2.6.2 - Attainment of Programme outcomes and course outcomes are evaluated by the institution.

Table of Contents

Introduction 2
Sample Course Outcomes (CO's) of Computer Science and Engineering (UG) 3
Sample Course Outcomes (CO's) of Computer Science and Engineering (PG) 9
Sample Course Outcomes (CO's) of Information Technology 10
Sample Course Outcomes (CO's) of Electronics and Communication Engineering (UG) 12
Sample Course Outcomes (CO's) of Electronics and Communication Engineering (PG) 14
Sample Course Outcomes (CO's) of Civil Engineering 16
Sample Course Outcomes (CO's) of Chemical Engineering 18
Sample Course Outcomes (CO's) of Mechanical Engineering (UG) 20
Sample Course Outcomes (CO's) of Mechanical Engineering (PG) 21
Sample Course Outcomes (CO's) of Artificial Intelligence and machine learning 23
Sample Course Outcomes (CO's) of CSE (Internet of Things and Cyber Security Including Blockchain Technology) 25
Sample Course Outcomes (CO's) mapping with PO's and PSO's 27
Sample Direct Attainment sheet 34
Indirect Attainment 40
Semester / Course End Survey including Curriculum Feedback 40
Program End Survey 45
Parents Survey 47
Alumni Survey 48

Introduction

Method of Attainment of POs, PSOs, and COs

The attainment of COs is based on continuous internal assessment and semester examinations. Attainment of CO in a course is set at 30% from continuous internal assessment and 70% from end-semester examinations. Program Outcomes and Program-Specific Outcomes Assessment Process COs are mapped to POs in matrix form. Correlation levels 1, 2, and 3 are defined as low, moderate, and high, respectively. "-" or blank is used if there is no correlation. The target level and level of attainment for any subject will be based on the previous year's attainment and finalized by the concerned subject faculty. Two methods are adopted for attainment: Direct methods represent the student's knowledge and skills based on their performance in the continuous assessment test, semester examinations, assignments, quizzes, group discussions, and lab practical to assess practical knowledge. Indirect methods include surveys from stakeholders to reflect on students learning in IIST, all faculty members from all programs use all direct and indirect assessment tools throughout the semester. All faculty members compute the attainment of course outcomes for their respective courses using direct assessment tools with a weightage of 80% and various surveys with a weightage of 20%. The HoD of each program collects this information from the subject faculty and computes the attainment of POs.

Sample Course Outcomes (CO's) of Computer Science and Engineering (UG)

Subject Code	Subject Name	CO Description
BT-101	Engineering Chemistry	Differentiate hard and soft water; solve the related numerical problems on water purification and its significance in industry and daily life.
		Select the lubricant for various purposes based on the type of Machines.
		Equipped with basic knowledge of polymer , methods of polymerization and various industrial applications of polymers
		Draw the Phase diagrams of one & two component systems and causes, consequences and methods to minimize corrosion to improve industrial designs.
		Identify the structure of unknown/new compounds with the help of spectroscopy and understand periodic properties such as ionization potential, oxidation states and electro negativity
BT-102	Mathematics -I	To introduce the fallouts of Rolle's Theorem that is fundamental to application of analysis to Engineering problems.
		To introduce the idea of applying differential and integral calculus to notions of curvature and to improper integrals. Apart from some applications it gives a basic introduction on Beta and Gamma function
		To develop the tool of power series and Fourier series for learning advanced Engineering Mathematics.
		To familiarize the student with functions of several variables that is essential in most branches of engineering
		To develop the essential tool of matrices and linear algebra in a comprehensive manner.
BT-103	English for Communication	Effective use of verbal and non-verbal communication for enhanced soft skill beside enhanced reading comprehension as well
		Write the different kinds of letters, reports and technical writing.
		Apply basic rules of grammar in both written as well as oral communication.
BT-104	Basic Electrical & Electronics Engineering	To introduce the concept of Basics of DC electrical Network including network theorems.
		To introduce the concept of Basics of AC electrical Network(single phase & 3 phase)..
		To study of law of Electromagnetism, introduction of transformer.
		To study of various electrical Machines.
		To study Basic Concept Digital Electronics.

BT-105	Engineering Graphics	Draw various types of scales, and curves.
		Draw orthographic projections of points & lines
		Draw orthographic projections of Planes & Solids
		Draw sections and development of solids including cylinders, cones, prisms and pyramids.
		Draw isometric views of Planes and Solids. Drawing using AUTOCAD.
BT-106	Manufacturing Practices	Use hand and power tools for different manufacturing processes
		Operate machine tools while preparing any component
		Select the appropriate tools required for specific operation.
		Comprehend the safety measures required to be taken while using the tools.
		Prepare Foundry, Fitting, Carpentry, Welding and smithy Job.
BT-107	Internship-I (60 Hrs Duration) at the Institute level	Demonstrate the application of knowledge and skill sets acquired from the course and workplace in the assigned job function/s
		Solve real life challenges in the workplace by analysing work environment and conditions, and selecting appropriate skill sets acquired from the course
		Exhibit critical thinking and problem solving skills by analysing underlying issue/s to challenges
		Demonstrate appreciation and respect for diverse groups of professionals by engaging harmoniously with different company stakeholders
		Exhibit professional ethics by displaying positive disposition during internship
BT-108	Swachh Bharat Summer Internship Unnat Bharat Abhiyan (100Hrs)/ Rural Outreach	This course is to sensitize students about the socio-cultural aspects of the rural areas parochial to their colleges.
		Students are expected to observe, investigate and learn about the following aspects of the rural region: i. Demographics, Literacy, Geographical parameters of the Village; ii. Schemes of government of India and State of Madhya Pradesh in operation in the villages.
		To enhance critical thinking by making them participate in social activities and imbibe human values among them.
		Rural Swachh Bharat Abhiyan is to promote cleanliness and develop healthy habits in people in villages.
		Unnat Bharat Abhiyan: To build an understanding of the development agenda within institutes of Higher Education and an institutional capacity and training relevant to national needs, especially those of rural India.
BT-201	Engineering Physics	The Coursework is designed to provide students the opportunity to learn key concepts of Wave nature of particles and the Schrodinger equation.

		Student will able to understand the knowledge of Wave optics i.e. interference and diffraction.
		To introduce the idea of solids like semiconductors (P type and N Type semiconductors), Diodes and Hall effect. STudents will also be able to understand the basic concept of superconductivity.
		To develop the understanding of Lasers, fiber optics and their applications in field of engineering sciences.
		To provide you to basic understanding of Electrostatics in vacuum.
BT-202	Mathematics -II	To introduce effective mathematical tools for the solutions of ordinary and partial differential equations that model physical processes.
		To introduce the tools of differentiation and integration of functions of complex variable those are used in various techniques dealing engineering problems.
		To acquaint the student with mathematical tools available in vector calculus needed various field of science and engineering.
BT-203	Basic Mechanical Engineering	Understand the properties of material, stress strain, Properties of alloys and cast iron.
		Understand the concept measurement and machine tools their operations and their applications.
		Understand the concept of fluid flow , properties of fluid, Bernoulli's equation, Pascal's law.
		To Understand the concept of heat and temperature, law of thermodynamics, boilers and their mountings and accessories, basic Refrigeration cycles and its applications.
		To Understand the working of different cycles and 4 strokes, 2 stroke engines and their applications.
BT-204	Basic Civil Engineering & Mechanics	Students will acquire the basic knowledge in different fields of civil engineering and materials used in construction.
		Gain the ability to use modern survey equipment to measure angles and distances.
		Students will understand the basic of contour lines and map
		Students will have the ability to identify, formulate and solve engineering problems related to Engineering Mechanics: Statics
		Students will be able to analyse beam for shear force and bending moment.
BT-205	Basic Computer Engineering	Able to understand the basic applications of computers in various fields, describe operating system, its role and functionalities and to apply concepts of MS word, MS power point, MS Excelefficiently.
		Discuss and apply simple algorithms for arithmetic and logical problems.
		Translate the algorithms to programs applyingobject-oriented concepts in C++ programming language.

		Understand basics of computer networks, OSI layers and protocols, E commerce applications, impact of securitythreats and attacks on networking systems and also security measures
		Understand the different method for representing and processing data and to get awareness about the impact of cloud computing, its various type of services.
BT-206	Language Lab & Seminars	learners to develop good listening skills.
		Encourages learner to talk freely and lose their shyness when talking in front of the people
		To develop the overall personality of the students by the practical activities
		Helps in confidence building, motivation to be more presentable and help in removing the stage fright
		Develops speaking, writing, reading, listening and presentation skills.
ES-301	Energy & Environmental Engineering	Get the knowledge of energy carriers, energy technologies, renewable energy resources, energy challenges and energy system integration and environment sustainability.
		Learn about the different types of ecosystems present in environment, ecological succession and energy flow in the ecosystem.
		Understand the value of bio-diversity to human societies, threats to bio-diversity, In-situ and Ex-situ conservation of bio-diversity.
		Acquire knowledge of different types of environmental pollution, its effects on life and its remedies.
		Aware about the social issue related to the environment, environment ethics, protection and conservation acts for the environment.
CS-302	Discrete Structure	Students will be able to understand the notion of mathematical thinking and algorithmic thinking and be able to apply them in problem solving such as formula specifications, verifications and basic concepts of set theory.
		Understand the basic principle of boolean algebra, logic and set theory.
		Be able to construct simple mathematical proof and possess the ability to verify them.
		Acquire ability to describe computing problems with the help of graph theory and finite state machines, also express its utility in solving and modeling real time problems.
		Apply basic counting techniques to solve combinatorial problem.
CS-303	Data Structure	To understand the concept of linear, non-linear data structures, the operations performed on them and the applications of various data structures.

		Understand the arrays, searching and sorting algorithms.
		Implement stacks, queues and its applications.
		Implement linked list and its variations.
		Solve problem involving graphs, trees and heaps.
CS-304	Digital Systems	Understand the concept of number systems & binary arithmetic.
		To study the boolean algebra and minimization of switching function.
		Understand logic gates, universal gate, adders & subtractors.
		Demonstrate linear wave shaping circuits, logic families, multiplexers and memory.
		Understand basic digital communication system.
CS-305	Object Oriented Programming & Methodology	Describe the procedural and object oriented paradigm with concepts of streams, classes, functions, data and objects.
		Understand dynamic memory management techniques using pointers, constructors, destructors etc.
		Describe the concept of function overloading, operator overloading, virtual functions and polymorphism.
		Understand how to apply the major object-oriented concepts to implement object oriented programs in C++, encapsulation, inheritance and polymorphism.
		Classify inheritance with the understanding of early and late binding, usage of exception handling, generic programming.
CS-306	Computer Workshop	Understand the concepts of Java programming.
		Understand fundamentals of programming such as variables, conditional and iterative execution, methods, etc.
		Understand fundamentals of object-oriented programming in Java and be familiar of the important concepts like class, inheritance and multithreading, AWT and JDBC.
		Use the Java SDK environment to create, debug and run Java programs.
		Develop Java applet.
BT-107	Evaluation of Internship-I completed at I year level	To display the utility of information and talent units obtained from the path and place of business withinside the assigned task function.
		Solve actual existence demanding situations withinside the path via way of means of analysing the area and choosing suitable ability units obtained from the path.
		Exhibit important questioning and hassle fixing talents via way of means of analysing underlying issues to challenges.
		Demonstrate the capacity to harness assets with the aid of using analysing demanding situations and thinking about opportunities.
		Articulate profession alternatives via way of means of thinking about possibilities in company, sector, industry, expert and

		academic advancement.
BT-307	90 hrs Internship based on using various softwares Internship -II	Demonstrate the application of knowledge and skill sets acquired from the course and workplace in the assigned job functions.
		Solve real life challenges in the workplace by analysing work environment and conditions, and selecting appropriate skill sets acquired from the course.
		Exhibit critical thinking and problem solving skills by analysing the challenges.
		Demonstrate appreciation and respect for diverse groups of professionals by engaging harmoniously with different company stakeholders.
		Exhibit professional ethics by displaying positive disposition during internship.

Sample Course Outcomes (CO's) of Computer Science and Engineering (PG)

MCSE 101 Ad. Compt. Mathematics	Identify and comprehend linear algebraic structures that appear in computer science
	Use linear algebraic methods to perform computational task.
	Comprehend and apply the algebric processes in real life problems.
MCSE 102 Ad. Data Structures and Algo	Use data structures and algorithms to solve computing problems
	Design algorithms using graph structure and various string matching algorithms to solve real-life problems
	Apply suitable design strategy for problem solving
MCSE 103 ACA	Discuss the issues related to multiprocessing and suggest solutions
	Point out the salient features of different multicore architectures and how they exploit parallelism
	Discuss the various techniques used for optimising the cache performance
MCSE 104 OOT	Understand and describe the project principles and constructs of object-oriented system
	Identify and model/represent domain constraints on the objects and (or) on their relationships
	Understand various modeling techniques to model different perspectives of object-oriented software design
MCSE 105 Ad. CN	Identify the components required for designing a network
	Design a network at a high-level using different networking technologies
	Analyze the various protocols of wireless and cellular networks

Sample Course Outcomes (CO's) of Information Technology

Univ. Subject Code	Subject Name	CO Description
BT-401	Mathematics-III	Understand mathematical tools for the Numerical Solutions algebraic and transcendental equations.
		Describe mathematical knowledge to understand Laplace transformation, Inverse Laplace transformation and Fourier Transform which are used in various branches of engineering.
		Work with mathematical tools available in Statistics needed in various field of science and engineering
		Fulfill the needs of engineers to understand applications of numerical analysis, transform calculus and statistical techniques in order to acquire mathematical knowledge
		Solve wide range of practical problems appearing in different sections of science and engineering
IT-402	Computer Architecture	Understand basic structure of computer system, arithmetic operations
		Understand the arithmetic operations, study of hardwired and microprogrammed control units
		Develop the concepts of memory management, interleaving and mapping
		Analyse the arithmetic and instructional pipelines
		Explain the function of multi processing and techniques to achieve it
IT-403	Analysis and Design of Algorithm	Implement sorting and searching algorithms
		Experiment with techniques for obtaining maximum outputs with minimum efforts
		Make use of dynamic program
		Solve 8 queens problem and others of the kind for application in real world scenario
		Distinguish between np hard and np complete problems and develop their solutions.
IT-404	Analog & Digital Communication	Differentiate Analog and Digital Signal and types of signals.
		Understand the communication of information over the communication channel.
		Understand how information signal of low frequency can be transmitted with the help of modulation techniques over a long distance.
		Differentiate different modulation techniques such as AM, SSB, DSB and FM.

		Explain using block diagrams, modulation and demodulation techniques for digital signal and determine bandwidth requirement.
IT-405	Data base Management System	Compare file system and DBMS and explain how DBMS is better than traditional file processing systems
		Analyse the physical and logical data base designs, database modelling, relational, Hierarchical, and network models
		Analyse and renovate an information model into a relational innovation schema and to use DDL, DML and DCL utilities to implement the schema using a DBMS.
		Formula data retrieval carries in SQL and relational algebra
		Demonstrate an understanding of functional dependencies, normalisation theory and apply such knowledge to the design of a database
		Demonstrate and explain terms like transaction processing, concurrency control, distributed database and big data
IT-406	Introduction to Web Design	Be acquainted with elements, tags and basic structure of HTML files
		Designing of web page-document layout, working with list, working with tables.
		Practice hyper linking, designing of webpage-working with frames, forms and controls.
		Prepare creating style sheet, CSS properties, background, text, font and styling etc.
		Practice the use of multimedia components in HTML documents.
IT-407	Open Source Software Lab (Linux and R)	Understand the basic commands used in Linux operating system
		Learn the important LinX library functions and system calls
		Write, compiled and debug shell script and Linux environment
		Learn how to program in R and write R functions
		Read data into R, access R packages
BT-408	90 hrs Internship based on using various software – Internship -II	Exposure to Organizational skills and professional practices.
		Efficiently completing tasks, fostering good relationship with seniors and subordinates
		Improved Communication & interpersonal skills.
		Exposure to latest technology applications to the specific discipline.
		Identification of relevant problems in the industry and innovative solutions.

Sample Course Outcomes (CO's) of Electronics and Communication Engineering (UG)

Univ. Subject Code	Subject Name	CO Description
EC 501	Microprocessor & its Application	Students will be able to know about 8086 microprocessor addressing modes and pin description.
		Students will be able to know about 8086 microprocessor instruction set and their applications..
		Students will be able to know about 8155, 8255, Interfacings key boards, LEDs , ADC, DAC and memory Interfacing
		Students will be able to know about 8254 programmable interval timer, 8259A programmable interrupt controller & 8257 DMA controller.
		Students will be able to know about the microcontrollers (8051).
EC 502	Digital Communication	Students can able to differentiate various sampling methods and pulse modulation schemes.
		Students can able to understand mathematical model, spectrum, advantages, disadvantages and application various Analog to Digital conversion methods.
		Students can able to understand mathematical model, spectrum, advantages, disadvantages and application of various digital modulation schemes.
		Students can able to understand probability of error and signal space representation of various digital modulation Schemes.
		Students can able to understand Information theory, Source coding and channel coding.
EC 503	Departmental Elective (A) CNTI (B) Mobile Communication (C) Advanced Control system	Students will able to analyze and design different type of Symmetrical And Asymmetrical Network
		Students will able to analyze and Design filter and Attenuators
		Students will able to analyze the line parameters and various losses in transmission lines.
		Students will able to apply smith chart for line parameter and impedance calculations
		Students will able to analyze and match Impedance
EC 504	Open Elective (A) EMT (Electro Magnetic (Theory) (B) Computer System Organisation	Students will be able to apply vector calculus to understanding the Coloumbs law, Gauss law, electrostatic potential, and Laplace and Poisson equation boundary condition and be able to solve the electrostatic problem.
		Students will be able to apply vector calculus to understand the Biosavert law, Ampere circuital law, Lorentz force inductance and be able to solve the magneto static problem.
		Students will be able to analyze the Maxwell's equations for

	(C) Process Control Instrumentation	electromagnetic fields.
		Students will be able to derive Electromagnetic wave equation and apply the Poynting expression.
		Students will be able to Understand the behavior of electromagnetic wave in different medium.
EC 505	CNTL Lab	Students will able to analyze and design different type of Symmetrical And Asymmetrical Network
		Students will able to analyze and Design filter and Attenuators
		Students will able to analyze the line parameters and various losses in transmission lines.
		Students will able to apply smith chart for line parameter and impedance calculations
		Students will able to analyze and match Impedance
EC 506	Matlab Programming	Understand the different toolbox in the MATLAB like, communication toolbox, control system toolbox, math toolbox, etc and also Understanding the programming in MATLAB which is based on the mentioned toolbox.
EC 507	Evaluation of Internship-II	Ability to be a multi-skilled engineer with good technical knowledge, management, leadership, social and environmental responsibility, and entrepreneurship skills.
		Understand the usage of modern technologies & tools in the field of Electronics & Communication Engineering
EC 508	Minor Project 1	Identify and find solution to problems.
		Get awareness on design methodology using modern technologies, tools and systems and implementation real time.
		Apply communication, writing skills & Presentation skills
		Develop the team work and leadership skills with professional and ethical values.

Sample Course Outcomes (CO's) of Electronics and Communication Engineering (PG)

MEDC 101	Advanced Mathematics
CO1	Students will be able to demonstrate the understanding of fundamentals of partial differential equations by separation method. and finite difference methods.
CO2	Students will be able to solve problems on probability distributions. Binomial, Normal, Sampling & Poisson's distribution. Estimate & apply all these concepts in communication Engineering.
CO3	Students will be able to apply Markovian process and distinguish the utility of queuing models.
CO4	Students will be able to understand the operation of fuzzy set using mathematical concept of set theory.
CO5	Students will be able to understand the reliability & estimate basic reliability functions from complete failure data.
MEDC 102	MICRO CONTROLLER SYSTEM DESIGN
CO1	Students will be able to understand the basic concepts and building blocks for Embedded Systems.
CO2	Students will be able to understand the single chip various microcontrollers.
CO3	Students will be able to understand the software development modular approach and analysis of recursion and debugging.
CO4	Students will be able to understand the design and application of microcontroller in data acquisition. embedded controller and process control.
CO5	Students will be able to understand the architecture DSP processor for real time application.
MEDC 103	DSP APPLICATION
CO1	Students will be able to understand the discrete time system and their representation in time and frequency domain.
CO2	Students will be able to apply the principles of z-transforms to finite difference equations.
CO3	Students will be able to apply the principles of Fourier transform analysis to describe the frequency characteristics of discrete-time signals and systems
CO4	Students will be able to apply different design techniques for FIR and IIR filters.
CO5	Students will be able to estimation of power spectral density of random process.
MEDC 104	VLSI DESIGN
CO1	Students will be able to understand the fundamental concepts of VLSI design process and CMOS fabrication process.
CO2	Students will be able to understand the CMOS circuits and logic design.
CO3	Students will be able to understand the CMOS chip design. simulation and verification.

CO4	Students will be able to understand the CMOS subsystem design, simulation and verification.
CO5	Students will be able to understand CAD system and algorithm.
MEDC 105	DATA COMMUNICATION AND COMPUTER NETWORK
CO1	Students will be able to understand various transmission mode and switching techniques.
CO2	Students will be able to understand data flow control in different layers.
CO3	Students will be able to build the various routing mechanisms as well as design new routing algorithm.
CO4	Students will be able to identify the different types of network topologies and protocols.
CO5	Students will be able to enumerate the layers of the OSI model and TCP/IP.

Sample Course Outcomes (CO's) of Civil Engineering

Subject Code	Subject Name	CO Description
BT301	Mathematics-III	To determine the root finding techniques which can be used to solve practical engineering problems also demonstrate the use of interpolation methods to find intermediate values in given graphical and/or tabulated data.
		Apply the concept of numerical analysis to find the relative strengths and weaknesses of each computation method and know which are most applicable for given problem also will be able to approximate and analysis the errors obtained in the numerical solution of equations, ordinary, partial differential equations and simultaneous equations as well.
		To apply the analytical technique to express periodic function as a Fourier series and acquire the concepts of Laplace transformation & inverse Laplace Transform with its property to solve Partial Differential equation and Ordinary Differential Equation with given boundary conditions which is helpful in all engineering & research work.
		Apply the concept of a random variable, probability distribution and their application in diversified fields.
CE302	Construction Material	Understand the characteristics, occurrence, classification, uses of the various conventional building materials.
		Understand the characteristics, classification, uses and defects of the various other useful building materials.
		Understand basic knowledge of types of floors and roofs and also the basic flooring and roofing material. Get the knowledge about the types of pipes using in sanitary works.
		Understand basic concepts of different types of paints and varnishes including composition, application on the different type of surfaces and types.
		Understand the characteristics, occurrence, classification, uses of the Miscellaneous building materials.
CE303	Surveying	To introduce the principle of surveying and also impart awareness on the various fields of surveying and types of instruments.
		To understand the various methods of surveying and computations by using advanced surveying instruments this makes the surveying ease and rapid.
		To understand the determination of heights, distances, angels and elevations with the help of latest surveying instruments and different methods of surveying.
		To understand the different types of curves and setting out methods of surveying.

		To give the knowledge of the hydrographic survey and photographic survey.
CE304	Building Planning and Architecture	The students able to understand and to draw various building components.
		The students able to deals with the building planning, orientation and drawing.
		The students able to understand and deals with building services.
		The students able to deals with the architectural design aspects.
		The students able to Representation of a building on Paper.
CE305	Strength of Material	Understand the stress and strain calculation and its importance for different materials.
		Understand the analysis of bending moments and stresses generated on a beam subject to different load conditions.
		Understand the importance of slope and deflection in a beam and to analyze it for different scenarios.
		Analyze the behavior of columns and struts under different loading conditions.
		Understand the determination of torsion on shafts and able to analyze the problems based on combined bending and torsion and also able to analyze unsymmetrical bending in beams.
CE306	Study of Historical and Ancient Civil Engineering	Student will be able to understand study the various aspects of civil engineering practices in ancient structures.
		Student will be able to understand study with respect to civil engineering practices of historical structures.
BT107	Evaluation of Internship-I completed at I Year Level	Able to Integrate theory and practice
		Able to generate experience on various advance system and software.
		Able to do a different Engineering analysis
		Able to explain the analysis in front of audience
		Understand the importance of available tools and its lifelong learning process.
BT307	90 hrs. Internship based on using various software's – Internship -II	Demonstrate the application of knowledge and skill sets acquired from the course and workplace in the assigned job function/s
		Solve real life challenges in the workplace by analysing work environment and conditions, and selecting appropriate skill sets acquired from the course
		Exhibit critical thinking and problem solving skills by analysing underlying issue/s to challenges
		Demonstrate appreciation and respect for diverse groups of professionals by engaging harmoniously with different company stakeholders
		Exhibit professional ethics by displaying positive disposition during internship

Sample Course Outcomes (CO's) of Chemical Engineering

Univ. Subject Code	Subject Name	CO Description
CM-601	Mass Transfer -II	The concept of Equilibrium in adsorption separation operations should be clear.
		To study the concept Humidification and Dehumidification operations.
		To introduce the concept of drying and drying equipment's.
		To study the principal of leaching and crystallization.
		To introduce liquid-liquid extraction.
CM-602	Chemical Reaction Engineering	To understand the reaction kinetics and method of analysis.
		To analyze and design chemical reacting system.
		To understand heterogeneous reacting system and non-ideal reactor analysis.
		To study different catalytic reactor.
		To study different Models and Regime for reacting system.
CM-603	**A. Process Equipment Design I** B. Polymer Technology C. Nano Technology	To understand the concept of stress and strain analysis and able to design different vessel roof.
		To design pressers vessel under different different operating conditions.
		To understand the design concept of tall vessel and their supporting structure.
		To design different types of flanges and understand different types of equipment testing methods
CM-604	**A. Chemical Process Control** B. Process Optimization Techniques C. Fertilizer Technology	To understand the knowledge of controlling processes and controllers.
		To investigate control and instrumentation of chemical engineering equipment's
		Ability to solve complex equation using laplace tan formations.
		To understand interacting and noninteracting process and their responses
		To know about stability concept and techniques to solve problems on it..
CM-605	Chemical Process Plant Simulation Lab-II	Student will able to simulate of process in "DWSIM"
		Student will able to simulate Shorteut Distillation, Rigorous Distillation on DWSIM
		Student will able to simulate double pipe Heat Exchanger in DWSIM
		Student will able to simulate CSTR in DWSIM
CM-606	Chemical	To understand the knowledge of thermocouple and Dead weight

	Process Control Lab	Pressure Gauge.
		To understand Characteristics of Control valve and PID Controller.
		Ability to measurement of liquid level by Air purge method.
		To understand interacting and non-interacting process and their responses.
CM-607	Internship-III	Exposure to Organizational skills and professional practices.
		Efficiently completing tasks, fostering good relationship with seniors and subordinates
		Improved Communication & interpersonal skills.
		Exposure to latest technology applications to the specific discipline.
		Identification of relevant problems in the industry and innovative solutions.
CM-608	Minor Project II	Identify problem in area of Chemical Engineering which requires further investigation.
		Identify the methods and materials required for the project work.
		Manage the work with team members.
		Formulate and implement innovative ideas for social and environmental benefits.
		Analyze the results to come out with solutions related to the project work.
CM-607	Evaluation of Internship -III	Demonstrate the application of knowledge and skill sets acquired from the course and workplace in the assigned job function/s
		Solve real life challenges in the workplace by analysing work environment and conditions, and selecting appropriate skill sets acquired from the course
		Exhibit critical thinking and problem solving skills by analysing underlying issue/s to challenges
		Demonstrate appreciation and respect for diverse groups of professionals by engaging harmoniously with different company stakeholders
		Exhibit professional ethics by displaying positive disposition during internship

Sample Course Outcomes (CO's) of Mechanical Engineering (UG)

Univ. Subject Code	Subject Name	CO Description
ME801	Refrigeration and air conditioning	Illustrate the fundamental principles and applications of refrigeration and air conditioning system
		Obtain cooling capacity and coefficient of performance by conducting test on vapour compression refrigeration systems and ice plant
		Present the properties, applications and environmental issues of different refrigerants
		Calculate cooling load for air conditioning systems used for various conditions
		Operate and analyze the refrigeration and air conditioning systems.
ME802A	Departmental elective (automobile engineering)	Explain in detail about Chassis systems of an Automobile.
		Explain in detail about steeringsystems of an Automobile.
		Explain in detail about transmission systems of an Automobile.
		Explain in detail about suspension systems of an Automobile.
		Explain in detail about Electrical, control systems and emission standards of an Automobile.
ME803C	Open elective (entrepreneurship & management concepts)	To learn about different system concepts.
		To learn about different management concepts.
		To learn about different marketing concepts.
		To know about basics of productivity & operations.
		To explain in detail Entrepreneurship.
ME804	Simulation & modeling lab	To understand the concepts of modelling.
		To understand the concepts of simulation.
		To model mechanical components using CATIA.
		To model mechanical components using ANSYS.
		To analyze modelled component using ANSYS.
ME805	Major project II	Identify methods and materials to carry out experiments/develop code.
		Reorganize the procedures with a concern for society, environment and ethics.
		Analyze and discuss the results to draw valid conclusions.
		Prepare a report as per recommended format and defend the work.
		Explore the possibility of publishing papers in peer reviewed journals/conference proceedings.

Sample Course Outcomes (CO's) of Mechanical Engineering (PG)

SUBJECT CODE	SUBJECT NAME	CO DETAILS
MMMD201	Adv. Machine Design	Apply advanced algebraic techniques applied to diverse situations in physics, engineering and other mathematics.
		Apply a range of techniques to solve first & second order partial differential equations
		Apply the basic concepts of probability, probability distribution of random variables and identify central tendency.
		Able to solve problems associated with continuous joint probability distribution, Markov chain using transition probability matrix and explain the concept of queuing theory.
		Able to apply mathematical Techniques used in FEM analysis and solve the structural and thermal problems associated with mechanical systems.
MMMD202	FINITE ELEMENT METHOD	Apply advanced algebraic techniques applied to diverse situations in physics, engineering and other mathematics.
		Apply a range of techniques to solve first & second order partial differential equations
		Apply the basic concepts of probability, probability distribution of random variables and identify central tendency.
		Able to solve problems associated with continuous joint probability distribution, Markov chain using transition probability matrix and explain the concept of queuing theory.
		Able to apply mathematical Techniques used in FEM analysis and solve the structural and thermal problems associated with mechanical systems.
MMMD203	Robotics	Apply advanced algebraic techniques applied to diverse situations in physics, engineering and other mathematics.
		Apply a range of techniques to solve first & second order partial differential equations
		Apply the basic concepts of probability, probability distribution of random variables and identify central tendency.
		Able to solve problems associated with continuous joint probability distribution, Markov chain using transition probability matrix and explain the concept of queuing theory.
		Able to apply mathematical Techniques used in FEM analysis and solve the structural and thermal problems associated with mechanical systems.

MMMD204	Industrial Tribology	Apply advanced algebraic techniques applied to diverse situations in physics, engineering and other mathematics.
		Apply a range of techniques to solve first & second order partial differential equations
		Apply the basic concepts of probability, probability distribution of random variables and identify central tendency.
		Able to solve problems associated with continuous joint probability distribution, Markov chain using transition probability matrix and explain the concept of queuing theory.
		Able to apply mathematical Techniques used in FEM analysis and solve the structural and thermal problems associated with mechanical systems.
MMMD205	Vibration & Noise Control	Apply advanced algebraic techniques applied to diverse situations in physics, engineering and other mathematics.
		Apply a range of techniques to solve first & second order partial differential equations
		Apply the basic concepts of probability, probability distribution of random variables and identify central tendency.
		Able to solve problems associated with continuous joint probability distribution, Markov chain using transition probability matrix and explain the concept of queuing theory.
		Able to apply mathematical Techniques used in FEM analysis and solve the structural and thermal problems associated with mechanical systems.
MMMD301(B)	Experimental Stress Analysis	Apply advanced algebraic techniques applied to diverse situations in physics, engineering and other mathematics.
		Apply a range of techniques to solve first & second order partial differential equations
		Apply the basic concepts of probability, probability distribution of random variables and identify central tendency.
		Able to solve problems associated with continuous joint probability distribution, Markov chain using transition probability matrix and explain the concept of queuing theory.
		Able to apply mathematical Techniques used in FEM analysis and solve the structural and thermal problems associated with mechanical systems.

Sample Course Outcomes (CO's) of Artificial Intelligence and machine learning.

Univ. Subject Code	Subject Name	CO Description
AI301	AI 301 Technical Communication	Acquisition of technical communication's generic aspects like Reading Technical Material, Technical Writing, Listening, Thinking and using technical phrases in spoken, Knowing the parts of a technical documents like screenshots, graphs, tabular data, data analysis, pictorial depiction.
		Getting adapted with the technical generic formats/templates of technical writing of memos, technical report writing, technical presentations, technical proposal writing, minutes of meeting and the notes taking techniques.
		Accessing the reading material and developing the writing technical material with the use of technical concepts and tools like Vacaroo, Miscrosoft Visio, Notepad ++, Kinemaster, Powtoon, Split Page Technique, Diagram Technique.
		Learning the skill of proofreading and copy editing, paraphrasing and spinning using technical tools and manually using the knowledge of advance technical grammar.
		Learning the technical phrases and writing styles like descriptive, argumentative etc for developing good technical documents for presentations or disseminating technical documents.
AI 302	AI 302 (Probability and Statistics)	**Upon completion of the course, the student will be able to:** Apply the basic counting techniques (multiplication rule, combinations, permutations) to compute probability and work with discrete random variables and demonstrate understanding what expectation, variance, covariance and correlation mean and be able to compute and interpret them.
		Understand the properties and applications of some standard bivariate and continuous probability distributions for both discrete and continuous random variables.
		Explain the concept of order statistics and solving problems related to it also will be using Binomial, Poisson, and Normal distributions to solve statistical problems.
		Use scatter plots to visualize the relationship between two variables and apply the least square errors method numerically and algebraically to find the curve of best fit also will be having Knowledge about formulating and testing a hypothesis, using critical values to draw conclusions and determining probability of making errors in hypothesis tests.
		Get an idea of order statistics with its applications. Also about small sample tests based on Chi-square, t and F distributions to understand

		and analyze various methods of Non-parametric tests
AI 303	AI 303 Data Structure	To understand the concept of linear, non-linear data structures, the operations performed on them and the applications of various data structures.
		Understand the arrays, searching and sorting algorithms.
		Implement stacks, queues and its applications.
		Implement linked list and its variations.
		Solve problem involving graphs, trees and heaps.
AI 304	AI 304 AI	Demonstrate fundamental understanding of the history of artificial intelligence (AI) and its foundations
		Apply basic principles of AI in solutions that require problem solving, inference, perception, knowledge representation, and learning
		Demonstrate an ability to share in discussions of AI, its current scope and limitations, and societal implications of applications like NLP
		Demonstrate profciency in applying method for forward and backward reasoning.
		Demonstrate awareness and a fundamental understanding of various applications of AI techniques in intelligent agents, expert systems, artificial neural networks and other machine learning models
AI 305	AI 305 OOPM	Describe the procedural and object oriented paradigm with concepts of streams, classes, functions, data and objects.
		Understand dynamic memory management techniques using pointers, constructors, destructors etc.
		Describe the concept of function overloading, operator overloading, virtual functions and polymorphism.
		Understand how to apply the major object-oriented concepts to implement object oriented programs in C++, encapsulation, inheritance and polymorphism.
		Classify inheritance with the understanding of early and late binding, usage of exception handling, generic programming.

Sample Course Outcomes (CO's) of CSE (Internet of Things and Cyber Security Including Blockchain Technology)

Subject Code	Subject Name	CO Description
BT-101	Engineering Chemistry	Differentiate hard and soft water; solve the related numerical problems on water purification and its significance in industry and daily life.
		Select the lubricant for various purposes based on the type of Machines.
		Equipped with basic knowledge of polymer , methods of polymerization and various industrial applications of polymers
		Draw the Phase diagrams of one & two component systems and causes, consequences and methods to minimize corrosion to improve industrial designs.
		Identify the structure of unknown/new compounds with the help of spectroscopy and understand periodic properties such as ionization potential, oxidation states and electro negativity
BT-102	Mathematics-I	To introduce the fallouts of Rolle's Theorem that is fundamental to application of analysis to Engineering problems.
		To introduce the idea of applying differential and integral calculus to notions of curvature and to improper integrals. Apart from some applications it gives a basic introduction on Beta and Gamma function
		To develop the tool of power series and Fourier series for learning advanced Engineering Mathematics.
		To familiarize the student with functions of several variables that is essential in most branches of engineering
		To develop the essential tool of matrices and linear algebra in a comprehensive manner.
BT-103	English for Communication	Effective use of verbal and non-verbal communication for enhanced soft skill beside enhanced reading comprehension as well
		Write the different kinds of letters, reports and technical writing.
		Apply basic rules of grammar in both written as well as oral communication.
BT-104	Basic Electrical & Electronics Engineering	To introduce the concept of Basics of DC electrical Network including network theorems.
		To introduce the concept of Basics of AC electrical Network(single phase & 3 phase)..
		To study of law of Electromagnetism, introduction of transformer.

		To study of various electrical Machines.
		To study Basic Concept Digital Electronics.
BT-105	Engineering Graphics	Draw various types of scales, and curves.
		Draw orthographic projections of points & lines
		Draw orthographic projections of Planes & Solids
		Draw sections and development of solids including cylinders, cones, prisms and pyramids.
		Draw isometric views of Planes and Solids. Drawing using AUTOCAD.
BT-106	Manufacturing Practices	Use hand and power tools for different manufacturing processes
		Operate machine tools while preparing any component
		Select the appropriate tools required for specific operation.
		Comprehend the safety measures required to be taken while using the tools.
		Prepare Foundry, Fitting, Carpentry, Welding and smithy Job.
BT-107	Internship-I (60 Hrs Duration) at the Institute level	Demonstrate the application of knowledge and skill sets acquired from the course and workplace in the assigned job function/s
		Solve real life challenges in the workplace by analysing work environment and conditions, and selecting appropriate skill sets acquired from the course
		Exhibit critical thinking and problem solving skills by analysing underlying issue/s to challenges
		Demonstrate appreciation and respect for diverse groups of professionals by engaging harmoniously with different company stakeholders
		Exhibit professional ethics by displaying positive disposition during internship
BT-108	Swachh Bharat Summer Internship Unnat Bharat Abhiyan (100Hrs)/ Rural Outreach	This course is to sensitize students about the socio-cultural aspects of the rural areas parochial to their colleges.
		Students are expected to observe, investigate and learn about the following aspects of the rural region: i. Demographics, Literacy, Geographical parameters of the Village; ii. Schemes of government of India and State of Madhya Pradesh in operation in the villages.
		To enhance critical thinking by making them participate in social activities and imbibe human values among them.
		Rural Swachh Bharat Abhiyan is to promote cleanliness and develop healthy habits in people in villages.
		Unnat Bharat Abhiyan: To build an understanding of the development agenda within institutes of Higher Education and an institutional capacity and training relevant to national needs, especially those of rural India.

Sample Course Outcomes (CO's) mapping with PO's and PSO's

DEPARTMENT OF ELECTRONICS AND COMMUNICATION

ACADEMIC YEAR 2022-23

SEMESTER	S. No.	Univ. Subject Code	Subject Name	CO	CO Description	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
III	I	BT301	Mathematics-III	2.3.1.1	To determine the root finding techniques which can be used to solve practical engineering problems also demonstrate the use of interpolation methods to find intermediate values in given graphical and/or tabulated data.	3	3	2	3	2								2	2	
				2.3.1.2	Apply the concept of numerical analysis to find the relative strengths and weaknesses of each computation method and know which are most applicable for given problem also will be able to approximate and	3	3	3	2	3								2	2	

					analysis the errors obtained in the numerical solution of equations, ordinary, partial differential equations and simultaneous equations as well.														
				2.3.1.3	To apply the analytical technique to express periodic function as a Fourier series and acquire the concepts of Laplace transformation & inverse Laplace Transform with its property to solve Partial Differential equation and Ordinary Differential Equation with given boundary conditions which is helpful in all engineering & research work.	3	3	2	2	2								2	2	
				2.3.1.4	Apply the concept of a random variable, probability distribution and	3	3	2	3	2								2	2	

					their application in diversified fields.														
				CO Average		**3.0**	**3.0**	**2.3**	**2.5**	**2.3**							**2.0**	**2.0**	
	2	EC302	Electronic Measurement & Instrumentation	2.3.2.1	Students will able to understand the concept of Measurement and error.	3	2	2	2							2	3	3	1
				2.3.2.2	Students will able to analyze and design different types of bridges used for measurement of Resistance, Inductance and capacitance.	3		2								1	2		
				2.3.2.3	Students will able to understand the operation of various instrumentation transducers.	3		3								1	3	3	1
				2.3.2.4	Students will able to understand the operation of various electronic instruments like CRO and Signal Generators.	3	2	2				2		2		2	2	2	
				2.3.2.5	Students will able to understand the working of the digital measurement									2	3		3	1	

					and instruments used in Instrumentation world.														
				CO Average		**3.0**	**2.0**	**2.3**	**2.0**			**2.0**		**2.0**	**3.0**		**1.5**	**2.6**	**2.3**	**1.0**
	3	EC303	Digital System Design	2.3.3.1	Understand digital electronics minimize Boolean functions.	1	3	2									2	2	1	
				2.3.3.2	Design combinational circuit with the help of logic gates like adder subtractor and others.	3	2	3									2	2	1	
				2.3.3.3	Design binary storage devices like flip-flops and other components.	1	2	2									3	2	1	
				2.3.3.4	Design sequential circuits like Register &counters	1	1	2	2								2	3	2	
				2.3.3.5	Design logic families and semiconductor memories and converters.	3	2	3									2	2	1	
				CO Average		**1.8**	**2.0**	**2.4**	**2.0**								**2.2**	**2.2**	**1.2**	
	4	EC304	Electronic Devices	2.3.4.1	Students will able to understand the general insight about Semiconductor Material	3	3	1									3	3		3

					Properties, compound semiconductor materials.														
				2.3.4.2	Students will able to understand the various type of different diodes such as: Tunnel diodes, Varactor diodes, Schottky diode, Photo diodes, Photodetector, LED, solar cell.	2	1	2									2	3		3
				2.3.4.3	Students will able to understand the Ideal and Practical diode, Clipper, Clamper.	3	3	2										3		3
				2.3.4.4	Students will able to understand the current components and equations, CB, CE and CC configuration, input and output characteristics.	3	3	2										3		2
				2.3.4.5	Students will able to understand amplifier and JFET construction.	2	3	1										2		2
				CO Average		**2.6**	**2.6**	**1.6**									**2.5**	**2.8**		**2.6**

	5	EC305	Network Analysis	2.3.5.1	Graduates will be able to understand the basic circuit elements, circuit variables and Kirchhoff laws.	3	2	1	2							3	2	1	
				2.3.5.2	Graduates will be able to solve problems using mesh and node analysis.	3	1	1	2							3	1	2	
				2.3.5.3	Graduates will be able to analyses circuits in Laplace domain	3	2	2	1								1		
				2.3.5.4	Graduates will be able to understand the concept of two port networks	2	1	2									1		
				2.3.5.5	Graduates can understand tuned circuits & resonance.	2	2	1	2								1		
				CO Average		**2.6**	**1.6**	**1.4**	**1.8**							**3.0**	**1.2**	**1.5**	
	6	EC306	EMI Lab	2.3.6.1	Students will able to understand the concept of Measurement and error.	3	2	2	2							2	3	3	1
				2.3.6.2	Students will able to analyze and design different types of bridges used for measurement of Resistance, Inductance and	3		2								1	2		

					capacitance.														
				2.3.6.3	Students will able to understand the operation of various instrumentation transducers.	3		3								1	3	3	1
				2.3.6.4	Students will able to understand the operation of various electronic instruments like CRO and Signal Generators.	3	2	2				2		2			2	2	
				2.3.6.5	Students will able to understand the working of the digital measurement and instruments used in Instrumentation world.									2	3			3	1
				CO Average		**3.0**	**2.0**	**2.3**	**2.0**			**2.0**		**2.0**	**3.0**		**1.5**	**2.6**	**2.3**	**1.0**
	7	BT107	Evaluation of Internship-I completed at I year level	1.1.7.1	Ability to be a multi-skilled engineer with good technical knowledge, management, leadership, social and environmental responsibility.	3	3	3			3		3	3	3	3	3	3	2	

					and entrepreneurship skills.														
				1.1.7.2	Understand the usage of modern technologies & tools in the field of Electronics & Communication Engineering	2	3	3	3	3	3	2					3	3	3	3
				CO Average		2.5	3.0	3.0	3.0	3.0	3.0	2.0	3.0	3.0	3.0	3.0	3.0	3.0	2.5	3.0

Sample Direct Attainment sheet.

ACADEMIC YEAR 2022-23

S. No.	Univ. Subject Code	Subject Name	CO	CO Description	CO Avg	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
1	EC302	Electronic Measurement & Instrumentation	2.3.2.1	Students will be able to understand the concept of Measurement and error.	2.95	3	2	2	2								2	3	3	1
			2.3.2.2	Students will be able to analyze and design different types of bridges used for measurement of Resistance, Inductance and capacitance.	2.75	3		2									1	2		
			2.3.2.3	Students will be able to understand the operation of various instrumentation	2.41	3		3									1	3	3	1

				transducers.															
			2.3.2.4	Students will be able to understand the operation of various electronic instruments like CRO and Signal Generators.	2.85	3	2	2				2		2			2	2		
			2.3.2.5	Students will be able to understand the working of the digital measurement and instruments used in Instrumentation world.	2.64									2	3			3	1	
				CO Average	**2.7**	**2.7**	**2.9**	**2.7**	**2.9**			**2.8**		**2.7**	**2.6**		**2.8**	**2.7**	**2.7**	**2.7**
2	EC303	Digital System Design	2.3.3.1	Understand digital electronics minimize Boolean functions.	2.24	1	3	2									2	2	1	
			2.3.3.2	Design combinational circuit with the help of logic gates like adder subtractor and others.	2.22	3	2	3									2	2	1	
			2.3.3.3	Design binary storage devices like flip-flops and other components.	2.17	1	2	2									3	2	1	
			2.3.3.4	Design sequential circuits like Register &counters	2.61	1	1	2	2								2	3	2	
			2.3.3.5	Design logic families and semiconductor memories and	2.50	3	2	3									2	2	1	

				converters.															
			CO Average		**2.3**	**2.4**	**2.3**	**2.3**	**2.6**								**2.3**	**2.4**	**2.4**	
3	EC304	Electronic Devices	2.3.4.1	Students will be able to understand the general insight about Semiconductor Material Properties, compound semiconductor materials.	2.86	3	3	1									3	3		3
			2.3.4.2	Students will be able to understand the various type of different diodes such as: Tunnel diodes, Varactor diodes, Schottky diode, Photo diodes, Photodetector, LED, solar cell.	2.73	2	1	2									2	3		3
			2.3.4.3	Students will be able to understand the Ideal and Practical diode, Clipper, Clamper.	2.32	3	3	2										3		3
			2.3.4.4	Students will be able to understand the current components and equations, CB, CE and CC configuration, input and output characteristics.	2.57	3	3	2										3		2
			2.3.4.5	Students will be able to understand	2.35	2	3	1										2		2

				amplifier and JFET construction.															
				CO Average	**2.6**	**2.6**	**2.5**	**2.6**									**2.8**	**2.6**		**2.6**
	BT107	Evaluation of Internship-I completed at I year level	1.1.7.1	Ability to be a multi-skilled engineer with good technical knowledge, management, leadership, social and environmental responsibility, and entrepreneurship skills.	2.40	3	3	3			3		3	3	3	3	3	3	2	
			1.1.7.2	Understand the usage of modern technologies & tools in the field of Electronics & Communication Engineering	2.40	2	3	3	3	3	3	2					3	3	3	3
				CO Average	**2.4**	**2.4**	**2.4**	**2.4**	**2.4**	**2.4**	**2.4**	**2.4**	**2.4**	**2.4**	**2.4**	**2.4**	**2.4**	**2.4**	**2.4**	**2.4**
5	ES401	Energy & Environmental Engineering	2.4.1.1	Get the knowledge of energy carriers, energy technologies, energy challenges and energy system integration and environment sustainability.	1.91	2	1				2		1	2	2	2	2			
			2.4.1.2	Learn about the different types of ecosystems present in environment, ecological succession and energy flow in the ecosystem.	2.10						1		1	1	2	1	1			

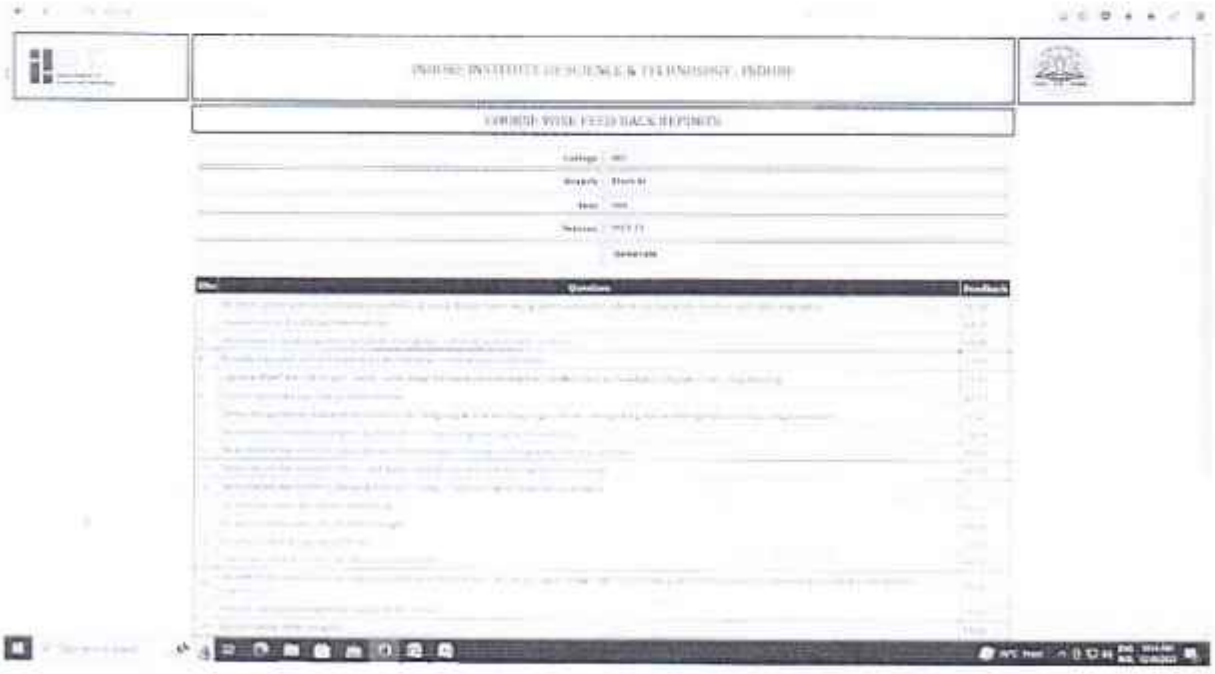
			2.4.1.3	Understand the value of biodiversity to human societies, threats to biodiversity, In-situ and Ex-situ conservation of biodiversity.	1.80						1		1	2	2	2				
			2.4.1.4	Acquire knowledge of different types of environmental pollution, its effects on life and its remedies	1.92						1		1	2	2	2	1			
			2.4.1.5	Aware about the social issue related to the environment, environment ethics, protection and conservation acts for the environment	1.81						2		1	2	2	2	1			
				CO Average	**1.9**	**1.9**	**1.9**				**1.9**		**1.9**	**1.9**	**1.9**	**1.9**	**1.9**			
24	EC 508	Minor Project I	3.5.8.1	Identify and find solution to problems.	3.00	2	2	2	1	1			1	1		1	1	3	3	3
			3.5.8.2	Get awareness on design methodology using modern technologies, tools and systems and implementation real time.	3.00	2	3	3	3	3	3	2					3	3	3	3
			3.5.8.3	Apply communication, writing skills & Presentation skills	3.00										3		3			

			3.5.8.4	Develop the teamwork and leadership skills with professional and ethical values.	3.00								3	3			3		
			CO Average		**3.0**	**3.0**	**3.0**	**3.0**	**3.0**	**3.0**	**3.0**	**3.0**	**3.0**	**3.0**	**3.0**	**3.0**	**3.0**	**3.0**	**3.0**	**3.0**

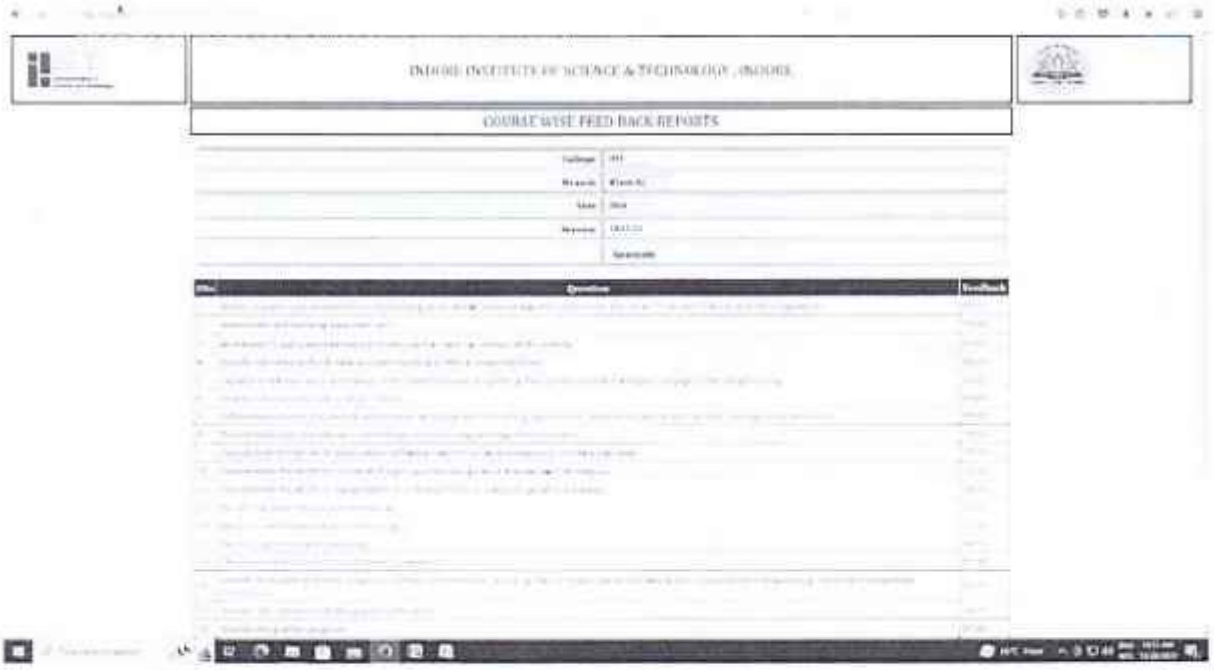
PO / PSO Average		**2.53**	**2.66**	**2.52**	**2.51**	**2.57**	**2.64**	**2.68**	**2.76**	**2.51**	**2.70**	**2.75**	**2.58**	**2.52**	**2.49**	**2.68**
PO / PSO %		**84.2%**	**88.6 %**	**83.8 %**	**83.8 %**	**85.7 %**	**88.1%**	**89.4 %**	**91.9 %**	**83.8%**	**89.9%**	**91.8 %**	**86.0 %**	**84.0%**	**82.9%**	**89.3 %**

Indirect Attainment

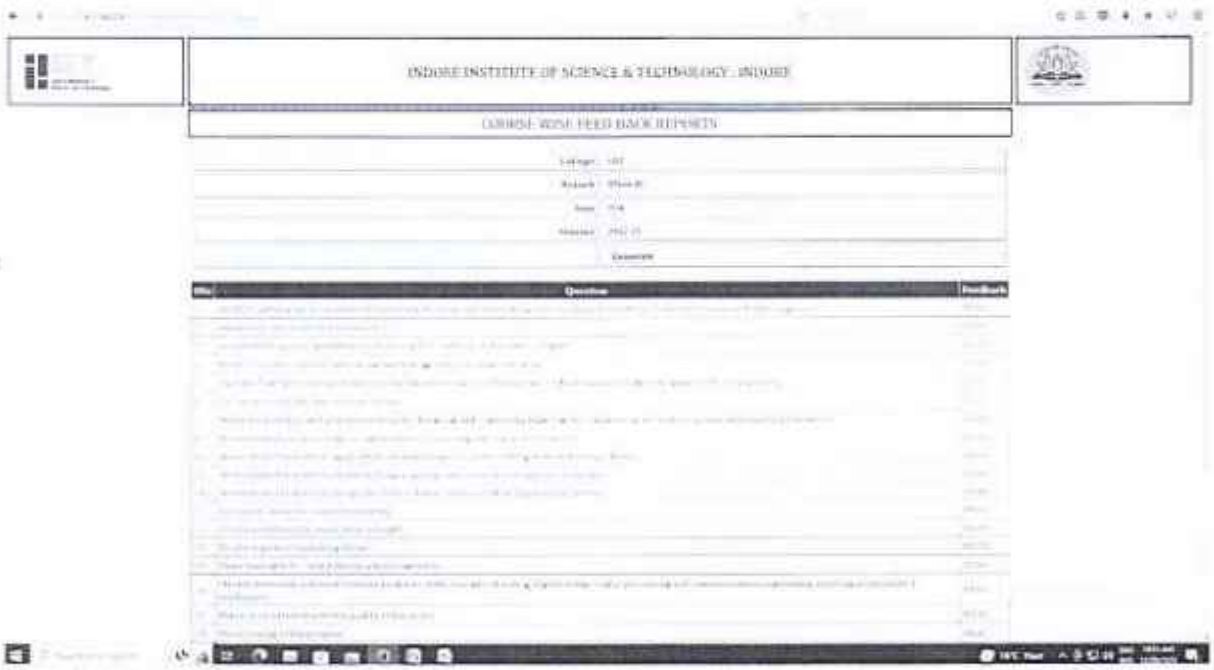
Semester / Course End Survey including Curriculum Feedback



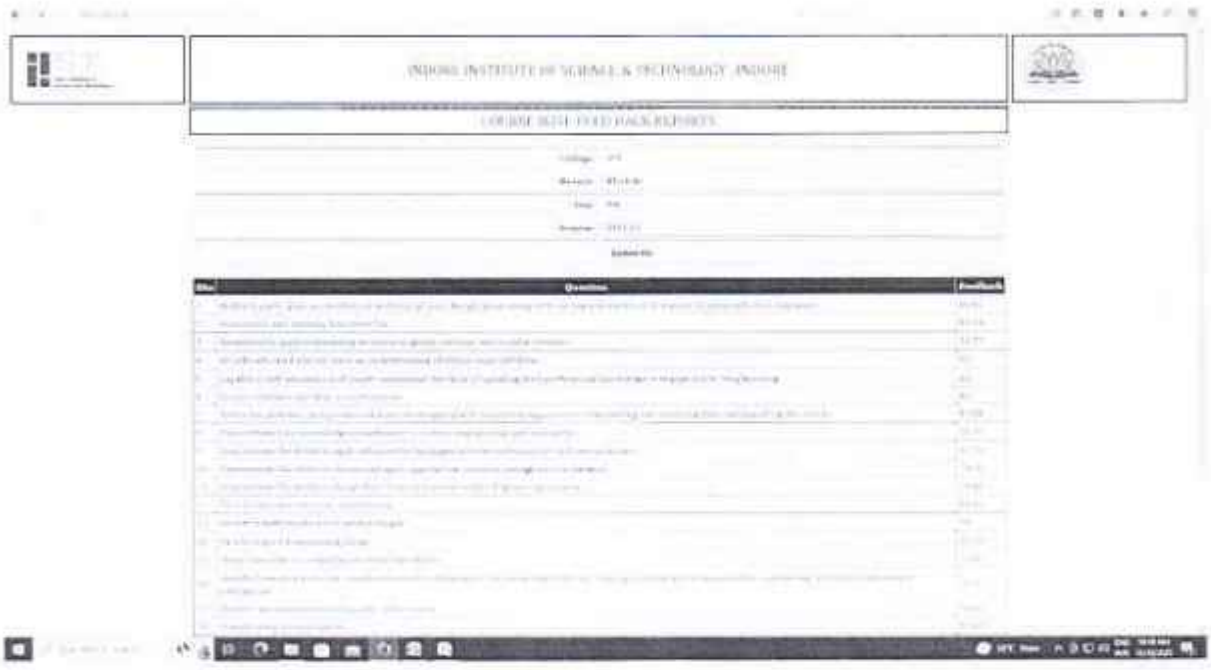
IQAC

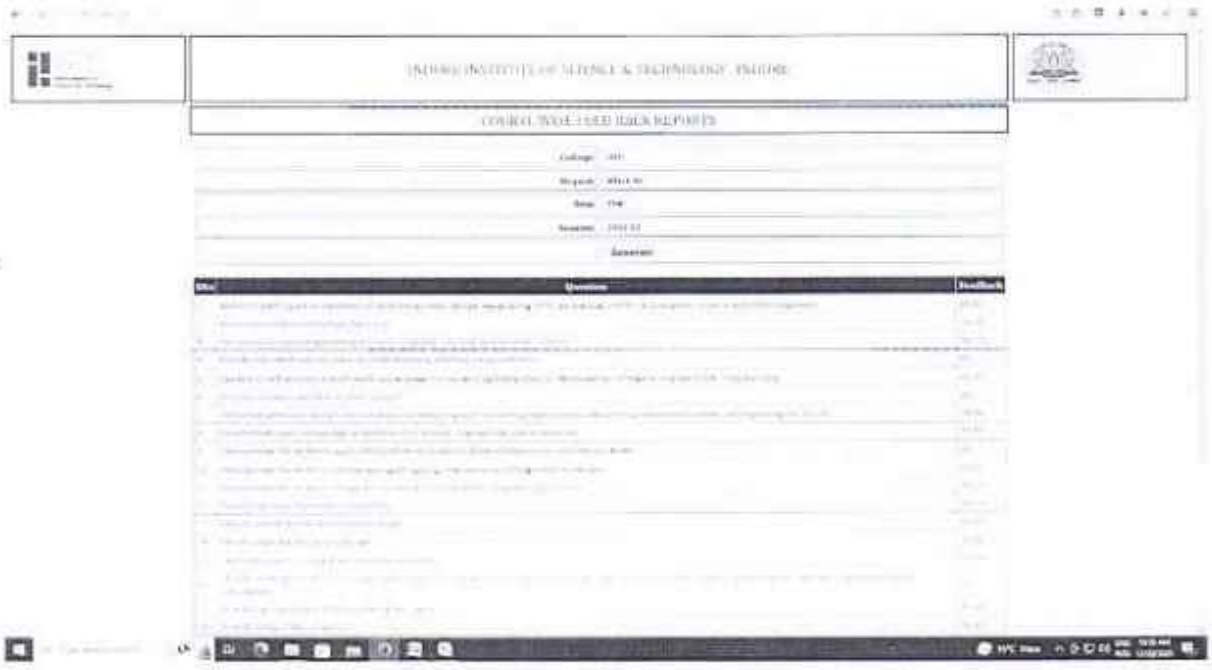

INDORE INSTITUTE OF SCIENCE & TECHNOLOGY, INDORE

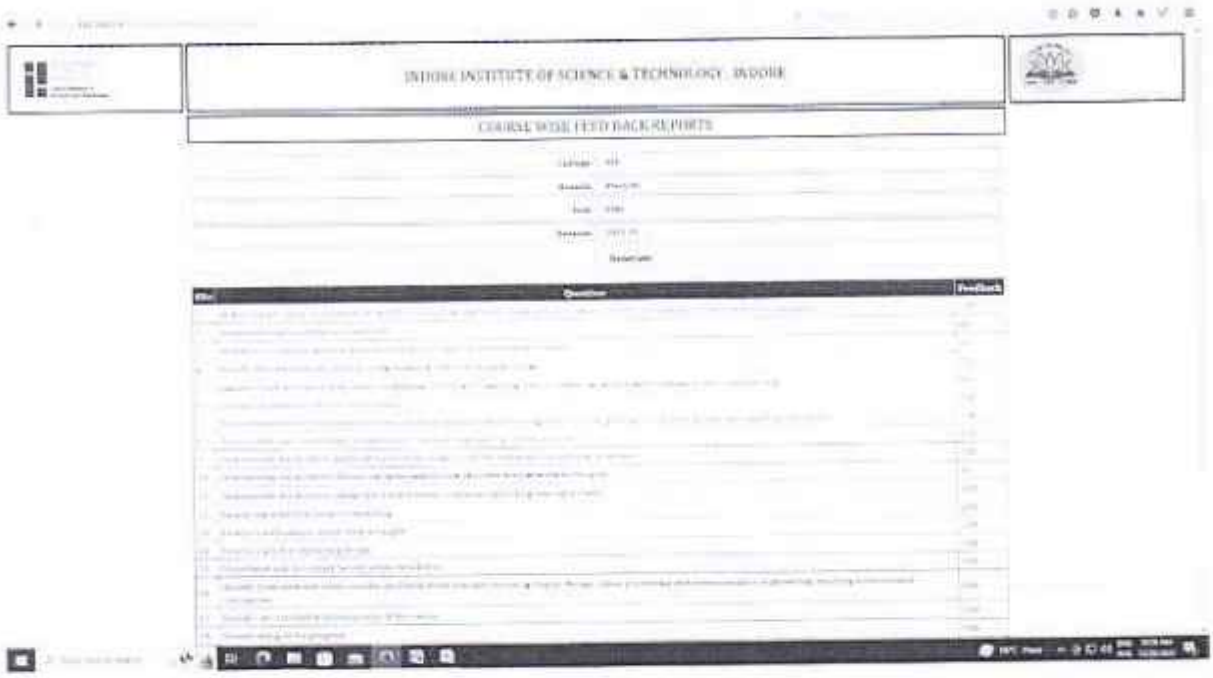
COURSE WISE FEED BACK REPORTS

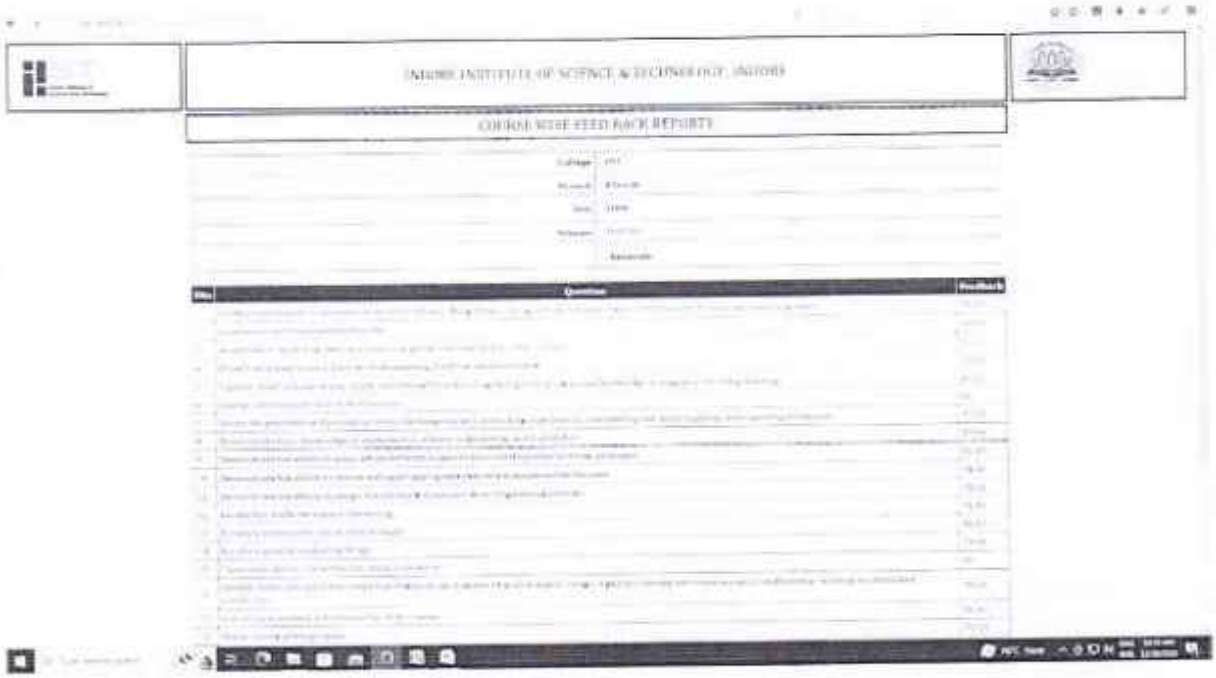

INDORE INSTITUTE OF SCIENCE & TECHNOLOGY, INDORE

COURSE WISE FEED BACK REPORTS





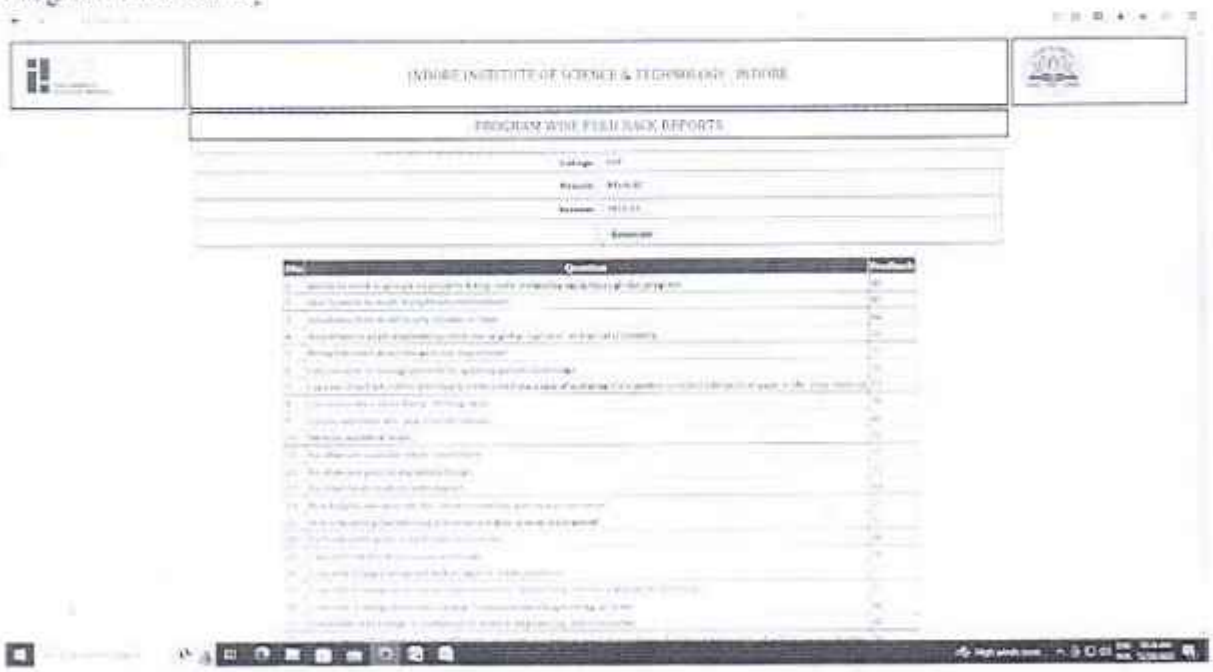

INDORE INSTITUTE OF SCIENCE & TECHNOLOGY, INDORE
COURSE WISE FEED BACK REPORTS


COURSE WISE FEED BACK REPORTS

S. No	Question	I Sem	II Sem	III Sem	IV Sem	V Sem	VI Sem	VII Sem	VIII Sem
1	Ability to participate as members of multidisciplinary design teams along with mechanical, electrical, Computer Science and other engineers	100	76.28	80.22	87.06	80.65	80.65	100	78.18
2	Assessment and marking have been fair	85.71	64.29	78.88	87.06	81.94	78.71	80	74.55
3	Awareness to apply engineering solutions in global, national, and societal contexts	85.71	74.08	80.67	83.53	76.77	76.13	80	87.27
4	Broadly educated and will have an understanding of ethical responsibilities	85.71	75.05	86.29	82.35	82	80	100	73.33
5	Capable of self-education and clearly understand the value of updating their professional knowledge to engage in life -long learning	85.71	73.32	82.02	82.35	82	81.33	80	87.27
6	Course outcomes are clear in most courses	85.71	85.77	88.65	82.35	82	80	100	85
7	Define the problems and provide solutions by designing and conducting experiments, interpreting and analyzing data, and reporting the results	85.71	75.2	88.99	83.53	82.58	78.06	100	72.73
8	Demonstrate basic knowledge in mathematics, science, engineering, and humanities	100	74.29	74.61	87.06	76.77	79.35	100	83.64
9	Demonstrate the ability to apply advanced technologies to solve contemporary and new problems	100	70.66	75.28	85.88	83.33	80	100	81.67
10	Demonstrate the ability to choose and apply appropriate resource management techniques	100	69.95	71.35	87.06	79.35	83.87	80	74.55
11	Demonstrate the ability to design Electronics & Communication Engineering systems	100	75.1	74.83	85.88	78.06	76.13	100	78.18
12	Faculty has made the subject interesting	100	70.92	85.17	83.53	85.81	76.13	100	70.91
13	Faculty is enthusiastic about what is taught	85.71	69.29	77.53	85.29	78	85.33	100	86.67
14	Faculty is good at explaining things	100	78.21	85.73	83.53	83.23	78.06	100	74.55
15	I have been able to contact faculty when I needed to	85.71	81.89	82.58	87.06	77.42	81.29	100	80
16	Identify, formulate and solve complex problems in the domains of analog, digital design, signal processing and communication engineering, reaching substantiated conclusions	85.71	71.58	87.75	83.53	81.33	84	100	78.33
17	Overall I am satisfied with the quality of the course	100	71.02	76.29	82.35	84.67	79.33	100	81.82
18	Overall rating of the program	100	78.06	82.47	96.47	85.33	79.33	100	73.33
19	Proficient in English language in both communicative and technical forms	85.71	65.71	80.79	83.53	79.33	80	80	78.33

20	Rate how challenging was the syllabus offered by the courses	100	76.79	77.08	87.06	77.33	76	100	80
21	Rate the adequateness of the textbooks and reference books mentioned for the courses	100	82.4	80.56	87.06	79.35	81.94	80	87.27
22	Rate the appropriateness of the sequence of the courses provided in the curriculum	85.71	74.13	68.09	82.35	78.06	78.71	100	80
23	Rate the depth of the syllabus of the courses in relation to the competencies expected by industry/ current global scenario	100	73.47	77.19	87.06	83.33	80	100	76.67
24	Rate the design of the courses in terms of Training & Placement	85.71	86.63	74.38	89.41	77.33	82.67	80	88.33
25	Rate the flexibility in choosing the electives in relation to technology advancements	100	80	80.9	82.35	81.94	78.06	80	78.18
26	Rate the percentage of learning ICT and Communication skills through courses offering	85.71	68.11	75.73	92.94	72.67	82.67	100	80
27	Rate the sequence of units/ modules in the courses in terms of Minor / Major projects	85.71	70.26	69.1	83.53	82.58	81.29	100	80
28	Select and apply necessary modern electronic instruments with an understanding of their limitations	100	70.77	76.63	87.06	84.67	80.67	100	76.67

Program End Survey

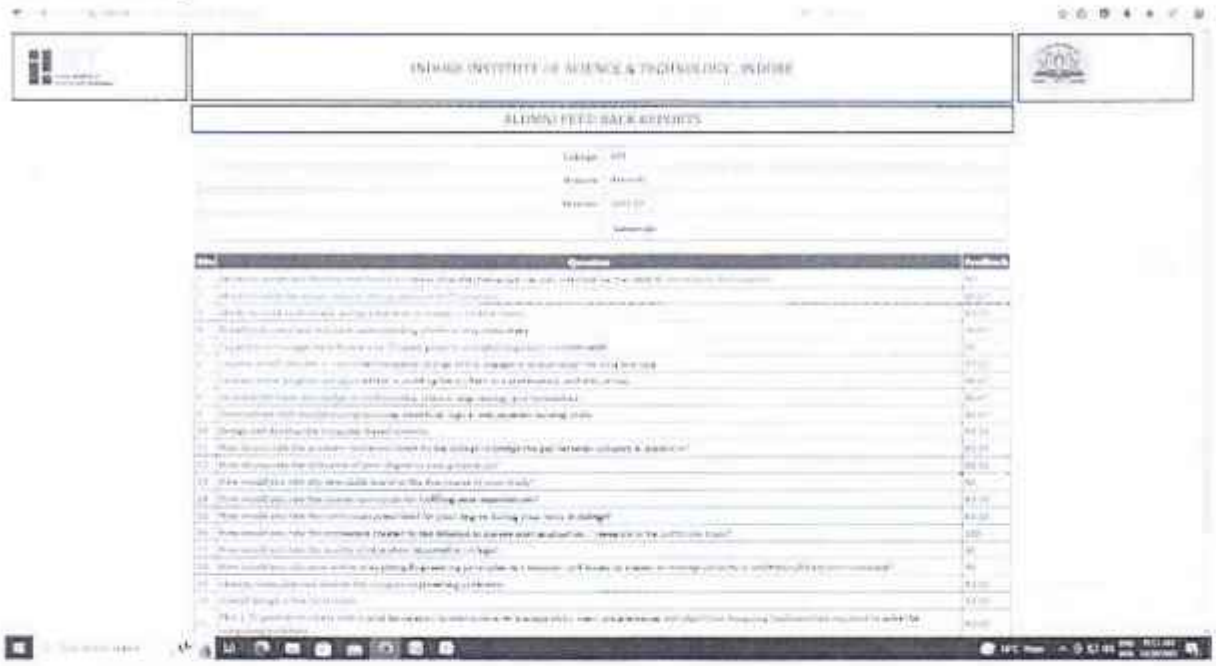


SNo	Question	Feedback
1	Ability to work in groups on projects & earn leadership skills through this program	80
2	Able to work in multi-disciplinary environment.	80
3	Assistance from most faculty outside of class	64
4	Awareness to apply engineering solutions in global, national, and societal contexts	76
5	Being informed about things in the department	72
6	Can you able to manage projects by applying gained knowledge	76
7	Capable of self-education and clearly understand the value of updating their professional knowledge to engage in life -long learning	72
8	Communication skills & Writing skills	76
9	Course outcomes are clear in most courses	60
10	Develop analytical skills	76
11	Faculties are available when I need them	72
12	Faculties are good at explaining things	72
13	Faculties treat students with respect.	64
14	How helpful and accurate the career counseling is in your programme?	72
15	How interesting the teaching is in most subjects in your programme?	72
16	I actively participate in most class discussions	68
17	I am motivated to learn course materials	76
18	I can able to apply advanced technologies to solve problems.	72
19	I can able to design and conduct experiments for define the problems and provide solutions.	72
20	I can able to design Electronics & Communication Engineering systems	80
21	I have basic knowledge in mathematics, science, engineering, and humanities.	80
22	I show respectful behavior toward faculty and other students in most of my classes & understanding of ethical responsibilities	76
23	I usually attend my classes	76
24	Library access to reading materials	68

Parents Survey

SNo	Question	Feedback
1	Rate your ward on Co-curricular and extra-curricular activities aided in overall grooming and personality development of the student.	90
2	Do you Feel Student counseling and mentoring helped in inculcating moral and ethical values among the students.	90
3	Rate - Constant communication about your ward academic progress report, discipline and attendance.	90
4	Rate Facilities available namely library, hostel facility, Teaching learning process, Administrative help, Examination.	96.67
5	Rate the Quality of Infrastructure facilities namely laboratory, facilitated learning of curriculum-based software development tools.	93.33
6	Rate Workshops, Seminars, Conferences aided the professional development of student (Your Ward).	93.33
7	Rate your ward on Conducive learning environment due to good interaction with the teachers.	93.33

Alumni Survey



SNo	Question	Feedback
1	Ability to participate as members of multidisciplinary design teams along with mechanical, electrical, Computer Science and other engineers	90
2	Awareness to apply engineering solutions in global, national, and societal contexts	86.67
3	Broadly educated and will have an understanding of ethical responsibilities	83.33
4	Capable of self-education and clearly understand the value of updating their professional knowledge to engage in life -long learning.	96.67
5	Define the problems and provide solutions by designing and conducting experiments, interpreting and analyzing data, and reporting the results	90
6	Demonstrate basic knowledge in mathematics, science, engineering, and humanities.	93.33
7	Demonstrate the ability to apply advanced technologies to solve contemporary and new problems.	96.67
8	Demonstrate the ability to choose and apply appropriate resource management techniques	86.67
9	Demonstrate the ability to design Electronics & Communication Engineering systems	86.67
10	How do you rate the academic initiatives taken by the college to bridge the gap between industry & academia?	93.33
11	How would you rate any new skills learnt in the due course of your study?	83.33
12	How would you rate the course curriculum for fulfilling your expectations?	93.33

13	How would you rate the curriculum prescribed for your degree during your term in college?	90
14	How would you rate the quality of education imparted in college?	83.33
15	Identify, formulate and solve complex problems in the domains of analog/digital design, signal processing and communication engineering, reaching substantiated conclusions	83.33
16	PEO-1 To create the ability to demonstrate technical competence in the fields of electronics and communication engineering and to develop solutions to the problems in core as well as inter disciplinary areas.	100
17	PEO-2 To develop graduates with sound academic background and industrial exposure this gives them capability to make a productive contribution to society through lifelong learning.	90
18	PEO-3 To develop competent professionals with moral values, ethics to build an efficient team with soft skill capabilities.	90
19	Proficient in English language in both communicative and technical forms	93.33
20	Select and apply necessary modern electronic instruments with an understanding of their limitations.	93.33

INDIRECT ASSESSMENT												
Type of Feedback	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PO12**
Course End Survey	84.47	84.03	83.52	83.35	84.56	80.52	84.60	83.09	85.38	79.18	80.77	81.75
Program End Survey	80	76	80	72	77	76	72	76	80	76	76	72
Alumni Survey	93.33	83.33	86.67	90	93.33	86.67	96.67	83.33	90	93.33	86.67	96.67
Average	**85.93**	**81.12**	**83.40**	**81.78**	**84.96**	**81.06**	**84.42**	**80.81**	**85.13**	**82.84**	**81.15**	**83.47**
Indirect Assessment	**85.93**	**81.12**	**83.40**	**81.78**	**84.96**	**81.06**	**84.42**	**80.81**	**85.13**	**82.84**	**81.15**	**83.47**
20% of Indirect Assessment	**17.19**	**16.22**	**16.68**	**16.36**	**16.99**	**16.21**	**16.88**	**16.16**	**17.03**	**16.57**	**16.23**	**16.69**
Direct Assessment	**84.20%**	**88.60%**	**83.80%**	**83.80%**	**85.70%**	**88.10%**	**89.40%**	**91.90%**	**83.80%**	**89.90%**	**91.80%**	**86.00%**
80% of Direct Assessment	**67.36**	**70.88**	**67.04**	**67.04**	**68.56**	**70.48**	**71.52**	**73.52**	**67.04**	**71.92**	**73.44**	**68.8**
PO Attainment for Session 2022-23	**84.55**	**87.10**	**83.72**	**83.40**	**85.55**	**86.69**	**88.40**	**89.68**	**84.07**	**88.49**	**89.67**	**85.49**