4		VII
CO Number	Course Outcome		
ECCDLO7033.1	Students will be able to define various terms related to the internet communication and voice transfer.		
ECCDLO7033.2	Students will be able to compare OSI and TCP/IP model.		
ECCDLO7033.3	Students will be able to discuss the functions of the various protocols in use for Internet and voice communication.		
ECCDLO7033.4	Students will be able to choose the specific protocols for a given application.		
ECCDLO7033.5	Students will be able to analyse different protocols used in internet communication.		
ECCDLO7033.6	Students will be able to design various networks and subnetworks used in Internet communication according to specific applications.		

Course Name:	BIG DATA ANALYTICS-ELECTIVE		
Course Code	ECCDLO7032		
Faculty Name:	JITHIN ISAAC		
Year	4	Sem	VII

CO Number	Course Outcome
ECCDLO7032.1	Identify challenges in big data management and inadequacy of existing technology to analyze big data.
ECCDLO7032.2	Apply scalable algorithms based on Hadoop and Map Reduce to perform Big Data Analytics.
ECCDLO7032.3	Use NoSQL tools to solve big data problems and apply various techniques for finding similar items in any application.
ECCDLO7032.4	Use stream data model to provide real time analysis of big data.
ECCDLO7032.5	Apply various methods and techniques for Clustering, frequent Itemsets and Link Analysis.
ECCDLO7032.6	Discover information from social network graphs and Solve complex real world problems in various applications.

Course Name:	Mobile Communication LAB		
Course Code	ECL702		
Faculty Name:	Aparna M. Telgote		
Year	4	Sem	VII

CO Number	Course Outcome
ECL702.1	Students will be able to find SAR value and various wireless technologies supported by the mobile and will understand generations of mobile phones
ECL702.2	Students will be able to understand performance characteristics of mobile communication(Frequency Reuse)
ECL702.3	Students will be able to generate code , and design basic CDMA Transreciver System
ECL702.4	Students will be able to apply various path loss models (Free space/Indoor propagation model) to find path loss and calculate received signal strength, and coverage distance for different (urban, suburban and rural) environment
ECL702.5	Students will be able to analyse live network of 2G and 3G and HSDPA network
ECL702.6	Students will be able to evaluate performance of a cellular system for different environment by considering the effect of Cluster Size, traffic intensity, Signal to Interference ratio.

Course Name:	Microwave Engineering Laboratory		
Course Code	ECL701		
Faculty Name:	Freda Carvalho		
Year	4	Sem	VII

CO Number	Course Outcome
ECL 701.1:	Students will have basic knowledge and skills related to Microwave passive & active components and will be able to measure various microwave parameter.
ECL 701.2	Students will be able to apply their theoretical knowledge and demonstrate proficiency to operate various instruments to measure and analyze various microwave parameters.
ECL 701.3	Students will be able to apply their knowledge and skills to perform measurements of various microwave parameters
ECL 701.4	Student will be able to demonstrate his/her proficiency in the subject by taking up a socially relevant topic for discussion.
ECL 701.5	Student will be able to evaluate the given problem and choose appropriate methods and tools to obtain results.
ECL 703.6	Students will be able to design/simulate and evaluate the behaviour of microwave circuits

Course Name:	Optical Communication lab		
Course Code	ECL703		
Faculty Name:	Poonam Chakraborty		
Year	4	Sem	VII

CO Number	Course Outcome
ECL703.1	Students will have comprehensive knowledge and skills relating to Fiber components and fiber transmissions
ECL703.2	The students will have the understanding of the principle of Rays Optics (for fiber optics communication) and using these principles will be able to transmit and receive an analog and digital signal using fiber optics communication.
ECL 703.3	Students will be able to apply various measuring techniques for finding attenuation coefficient, numerical aperture a, responsivity of the fiber.
ECL703.4	The students will be able to evaluate various parameters of the fiber cable like bending loss , attenuation loss and Numerical Aperture for the given fiber cable
ECL703.5	The students will be able to analyze and plot various characteristic of the fiber source(LED's) and Photodetector
ECL703.6	The students will be able to design a fiber point to point link for a given scenario. They will be able to propose solution for sustainable technology related to fiber optics

Course Name:	ICE LAB		
Course Code	ECLDLO 7033.1		
Faculty Name:	APARNA T.		
Year	4	Sem	VII

CO Number	Course Outcome
ECLDLO 7033.1	Students will be able to use various softwares required for internet and voice communication.
ECLDLO 7033.2	Students will be able to implement LANs using both static and dynamic addressing techniques including subnetting.
ECLDLO 7033.3	Students will be able to configure various protocols like DHCP, DNS, SSH, Telnet, Email.
ECLDLO 7033.4	Students will be able to analyze various protocols like DHCP, DNS, SSH, Telnet, Email,
ECLDLO 7033.5	Students will be able to do certain operations on audio and video files.
ECLDLO 7033.6	Students will be able to configure and analyze VOIP protocols.

Course Name:	BIG DATA ANALYTICS LABORATORY		
Course Code	ECLDLO7032		
Faculty Name:	JITHIN ISAAC		
Year	4	Sem	VII

CO Number	Course Outcome
ECLDLO7032.1	Students will learn the core components of a Hadoop ecosystem, Install Hadoop components and perform basic HDFS operations
ECLDLO7032.2	Students will learn to query the Hadoop HDFS using basic MapReduce algorithm. They will implement basic algorithms in MapReduce for Matrix multiplication and Aggregation.
ECLDLO7032.3	Students will learn the NoSQL data architecture using MongoDB & InfluxDB and learn programming exercises for querying the NoSQL database
ECLDLO7032.4	Students will learn to install Hive & Pig for Data Analysis
ECLDLO7032.5	Students will learn NodeRed for learning about JSON semi structured data
ECLDLO7032.6	Students will learn basic Python coding for Data Analysis

Course Name:	Project Stage-I		
Course Code	ETP701		
Faculty name	MS. FREDA C.		
Year	4	Sem	VII

CO Number	Course Outcome
ETP701.1	Students will be able to identify the domain area of their project and also the Industrial/social/health/safety/legal/environment aspects.
ETP701.2	Students will be able to apply appropriate research methodologies & design techniques to provide solutions that meet specified needs with consideration for public health, safety & welfare, global cultural, social, environmental and economic factors.
ETP701.3	Students will be able to develop & conduct appropriate experimentation, analyze/ synthesize and interpret data using modern tools to draw valid conclusions.
ETP701.4	Students will be able to function effectively as a team, plan tasks, establish goals and meet objectives.
ETP701.5	Students will be able to demonstrate ethical and professional responsibilities.
ETP701.6	Students will be able to communicate effectively their work through technical reports and presentations.