KASHI INSTITUTE OF TECHNOLOGY

(NAAC- A grade accredited institution), ISO 9001 : 2015 (QUALITY MANAGEMENT SYSTEM)
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REPORT ON CO – PO DISSEMINATION MECHANISM OF FACULTY OF APPLIED SCIENCE AND HUMANITIES

Submitted

By

DEPARTMENT OF APPLIED SCIENCE AND HUMANITIES

KASHI INSTITUTE OF TECHNOLOGY, VARANASI

SESSION: 2023-24

Kashi Institute of Technology Varanasi

Director

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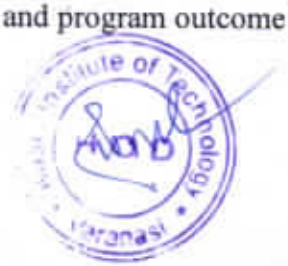
Kashi Institute of Technology Director Varanasi

CO-PO ASSESSMENT & ATTAINMENTS

1. INTRODUCTION:

According to John Dewey, an American philosopher, psychologist and educational reformer, "Education is not preparation for life, education is life itself". Education is a form of teaching-learning-practicing in which the knowledge, skills and information are transferred from teachers to students. But the traditional system of education fails to measure the Capability of the students. It only assesses the students learning by allowing them to reproduce the exact text presented in the text book as answer for questions. But the real need and demand of twenty first century learning system is the transition from Output Based Education to Outcome Based Education. Outcome Based Education (OBE) system is able to measure what the students are capable of doing. Indian education system has introduced the
Outcome Based Education System through National Board of Accreditation (NBA). This is a model which not only gives much better technical knowledge to twenty first century engineers, but also gives emphasis on the development of affective domain attribute which are needed in workplace, e.g. interpersonal skills, analytical skills, computer skills, Organizational skills, leadership skills, self-confidence, creativity, strong work ethics, Motivation, initiative, flexibility, adaptability and entrepreneurial skills. This report described
the calculation of various courses like Engineering Physics, Engineering Chemistry, Engineering Mathematics-1,Elementry mathematics-1, Soft Skill, Fundamental of Mechanical Engineering & Mechotronics, Basic Electrical Engineering, Emerging Technology, Artificial Intelligence, Programming for Problem Solving, Emerging Domain in Electronics Engineering, etc), delivery methods to attain OBE in these Programs, presents assessment methods, attainment of Course Outcome (CO) ,Program Outcome (PO) & Program Specific Outcome (PSO).The goal of outcome-based education (OBE) is to have students demonstrate that they "**know and are able to achieve**" whatever they required outputs are by organizing and focusing the resources available in an educational system. OBE assists universities in tracking their students' academic progress and empowering them to master new talents that will set them apart from their peers throughout the world. The curriculum is revised as needed to meet the needs of today's students, rather than being repeated for the following generation of students. The faculty is encouraged to focus on helping the students build new abilities rather than placing too much emphasis on getting everything done on the syllabus before the end of the semester. Additionally, students are evaluated based on the 'Levels' that track their learning skills rather than their grade. Success for all students and staff is the Outcome Based Education (OBE) principle, as stated by ensuring that every student has the skills, abilities, and qualities required for success after leaving the educational system. Organizing Institution is a way that allows for the achievement and maximization of those outcomes for all students. Institutions adopting OBE attempt to carry changes to the educational program by progressively adapting to the requirements of the various stakeholders like Students, Parents, Industry Personnel and Recruiters. This report described the calculation of various technical and non technical courses. Delivery methods to attain OBE in Engineering Program, presents assessment methods, attainment of course outcome (COs) and program outcome (POs).



2- Institute Vision & Mission

Vision:

To empower young generation for substantial contribution to economical, technological and Social progress of the society worldwide.

Mission:

- To contribute to the development of the human resources in the form of professional leaders of global cadre.
- To develop holistic personality of the learners.
- To make this Institute as a Leading Centre of Research.

3-APPLIED SCIENCE DEPARTMENT VISION AND MISSION

APPLIED SCIENCE DEPARTMENT

Applied Science Department is proud of having well qualified and devoted teachers. The various departments that merge under this department are of Mathematics, Chemistry, Physics and Humanities. Value oriented education plays a vital role in every human beings life and therefore the department is striving relentlessly to develop the Institute into a centre of excellence by imparting value education along with the technical and professional upliftment of its students. The department has well equipped Physics and Chemistry laboratories where students may perform experiments nicely. The students are given personal attention and care by monitoring their academic performance by conducting classes through peer guided self-study methodology, tutorial classes and regular counseling. Question banks comprising of questions of different types and levels, have been developed in all subjects for the use of students. Home assignments are assigned to the students regularly. The department also coordinates with the engineering departments so that it could cover the basics required in the study of engineering. The department also conducts the extra – curricular activities.

Kasi Institute of Technology Varanasi HOD

VISION & MISSION OF THE DEPARTMENT

VISION

To educate undergraduate, students in field of Applied Science, preparing sincere and socially responsible students to thrive and contribute to an ever- changing global society.

MISSION

*To provide strong foundation to the students through basic courses and value added teaching in areas of technical field, innovation, personality development & competitive abilities and guide for their respective discipline.

*To provide students with a flexible yet solid learning infrastructure through proactive and adaptive service systems.

*To create and propagate knowledge and tools at the interfaces between areas of engineering, emerging trends of industries and other core areas of Applied Sciences and Humanities.

4-LEVELS OF OUTCOMES:

Terminology (Abbreviations)

- **Outcomes Based Education (OBE):** Outcome-Based Education (OBE) is a student-centric teaching and learning Methodology in which the course delivery, assessment are planned to achieve stated Objectives and Outcomes. It focuses on measuring student performance i.e. outcomes at different levels.

OBE is all about feedback and outcomes there are four levels of Outcomes from OBE are:

1-Course Outcomes (COs) 2-Program Outcomes (POs)

3-Program Educational Objectives (PEOs) 4-Program Specific Outcomes (PSOs)

- **Course Outcomes (COs)**:

Course Outcomes (COs) are what the student should be able to do at the end of a course. The most important aspect of a CO is that it should be observable and measurable form of a set of individually assessable outcomes of the programme. Graduates Attributes (GAs) are the components indicative of the graduate's potential to acquire competence to practice at the appropriate level.

- **Program Outcomes (POs):**

Program outcomes are statements that describe what the knowledge, skills and attitudes students should have at the time of graduation from an engineering program. That means just at the end of 4 years these represent what is the knowledge, skills and attitudes they should have.

- **Program Educational Objectives (PEOs)**:

These are broad statements that describe the career and professional accomplishments in four to five years after graduation that the program is preparing the graduates to achieve.

- **Program Specific Outcomes (PSOs):**

Program Specific Outcomes are statements that describe what the students of a specific engineering program should be able to do.

Course objectives:

1. Intended outcomes written to help guide instruction for what the students will learn in the course.

2. Course objectives are measurable objectives that the learner is expected to accomplish at the end of an instructional.

3. A statement of an action that a learner should be able to perform after successfully completing the learning material. e.g. course objective of engineering chemistry.

Course objective (Engineering Chemistry):

- To bring adaptability to the concepts of chemistry and to acquire the required skills to become a perfect engineer.

- To import the basic knowledge of atomic, molecular and electronic modifications which makes the student to understand the technology based on them.

- To acquire the skills pertaining to Spectroscopy and to apply them for medical and other fields.

- To acquire the knowledge of electrochemistry, corrosion and water treatment which are essential for the Engineers and in industry?

- To bring about the overall awareness of the use of polymers.

COURSE OUTCOME STATEMENT:

Course Outcomes (COs):

CO statements indicating what a student can do after the successful completion of a course. Every Course leads to some Course Outcomes. The CO statements are defined by considering the course content covered in each module of a course. For every course there may be 5 or 6 COs. The keywords used to define COs are based on Bloom's Taxonomy. A well written CO facilitates lecturers in measuring the achievement of the CO at the end of the semester. It also helps the lecturers in designing suitable delivery and assessment methods to achieve the designed CO. Graduates Attributes (GAs) are the components indicative of the graduate's potential to acquire competence to practice at the appropriate level. Gas form a set of individually assessable outcomes of the programmed. For e.g. a course such as Engineering Chemistry might have the following course outcomes set.

Course Outcomes & CO-PO Matrix of Various Courses

BAS101 / BAS201: ENGINEERING PHYSICS

Course Outcomes:

On completion of course the students are able :		
CO	**CO Statement**	**Bloom's Level**
CO1	To explain the distribution of energy in black body radiation and to understand thedifference in particle and wave nature with explanation of Compton effect and Schrodinger wave equation.	Understanding, Apply
CO2	To understand the concept of displacement current and consistency of Ampere's law and also the properties of electromagnetic waves in different medium with the use of Maxwell's equations.	Understanding, Analyze
CO3	To understand the behavior of waves through various examples/applications of interference and diffraction phenomenon and the concept of grating and resolvingpower.	Apply
CO4	To know the functioning of optical fiber and its properties and applications. To understand the concept, properties and applications of Laser.	Understanding, Apply
CO5	To know the properties and applications of superconducting materials and nano materials.	Understanding

BAS102 / BAS202: ENGINEERING CHEMISTRY

Course Outcomes:

Upon completion of the course the student should be able to:

Units	Course Outcomes	Bloom's Level
CO-1	Get an understanding of the theoretical principles of chemistry of molecular structure, bonding andproperties, Chemistry of advanced materials (liquid crystals, Nanomaterials, Graphite & Fullerene) as well as the Principles of Green Chemistry.	K3
CO-2	Apply the fundamental concepts of determination of structure with various spectral techniques and stereochemistry.	K4
CO-3	Utilize the theory of construction of electrodes, batteries and fuel cells in redesigning new engineering products and categorize the reasons for corrosion and study methods to control corrosion and develop understanding of Chemistry of Engineering materials (Cement).	K3
CO-4	Develop understanding of the sources, impurities and hardness of water, apply the concepts of determination of calorific values and analyze the coal.	K3
CO-5	Develop the understanding of Chemical structure of polymers and its effect on their various properties when used as engineering materials. Understanding the applications of specific polymers and Chemistry applicable in industrial process.	K3

BAS103 : ENGINEERING MATHEMATICS-I

Course Outcomes:

	Course Outcome (CO)	Bloom's Level
	At the end of this course, the students will be able to:	
CO 1	Understand the concept of complex matrices, Eigen values, Eigen vectors and apply the concept of rank to evaluate linear simultaneous equations	K2 & K5
CO 2	Remember the concept of differentiation to find successive differentiation, Leibnitz Theorem, and create curve tracing, and find partial and total derivatives	K1,K6 & K5
CO 3	Applying the concept of partial differentiation to evaluate extrema, series expansion, error approximation offunctions and Jacobians	K3 &K5
CO 4	Remember the concept of Beta and Gamma function; analyze area and volume andDirichlet's theorem in multiple integral	K1 & K4
CO 5	Apply the concept of Vector Calculus to analyze and evaluate directionalderivative, line, surface and volume integrals.	K3, K4& K5

K1 – Remember, K2 – Understand, K3 – Apply, K4 – Analyze, K5 – Evaluate, K6 – Create

BAS203 : ENGINEERING MATHEMATICS-II

Course Outcomes:

	Course Outcome (CO)	Bloom's Level
At the end of this course, the students will be able to:		
CO 1	Remember the concept differentiation to evaluate LDE of nth order with constantcoefficient and LDE with variable coefficient of 2nd order.	K1 &K5
CO 2	Understand and apply the concept of Laplace Transform to evaluate differential equations	K2 ,K3 & K5
CO 3	Understand the concept of convergence to analyze the convergence of series andexpansion of the function for Fourier series.	K2 & K4
CO 4	Apply the concept of analyticity, Harmonic function and create theimage offunction applying conformal transformation	K3, K6& K3
CO 5	Apply the concept of Cauchy Integral theorem, Cauchy Integralformula, singularity and calculus of residue to evaluate integrals	K3& K5

K1 – Remember, K2 – Understand, K3 – Apply, K4 – Analyze, K5 – Evaluate, K6 – Create

BEE101 / BEE201: FUNDAMENTALS OF ELECTRICAL ENGINEERING

Course Outcomes:

	Course Outcome (CO)
CO 1	Apply the concepts of KVL/KCL and network theorems in solving DC circuits.
CO 2	Analyze the steady state behavior of single phase and three phase AC electrical circuits.
CO 3	Identify the application areas of a single phase two winding transformer as well as an auto transformer and calculate their efficiency. Also identify the connections of a three phase transformer.
CO 4	Illustrate the working principles of induction motor, synchronous machine as well as DC machine and employ them in different area of applications.
CO 5	Describe the components of low voltage electrical installations and perform elementary calculations for energy consumption.

BEC101 / BEC201 : FUNDAMENTALS OF ELECTRONICS ENGINEERING

Course Outcomes:

At the end of this course students will demonstrate the ability to:

1. Describe the concept of PN Junction and devices.
2. Explain the concept of BJT, FET and MOFET.
3. Apply the concept of Operational amplifier to design linear and non-linear applications.
4. Perform number systems conversions, binary arithmetic and minimize logic functions.
5. Describe the fundamentals of communication technologies.

BCS101 / BCS201: PROGRAMMING FOR PROBLEM SOLVING

Course Outcome:

Course Outcome (CO)		Bloom's Level
At the End of Course , the Student will be Able to Understand		
CO 1	To Develop Simple Algorithms for Arithmetic and Logical Problems.	K_2, K_3
CO 2	To Translate the Algorithms to Programs & Execution (in C Language).	K_3
CO 3	To Implement Conditional Branching, Iteration and Recursion.	K_3
CO 4	To Decompose a Problem into Functions and Synthesize a Complete Program Using Divide and Conquer Approach.	K_4
CO 5	To Use Arrays, Pointers and Structures to Develop Algorithms and Programs.	K_2, K_3

K_1- Remember, K_2- Understand, K_3- Apply, K_4- Analyze , K_5- Evaluate , K_6- Create

BME101 / BME201: FUNDAMENTALS OF MECHANICAL ENGINEERING

Course Outcomes:

The students will be able to		Blooms Level
CO 1	Apply the concept of force resolution and stress and strain to solve basic problems	K 3
CO 2	Understand the construction details and working of internal combustion engines, electric vehicle and hybrid vehicles.	K 2
CO 3	Explain the construction detail and working of refrigerator, heat pump and air-conditioner.	K 2
CO 4	Understand fluid properties, conservation laws and hydraulic machinery used in real life.	K 2
CO 5	Understand the working principle of different measuring instrument and mechatronics with their advantages, scope and Industrial application.	K 2

BAS104 / BAS204: ENVIRONMENT AND ECOLOGY

Course Outcomes:

Upon completion of the course, the student will be able to:

	Course Outcomes	Bloom's Level
CO-1	Gain in-depth knowledge on natural processes that sustain life, and govern economy.	K2
CO-2	Estimate and Predict the consequences of human actions on the web of life, global economy and quality of human life.	K3
CO-3	Develop critical thinking for shaping strategies (scientific, social, economic and legal) for environmental protection and conservation of biodiversity, social equity and sustainable development.	K4
CO-4	Acquire values and attitudes towards understanding complex environmental-economic social challenges, and participate actively in solving current environmental problems and preventing the future ones.	K3
CO-5	Adopt sustainability as a practice in life, society and industry.	K3

BAS105 / BAS205: SOFT SKILLS

Course Outcomes:

1. **Write** professionally in simple and correct English.
2. **Demonstrate** active listening with comprehension, and the ability to write clear and well-structured emails and proposals.
3. **Learn** the use of correct body language and tone of voice to enhance communication.
4. **Acquire** the skills necessary to communicate effectively and deliver presentations with clarity and impact
5. **Understand** and apply some important aspects of core skills, like Leadership and stress management.

BAS151 / BAS251: ENGINEERING PHYSICS LAB

Course outcomes:

At the end of the course, students will be able to		
CO	**CO Statement**	**Bloom's Level**
CO-1	***Apply*** the principle of interference and diffraction to find the wavelength of monochromatic and polychromatic light.	Apply
CO-2	***Compute*** and **analyze** various electrical and electronic properties of a givenmaterial by using various experiments.	Analyze
CO-3	***Verify*** different established laws with the help of optical and electrical experiments.	Apply
CO-4	***Determine*** and ***calculate*** various physical properties of a given material by using various experiments.	Apply
CO-5	**Study** and **estimate** the performance and parameter of given equipment by using graphical and computational analysis.	Apply

BAS152 / BAS252 : ENGINEERING CHEMISTRY LAB

Course Outcomes:

Upon completion of the course the student should be able to:

	Course Outcomes	Bloom's Level
CO-1	Get an understanding of the use of different analytical instruments.	K3
CO-2	Measure the molecular / system properties such as surface tension, viscosity, conductance of solution, chloride and iron content in the water.	K3
CO-3	Measure the hardness and alkalinity of the water.	K3
CO-4	Know the fundamental concepts of the preparation of phenol formaldehyde & urea formaldehyde resin, adipic acid and Paracetamol.	K3
CO-5	Estimate the rate constant of reaction.	K3

BEE151 / BEE251 : BASIC ELECTRICAL ENGINEERING LAB

Course Outcomes:

	Course Outcome (CO)	Bloom'sLevel
At the end of this course, the students should be able to:		
CO 1	Conduct experiments illustrating the application of KVL/KCL and networktheorems to DC electrical circuits.	K_3
CO 2	Demonstrate the behavior of AC circuits connected to single phase AC supply and measure power in single phase as well as three phase electrical circuits.	K_4
CO 3	Perform experiment illustrating BH curve of magnetic materials.	K_3
CO 4	Calculate efficiency of a single phase transformer and DC machine.	K_4
CO 5	Perform experiments on speed measurement and reversal of direction of three phase induction motor and Identify the type of DC and AC machines based on their construction.	K_4

K_1 – Remember, K_2 – Understand, K_3 – Apply, K_4 – Analyze, K_5 – Evaluate, K_6 – Create

BEC151 / BEC251: BASIC ELECTRONICS ENGINEERING LAB

Course Outcome (CO)		Bloom's Level
At the end of this course, the students should be able to:		
CO 1	Conduct experiments illustrating the application of KVL/KCL and network theorems to DC electrical circuits.	K3
CO 2	Demonstrate the behavior of AC circuits connected to single phase AC supply and measure power in single phase as well as three phase electrical circuits.	K4
CO 3	Perform experiment illustrating BH curve of magnetic materials.	K3
CO 4	Calculate efficiency of a single phase transformer and DC machine.	K4
CO 5	Perform experiments on speed measurement and reversal of direction of three phase induction motor and Identify the type of DC and AC machines based on their construction.	K4

K1 – Remember, K2 – Understand, K3 – Apply, K4 – Analyze, K5 – Evaluate, K6 – Create

BCS151 / BCS251: PROGRAMMING FOR PROBLEM SOLVING LAB

Course Outcomes:

	Course Outcome	Bloom's Level
At the end of course , the student will be able to:		
CO 1	Able to implement the algorithms and draw flowcharts for solving Mathematical and Engineering problems.	K_3, K_4
CO 2	Demonstrate an understanding of computer programming language concepts.	K_3, K_2
CO 3	Ability to design and develop Computer programs, analyzes, and interprets the concept of pointers, declarations, initialization, operations on pointers and their usage.	K_6, K_4
CO 4	Able to define data types and use them in simple data processingapplications he/she must be able to use the concept of array of structures.	K_1, K_5
CO 5	Develop confidence for self-education and ability for life-long learning needed for Computer language.	K_3, K_4

BWS151/ BWS251: WORKSHOP PRACTICE LAB

Course Outcome:

The students will be able to		Blooms Level
CO1	Use various engineering materials, tools, machines and measuring equipments.	K3
CO2	Perform machine operations in lathe and CNC machine.	K3
CO3	Perform manufacturing operations on components in fitting and carpentry shop.	K3
CO4	Perform operations in welding, moulding, casting and gas cutting.	K3
CO5	Fabricate a job by 3D printing manufacturing technique	K3

BAS155 / BAS255 : ENGLISH LANGUAGE LAB

Course Outcome:

1. Students will be enabled to understand the basic objective of the course by being acquainted with specific dimensions of communication skills i.e. Reading, Writing, Listening, Thinking andSpeaking.
2. Students would be able to create substantial base by the formation of strong professional vocabulary for its application at different platforms and through numerous modes as Comprehension, reading, writing and speaking etc.
3. Students will apply it at their work place for writing purposes such as Presentation/official drafting/administrative communication and use it for document/project/report/research paperwriting.
4. Students will be made to evaluate the correct and error-free writing by being well-versed in rules of English grammar and cultivate relevant technical style of communication &presentationat their work place and also for academic uses.
5. Students will apply it for practical and oral presentation purposes by being honed up in presentation skills and voice-dynamics. They will apply techniques for developing interpersonalcommunication skills and positive attitude leading to their professional competence.

BCE151/ BCE251: ENGINEERING GRAPHICS & DESIGN LAB

Course Outcome:

After completion, of course students will be able to:

CO 1: Use scales and draw projections of objects.

CO 2: Explain views of solids and their sectional surfaces.

CO 3: Analyze and draw isometric projections of objects.

CO 4: Demonstrate orthographic representation of perspective views using modern tools.

CO 5: Apply AutoCAD software for creation of engineering drawing and models

Program Outcomes (POs):

POs are defined by Accreditation Agencies of the country (NBA in India), which are the statements about the knowledge, skills and attitudes, graduate attributes of a formal engineering program should have. Graduates Attributes (GAs) are the components indicative of the graduate's potential to acquire competence to practice at the appropriate level. GAs form a set of individually assessable outcomes of the program. The NBA laid down the graduate attributes relating to program outcomes and is to be derived by Program. These are broad and cover a wider area than of COs. 12 Program Outcomes, or Graduate Attributes for the sake of unity and quality assurance.

The Program outcomes reflect the ability of graduates to demonstrate knowledge in fundamentals of Basic Sciences, Humanities and Social Sciences, Engineering Sciences and apply these principles in understanding and practically apply the knowledge in professional core subjects, electives and projects which enables the graduates to be competent at the time of graduation. The graduates must adhere to professional and ethical responsibilities in the pursuit of their careers and also for the benefit of the society. These outcomes also enable the graduate to pursue higher studies and engage in R&D for a successful professional career. The proper definition and the attainment of POs contribute to the attainment of Program Educational Objectives which will help the graduate to perform his/ her duties, professional responsibilities, design, development, production and testing of novel products, ability to deal with finances and project management during his/her early professional career of 3 to 4 years.

PROGRAM OUTCOMES (PO's)

PO-1. Scientific knowledge: Apply the knowledge of mathematics, science, Scientific Fundamentals, and scientific specialization to the solution of complex scientific problems.

PO-2. Problem analysis: Identify, formulate, research literature, and analyze scientific problems to arrive at substantiated conclusions using first principles of mathematics, nature, and sciences.

PO-3. Design/development of solutions: Design solutions for complex scientific problems and design system components, processes to meet the specifications with consideration for the public health and safety, and the cultural, societal, and environmental considerations.

PO-4. Conduct investigations of complex problems: Use research-based knowledge including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions.

PO-5. Modern tool usage: Create, select, and apply appropriate techniques, resources, and modern scientific tools including prediction and modeling to complex activities with Understanding of the limitations.

PO-6. Scientific temper and society: Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal, and cultural issues and the consequent responsibilities relevant to the practice.

PO-7. Environment and sustainability: Understand the impact of the professional scientific solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.

PO-8. Ethics: Apply ethical principles and commit to professional ethics and responsibilities and norms of the work practice.

PO-9. Individual and team work: Function effectively as an individual, and as a member or leader in teams, and in multidisciplinary settings.

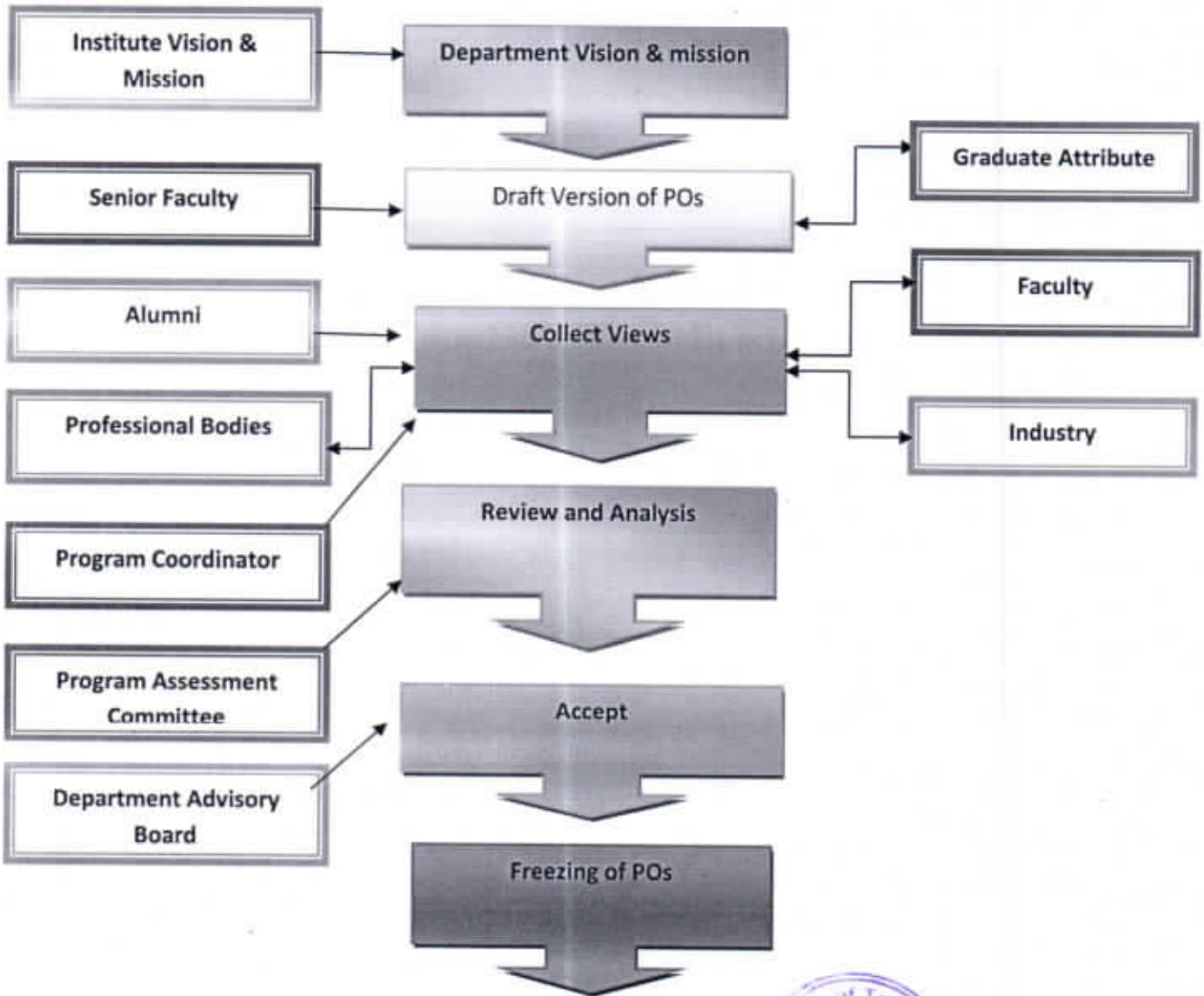
PO-10. Communication: Communicate effectively with their community and with society at large. Be able to comprehend and write effective reports documentation. Make effective presentations, and give and receive clear instructions.

PO-11. Project management and finance: Demonstrate knowledge and understanding of scientific and management principles and apply these to one's own work, as a member and leader in a team. Manage projects in multidisciplinary environments.

PO-12. Life-long learning: Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change.

Process to define Program Outcomes (POs) of the department:

Fig. 1



PROGRAM EDUCATIONAL OBJECTIVES (PEOs):

Program Educational Objectives (PEOs) are statements that describe the career and professional accomplishments that the program is preparing the graduates to achieve. PEO's are measured 4–5 years after graduation. They are set in order to measure the effectiveness of the program and to check whether it has prepared the students to deal with the real world, where they could apply and use the skills and knowledge they've learned to good use.

PEO1 - PROFICIENT DEVELOPMENT

To develop in the students the capacity to obtain knowledge on Mathematics, Science and Engineering and apply it expertly inside sensible requirements, for example, financial, natural, social, political, moral, wellbeing and security, manufacturability and manageability with due moral obligation.

PEO2-CORE PROFICIENCY

To provide ability to recognize, plan, appreciate formulate, comprehend, analyze, design and solve engineering problems with hands on experience in different advancement involving modern tools necessary for engineering practice to fulfill the necessities of society and the business.

PEO3 - SPECIALISED ACHIEVEMENT

To furnished the students with the capacity to explore, reenact, design, simulate, experiment, analyze, optimize and interpret in their core applications through multi disciplinary ideas and contemporary figuring out how to incorporate them into industry prepared graduates.

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PEO4 - PROFESSIONALISM

To provide training, exposure and awareness on importance of soft skills for better career and holistic personality development as well as professional attitude towards ethical issues, team work, responsibility, accountability, multidisciplinary approach and capability to relate engineering issues to broader social context.

PEO5 - LEARNING ENVIRONMENT

To furnish students with an academic environment and make them mindful of greatness, foster the desire of revelation, imagination, creativity, authority, composed moral codes and rules and the long lasting figuring out how to turn into an effective expert in scientific region.

The Process for Establishing the PEO's:

The PEOs are established through the following process steps:

STEP 1: Vision and Mission of the Institute & Department are taken into consideration to interact with various stake holders, and establish the PEO's

STEP 2: The Head of the Department, Program Coordinator and other Senior Faculty prepares the draft version of PEOs and POs.

STEP 3: The draft rendition is examined with partners and their perspectives are gathered by the Program co-ordinator

STEP 4 : The Program Assessment Committee surveys and dissects the PEOs and POs and presents its recommendations to the Departmental advisory Board.

STEP 5: The Departmental advisory Board deliberates on the recommendations and freezes the PEOs and POs and submits them to the BOG for final approval. The Program curriculum is planned by integrating inputs from members of Board of Studies and Academic council who are drawn from various academic institutions, R&D associations and industry.

PROGRAM SPECIFIC OUTCOMES (PSOs):

The graduates of the department will attain:

PSO1: Problem tackling ability

Graduates will actually want to apply the capacity to break down, plan and carry out application explicit electronic framework for complex designing issues for simple, advanced area, correspondences and sign handling applications by applying the information on essential sciences, designing arithmetic and designing basics.

PSO2: Professional Skill

Graduates will actually want to foster quick changes in apparatuses and innovation with a comprehension of cultural and biological issues pertinent to proficient designing practice through long lasting learning.

PSO3: Successful Career Graduates will actually want to have great versatility to work in multi-disciplinary workplace, great relational abilities as a forerunner in a group in enthusiasm for proficient morals and cultural obligations.

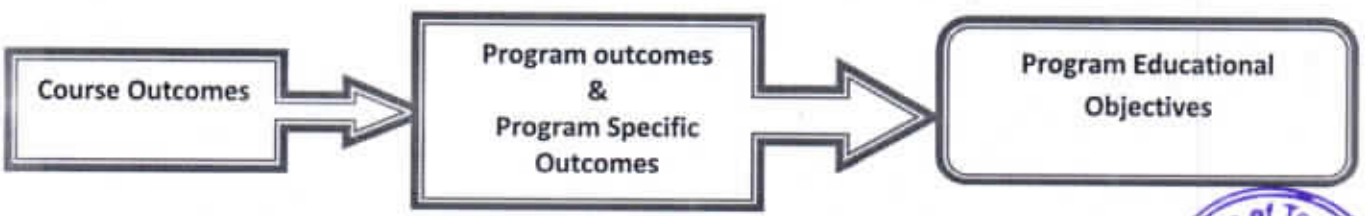


Fig 2. Relating Outcomes (CO-PO & PSO-PEO)

This figure shows the building block of CO-PO & PSO-PEO Relationship. After CO statements Develop by course in-charge, CO will map with any possible POs based on the relationship exist

between them. But all POs are not necessary mapped with one CO and it may be left blank. Anyhow, it is mandatory that all POs should be mapped with any one of PSO and PEO which are specified in the program.

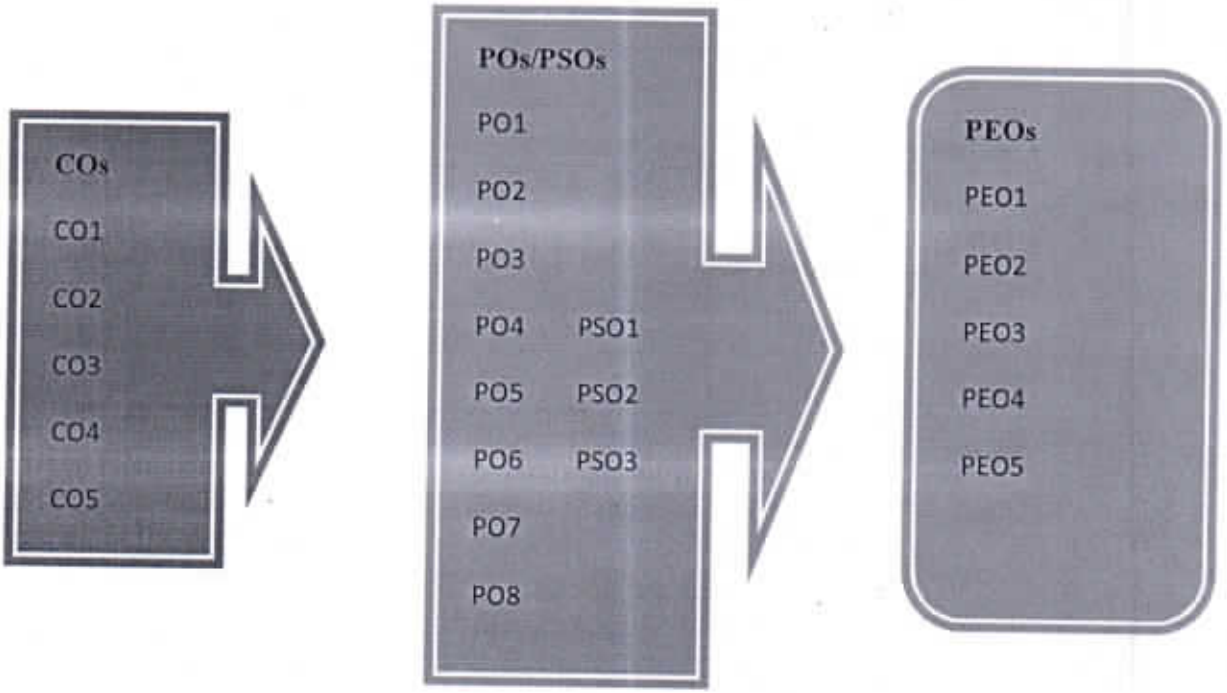


Fig. 3 Relationship between CO, PO, PSO & PEO

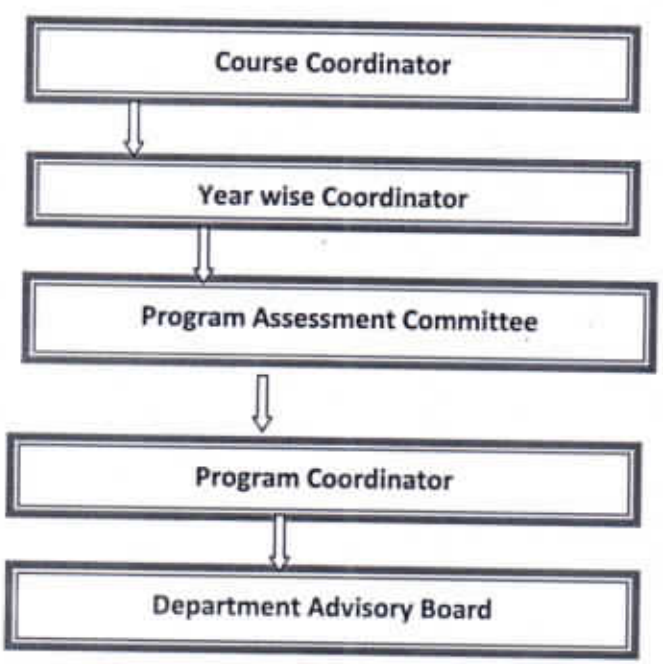


Fig.4 Hierarchy of Faculty Involvement

- **Course Coordinator**: write appropriate COs and finalize the CO-PO mapping.
- **Year wise Coordinator**: Consolidate the CO attainment of the respective year.
- **Program Assessment Committee**: Consolidate the CO attainment and PO attainment of the respective program.
- **Program Coordinator**: Monitor and Guide the Program Assessment Committee.
- **Department Advisory Board**: All these works mention above have to be done under the supervision of Department Advisory Board.

Vision, Mission & PEO are published & disseminated at following places:

Vision , Mission & PEOs			
Sr. No.	**Place of Dissemination**	**Item**	**Dissemination Detail**
1	College Website	Vision ,Mission, PEO	Permanent
2	Depart Area	Vision ,Mission, PEO	Permanent
3	Laboratory Area	Vision ,Mission, PEO	Permanent
4	Notice Board	Vision, Mission,	Permanent
5	Employer Survey Form	Vision ,Mission, PEO	When Required
6	Bulk SMS	Vision ,Mission,	At New Admission
7	Email	Vision ,Mission,	Footer in Every Mail
8	Home Page of ERP	Vision ,Mission,	Permanent
9	Laboratory Manuals	Vision ,Mission,	Permanent
10	Faculty Meetings	Vision ,Mission, PEO	At regular interval
11	In Alumni Interactions	Vision, Mission, PEO	Alumni Meet
12	Back Grounds of all Computers in the Department	Vision, Mission	Permanent

The Process for Updating Vision and Mission of Department:

The following steps are followed to establish Vision and Mission of Department.

Step 1: The Institute's Vision & Mission serve as the starting point in Step 1.

Step 2: The Department holds faculty discussions about the skill sets required by regional and global employers, industry technological breakthroughs, and R & D. A draft of the Department's vision and mission statements is also created in accordance with suggestions made by the Departmental Planning Committee.

Step 3: The draft version is changed in light of feedback from the Departmental Planning Committee, parents, professional organizations, and industry representatives.

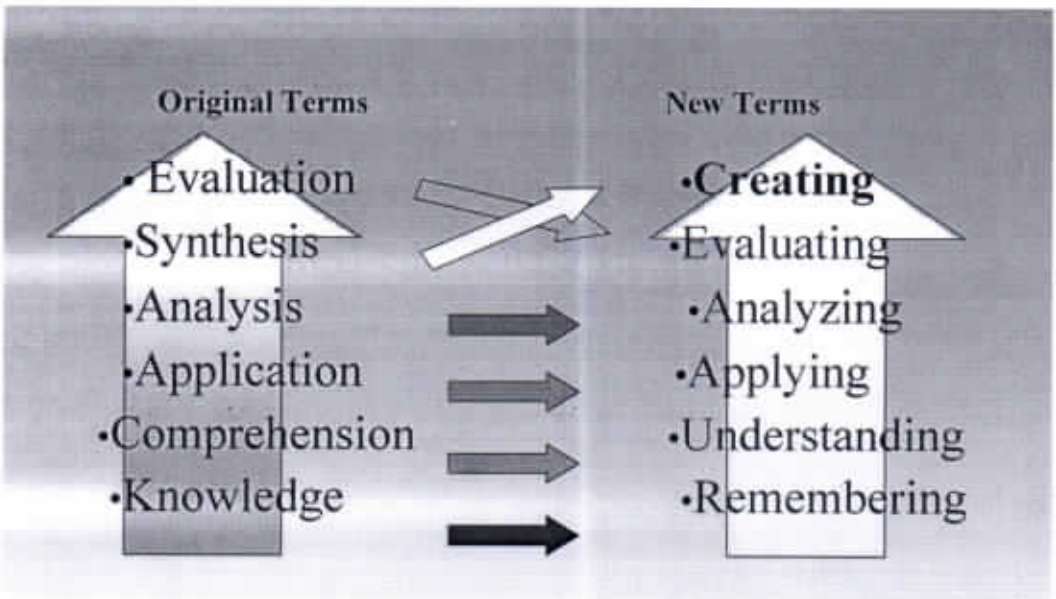
Step 4: To ascertain whether the accepted points of view are congruent with the institute's vision and goal. Should the Central Advisory Committee deem the Vision and Mission to be unsatisfactory move on to step 5.

Step 5: The Central Advisory Committee will again request changes from the Departmental Planning Committee if it is not happy with the Vision and Mission.

Step 6: The Vision and Mission are approved and made public among the stakeholders if they meet the requirements of the Central Advisory Committee.

5- Revised Bloom's Taxonomy

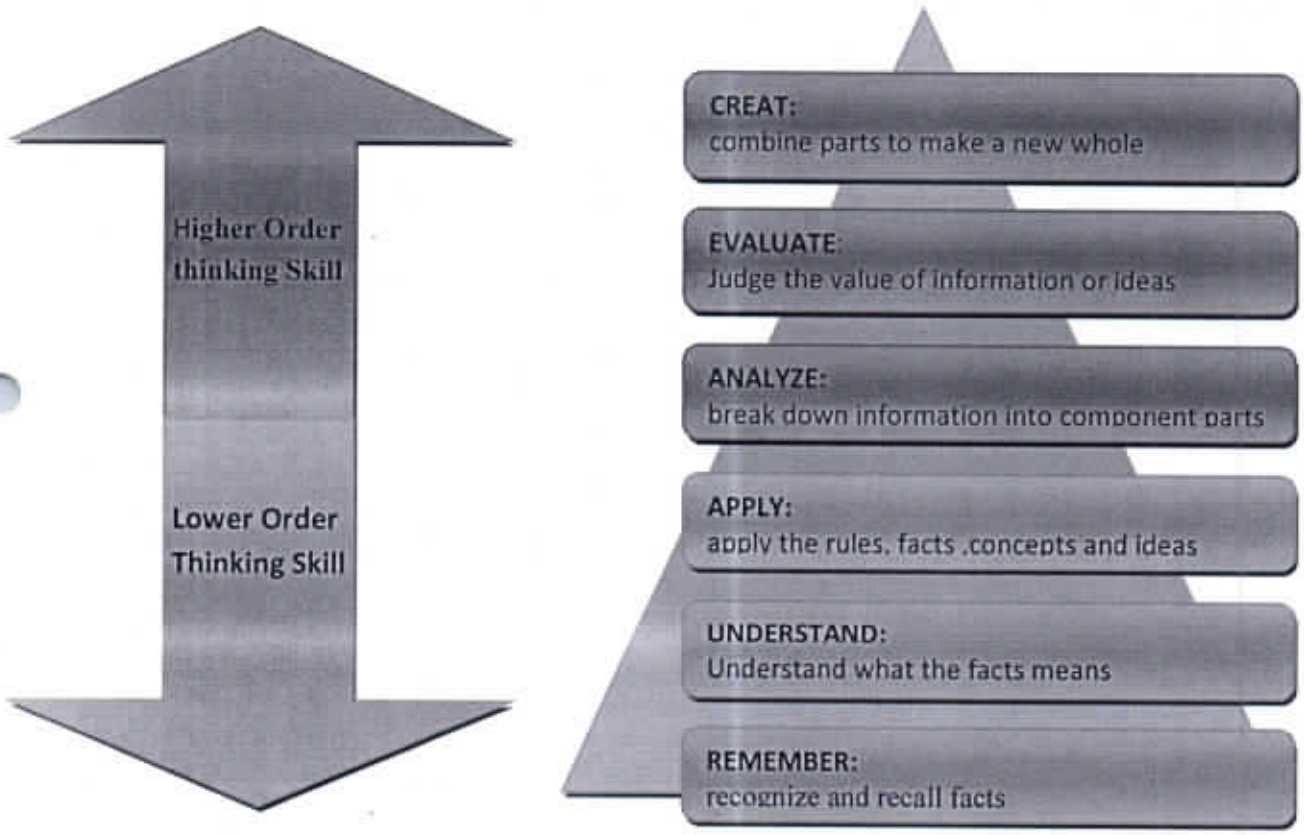
Bloom's Taxonomy was created in 1956 under the leadership of educational psychologist Dr Benjamin Bloom in order to promote higher forms of thinking in education, such as analyzing and evaluating concepts, processes, procedures, and principles, rather than just remembering facts. It is most often used when designingeducational, training and learning processes.



Critical thinking is a skill that you are expected to develop as you progress through University. Critical thinking will become part of your research, your reading, your planning and reflection and of your academic writing. It involves a set of skills and an attitude of mind that you will need to cultivate and practice - it won't necessarily come easily or naturally! If you can develop critical thinking skills in relation to your subject, they will be valuable to you in many other aspects of life (including employment). Bloom's taxonomy of thinking and learning illustrates forms of thinking, in ascending order of complexity, from lower-order thinking skills (LOTS) to higher-order thinking skills (HOTS). It begins with **remembering** and ends with **creating**. This is used by lecturers to set learning outcomes and assessment criteria for a course or module, you will often find these verbs in your module handbooks. The knowledge about a subject alone, like having access to a range of information, or 'facts', is at the simplest or lowest level. So using only, or mostly, descriptive language in your writing, to communicate what you know about a topic is not likely to generate many marks. Higher and more complex levels include the ability to analyze, synthesize and evaluate information by comparing and contrasting different points of view, sets of information or experiences. This might involve recognizing patterns of behavior, for example, and using them to make predictions.

BLOOM'S REVISED TAXONOMY OF THINKING SKILLS

Fig.6



Cognitive Process 1: To Remember

Remembering consists of recognizing and recalling relevant information from long-term memory.

Verbs associated with this level:

Choose, define, describe, find, identify, label, list, locate, match, name, recall, recite, recognize, record, relate, retrieve, say, select, show, sort and tell

Cognitive Process 2: To understand

Understanding is the ability to make your own meaning from educational material such as reading and teacher explanations. The sub-skills for this process include interpreting, exemplifying, classifying, summarizing, inferring, comparing, and explaining.

Verbs associated with this level:

Categorize, clarify, classify, compare, conclude, construct, contrast, demonstrate, distinguish, explain, illustrate, interpret, match, paraphrase, predict, represent, reorganize, summarize, translate and understand

Cognitive Process 3: To apply

Applying refers to using a learned procedure either in a familiar or new situation.

Verbs associated with this level:

Apply, carry out, construct, develop, display, execute, illustrate, implement, model, solve and use

Cognitive process 4: To Analyze

To analyze is to break material into its constituent parts and determine how the parts relate to one another and to an overall structure or purpose. Students analyze by differentiating, organizing, and attributing.

Verbs associated with this level:
Analyze, ascertain, attribute, connect, deconstruct, determine, differentiate, discriminate, dissect, distinguish, divide, examine, experiment, focus, infer, inspect, integrate, investigate, organize, outline, reduce, solve (a problem) and test for assignments.

Cognitive Process 5: To evaluate
To evaluate is to make judgments based on criteria and standards.

Verbs associated with this level:
Appraise, assess, award, check, conclude, convince, coordinate, criticize, critique, defend, detect, discriminate, evaluate, judge, justify, monitor, prioritize, rank, recommend, support, test, value

Cognitive Process 6: To Create
To create is to put elements together to form a coherent or functional whole; reorganize elements into a new pattern or structure; inventing a product. This skill involves putting things together to make something new. To accomplish creating tasks, learners generate, plan, and produce.

Verbs associated with this level:
Adapt, build, compose, construct, create, design, develop, elaborate, extend, formulate, generate, hypothesize, invent, make, modify, plan, produce, originate, refine, transform.

CO – PO AND CO – PSO MAPPING OF COURSES:

Mapping Factor (Correlation Level)

The role of CO-PO mapping will be assigned to the faculty as per hierarchy. The course in-charge is responsible for writing the necessary COs for their corresponding course after receiving the department's course (subject) allocation.. COs will be created utilizing the action verbs of the various learning levels., CO statements that are relevant to the skills, knowledge, and behavior that students will learn during the end of each course should be more specific and quantifiable.

After writing the CO statements, CO will be mapped with PO of the department. If the department is having more than one section in a year or the same course is available for more than one program of the same institute in a semester, the subject expert will be nominated as course coordinator of the corresponding course. The role of the course coordinator is to review the CO statements and the CO-PO mapping which has been done by course in-charge. The year wise coordinator has to consolidate the CO's of the respective year and maintain the documentation of the CO attainment level of the respective year courses as well as documentation of the individual students' extra-curricular and co-curricular activities. These details will hand over to the program coordinator in order to evaluate PO attainment of the individual student as well as individual course at the end of the 8th semester. The Program coordinator has to evaluate the PO attainment of individual student through direct and indirect method after the student completing their program. All these works have to be done under the guidance of Department Advisory Committee (DAC). CO – PO mapping indicates to what extent a certain component (either assessment method to CO or CO to PO or PO to PEO & PSO are correlated to each other. Course correlation matrix shows the **Learning Relationship** (level of learning achieved) between COs and POs of a course. This matrix also strongly indicates whether the students are able to achieve the course outcomes/objectives. All the courses together must cover all the POs and PSOs. For a course we map the COs to POs through the CO-PO matrix and to PSOs through the CO-PSO matrix. The matrix can be used for any course and it is good method to evaluate a course syllabus. The various correlation levels are:

* **3- indicates Substantial (high)** mapping (high contribution towards attainment)

* **2- indicates Moderate** (medium) mapping (medium contribution towards attainment)

* **1- indicates Slight (low)** mapping (some contribution towards attainment)

* **"-" indicates there is no correlation.**

Procedure followed while assigning the values by Mapping COs to POs:

Judging the importance of the particular COs in relation to the POs.

- If the CO matches strongly with a particular PO criterion then **Assign 3.**
- If it matches moderately then **Assign 2.**
- If the match is low then **Assign 1.**
- If there is no correlation between any CO with PO else mark with '-' **Symbol**
- If an action verb used in a CO is repeated at multiple Blooms levels, then we need to judge which Blooms level is the best fit for that action verb the first five POs are purely of **technical** in nature, while the other POs are **non-technical**.
- Writing the COs, we need to restrict ourself between Blooms Level 1 to Level 4. Again, if it is a programming course, restrict between Blooms Level 1 to Level 3 but for the other courses, we can go up to Blooms Level 4.
- For the laboratory courses, while composing COs, we need to restrict our self between Blooms Level 1 to Level 5.
- Only for Mini-project and Main project, you may extend up to Blooms Level 6 while composing COs.

Note: * The table given below gives information about the action verbs used in the POs and the nature of POs, stating whether the POs are technical or non-technical. we need to understand the intention of each POs and the Bloom's level to which each of **POs** and the Blooms level to which each of these action verbs in the POs correlates to. Once you have understood the **POs** then you can write the COs for a course and see to what extent each of those COs correlate with the POs.

Table 1: Process for mapping the values for CO-PO Matrix

Type	POs	Action Verb(s) in POs	Bloom's Level(s) for POs	Blooms Level(s) for COs	Type	Thumb Rule	
Technical	PO1	Apply	L3	Blooms L1 to L4 for Theory Courses	Non Technical	PO7	If Blooms L1 Action Verbs of a CO -> Correlates any of PO7 to PO12 -> then Assign 1
	PO2	Identify	L2				
		Formulate	L6				
		Review	L2				
	PO3	Design	L3,L6	Blooms L1 to L5 for Laboratory Courses		PO8	If Blooms L2 to L3 Action Verbs of a CO -> Correlates any of PO7 to PO12 -> then Assign 2
		Develop	L3,L6			PO9	
	PO4	Analyze	L4				
		Interpret	L2 , L3			PO10	
		Design	L6	Blooms L1 to L6 for Mini Project and Major Project		PO11	If Blooms L4 to L6 Action Verbs of a CO -> Correlates any of PO7 to PO12 -> then Assign 3
	PO5	Create	L6				
		Select	L1 , L2 L6			PO12	
		Apply	L3				
	PO6	Apply	L3				
		Assess	L5				

CO-PO & PSO MAPPING FOR CO-PO MATRIX: SAMPLE

CO-PO & PSO MAPPING FOR CO-PO MATRIX: SAMPLE

DEPARTMENT OF APPLIED SCIENCE AND HUMANITIES

Course : B.Tech 1ST YEAR

Semester: I/II

Academic Year:2023-24

Course Code : BAS103/BAS203 Course Name : Engineering Mathematics

CO-PO & PSO MAPPING

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	2	-	2	2	2	-	-	-	-	-	-	-	3	2	-
CO2	2	2	2	2	2	-	-	-	-	-	-	-	3	1	1
CO3	2	-	2	2	2	-	-	-	-	-	-	-	2	-	-
CO4	2	1	2	1	2	-	-	-	-	-	-	-	1	1	-
CO5	1	2	2	1	1	-	-	-	-	-	-	-	1	1	-

DEPARTMENT OF APPLIED SCIENCE AND HUMANITIES

Course : B.Tech

Semester: 1st&2nd Academic Year:2023-24

Course Code : BEE101/BEE201 Course Name : Fundamental of Electrical Engineering

CO-PO & PSO MAPPING

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	2	1	2	2	-	-	-	-	-	-	-	-	3	1	-
CO2	2	1	3	1	1	1	1	1	1	1	1	1	3	1	1
CO3	3	1	2	3	-	3	-	-	-	-	-	1	1	-	-
CO4	2	1	1	-	-	3	2	1	-	-	-	-	-	1	2
CO5	1	3	1	-	-	-	-	1	-	1	-	1	-	1	2

DEPARTMENT OF APPLIED SCIENCE AND HUMANITIES

Course : B.Tech Semester: 1st &2nd Academic Year:2023-24

Course Code : BAS102/BAS202 Course Name : Engineering Chemistry

CO-PO & PSO MAPPING

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	2	1	2	2	-	-	-	-	-	-	-	-	3	1	-
CO2	2	-	-	-	-	-	-	-	-	-	-	-	3	-	-
CO3	2	-	1	-	-	-	-	-	-	-	-	-	1	-	-
CO4	2	1	1	-	-	-	-	-	-	-	-	-	-	1	-
CO5	2	-	-	-	-	-	-	-	-	-	-	-	-	1	-

DEPARTMENT OF APPLIED SCIENCE AND HUMANITIES

Course : B.Tech Semester: 1st&2nd Academic Year:2023-24
Course Code : BAS105/BAS205
Course Name : Soft Skills

CO-PO & PSO MAPPING

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	-	1	1	2	1	2	2	1	1	3	2	3	3	1	-
CO2	1	1	2	2	-	1	1	2	3	3	2	3	3	1	1
CO3	1	2	2	1	1	2	2	3	2	3	3	3	1	-	-
CO4	-	1	2	2	1	2	2	3	3	3	3	3	-	1	-
CO5	1	1	3	1	-	2	2	2	3	3	2	3	-	1	-

DEPARTMENT OF APPLIED SCIENCE AND HUMANITIES

Course : B.Tech
Semester: I /II
Academic Year:2023-24
Course Code : BAS101/BAS201
Course Name : Engineering Physics

CO-PO & PSO MAPPING

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	2	1	2	2	-	-	-	-	-	-	-	-	3	1	-
CO2	2	-	-	-	-	-	-	-	-	-	-	-	3	-	-
CO3	2	-	1	-	-	-	-	-	-	-	-	-	1	-	-
CO4	2	1	1	-	-	-	-	-	-	-	-	-	-	1	-
CO5	2	-	-	-	-	-	-	-	-	-	-	-	-	1	-

DEPARTMENT OF APPLIED SCIENCE AND HUMANITIES

Course : B.Tech Semester: I/II Academic Year:2023-24
Course Code : BEC 101 / BEC201
Course Name : Fundamentals of Electronics Engineering

CO-PO & PSO MAPPING

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	3	2	2	2	2	-	-	-	-	-	-	1	3	1	-
CO2	3	2	2	2	-	-	-	-	-	-	-	-	3	-	-
CO3	3	1	2	2	-	-	-	-	-	-	-	-	1	-	-
CO4	3	1	2	2	-	-	-	-	-	-	-	-	-	1	-
CO5	-	1	1	2	-	-	-	-	-	-	-			1	-

DEPARTMENT OF APPLIED SCIENCE AND HUMANITIES

Cource : B.Tech **Semester:I/ II** **Academic Year:2023-24**
Course Code : BCS101/BCS201 **Course Name : PPS**

CO-PO & PSO MAPPING

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	2	1	2	2	-	-	-	-	-	-	-	-	3	1	-
CO2	1	1	2	2	1	-	-	-	-	-	-	-	2	1	1
CO3	2	1	2	-	-	-	-	-	-	-	-	-	1	-	-
CO4	2	1	1	-	-	-	-	-	-	-	-	-	-	1	-
CO5	2	1	1	-	-	-	-	-	-	-	-	-	-	1	-

DEPARTMENT OF APPLIED SCIENCE AND HUMANITIES

Course : B.Tech **Semester: I & II** **Academic Year:2023-24**
Course Code : BME101/BME201 **Course Name : FME**

CO-PO & PSO MAPPING

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	3	2	1	2	1	-	-	-	-	-	-	-	3	1	-
CO2	2	2	1	-	2	-	-	-	-	-	-	-	3	1	1
CO3	3	-	1	-	0	-	-	-	-	-	-	-	1	0	-
CO4	2	-	-	-	-	-	-	-	-	-	-	-	0	1	-
CO5	2	2	1	2	1	-	-	-	-	-	-	-	0	1	-

Attainment of Course Outcomes

In the Outcome Based Education (OBE), assessment is done through one or more than one processes, carried out by the department, that identify, collect, and prepare data to evaluate the achievement of course outcomes (CO's).
The process for finding the attainment of Course outcomes uses various tools/methods. These methods are classified into two types:

Assessment Methodology (Direct and Indirect)

Direct methods:

Direct methods display the student's knowledge and skills from their performance in the class assignment test (It is a metric used to continuously assess the student's understanding capabilities) , internal assessment tests [the Internal Assessment marks in a theory paper shall be based on two tests, sessional test(mid-1) & pre university test (PUT) mid-2], End semester examinations (theory or practical), seminars, laboratory assignments/experiments (it is a qualitative performance assessment tool designed to assess student's practical knowledge and problem solving skills), mini/major projects, add on courses, certification, presentations (as per the requirement) etc. These methods provide a sampling of what students know and/or can do and provide strong evidence of student learning.
Various methods used in assessment process that periodically documents and demonstrates the degree to which the Course Outcomes are attained.

Indirect methods:

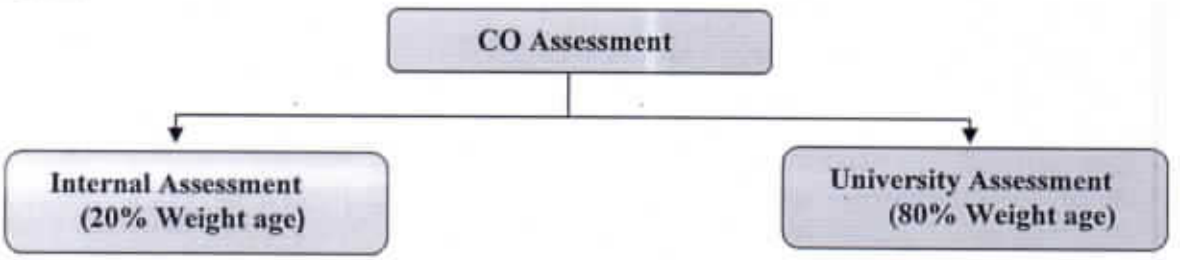
Indirect methods such as course exit survey/assignments of course outcomes by feedback, assignments of mini/major project by external experts, faculty feedback, examiner feedback & others survey to reflect on student's learning. They are used to assess opinions or thoughts about the graduate's knowledge or skills.
Collect variety of information about course outcomes from the students after learning entire course.

Rubrics are used for both formative and summative assessment of students. Same rubric is used for assessing an outcome so that the faculty is able to assess student progress and maintain the record of the same for each student.

ASSESSMENT PROCESS

Assessment Process for CO Attainment:

For the evaluation and assessment of CO's and PO's, rubrics are used. The rubrics considered here are given below:

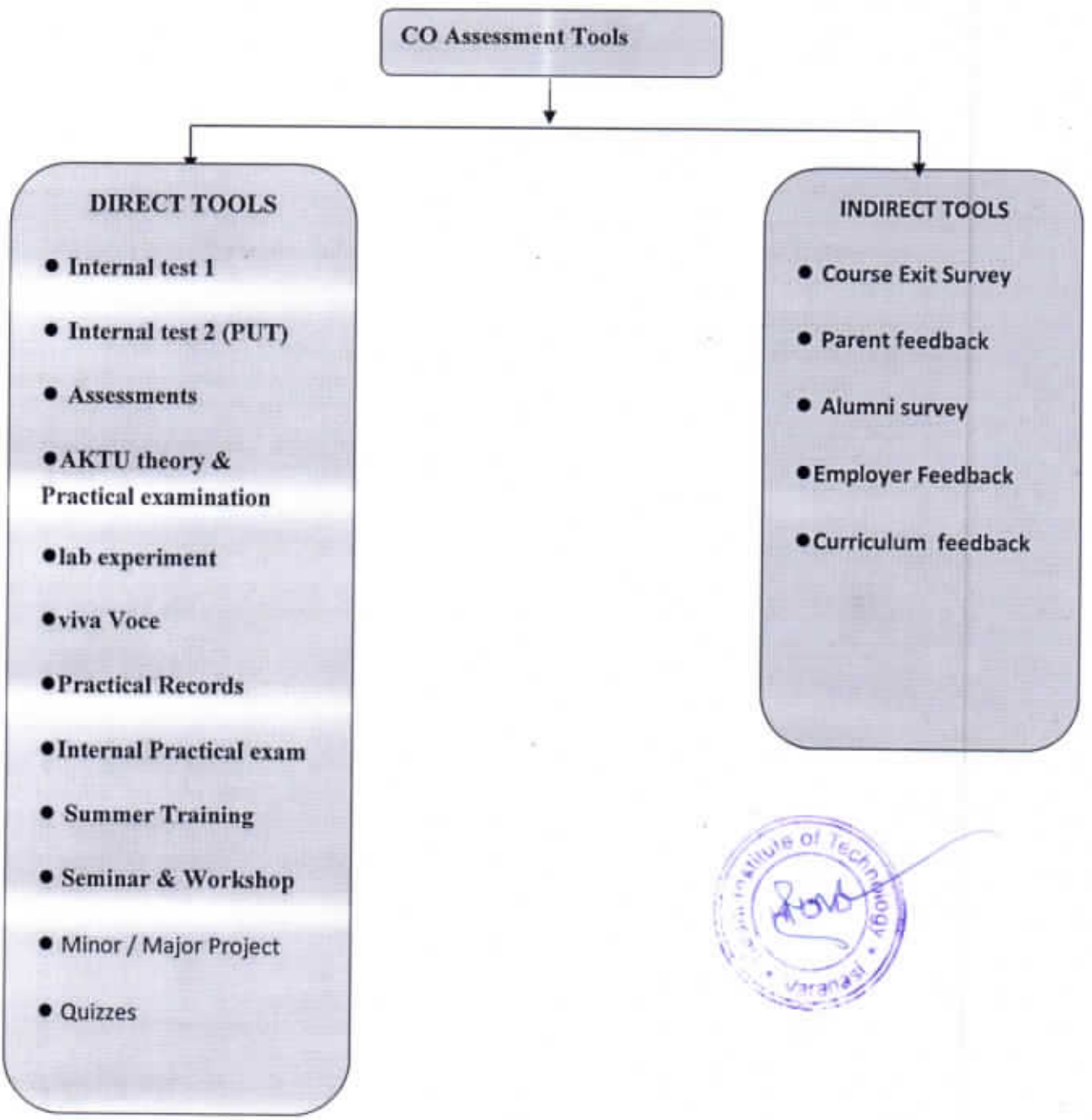


Assessment Type	Assessment method	weight age	Assessment Period	Assessment and Reviewed By
Direct	Assessment tool based on Subject nature	80% (80% of AKTU Examination + 20% of the Assessment tools)	Once per Semester	Department Advisory committee
	AKTU Examination		Once per Semester	
Indirect	Current Passing out Students Survey	20%	8th semester	Department Advisory committee
	Recruiters Survey		Every Placement activity	
	Alumni Survey		Once per Year	

Course Outcome is evaluated based on the performance of students in internal assessments and in university examination of a course. Internal assessment contributes 20% and university assessment contributes 80% to the total attainment of a CO.

CO Assessment Tools:

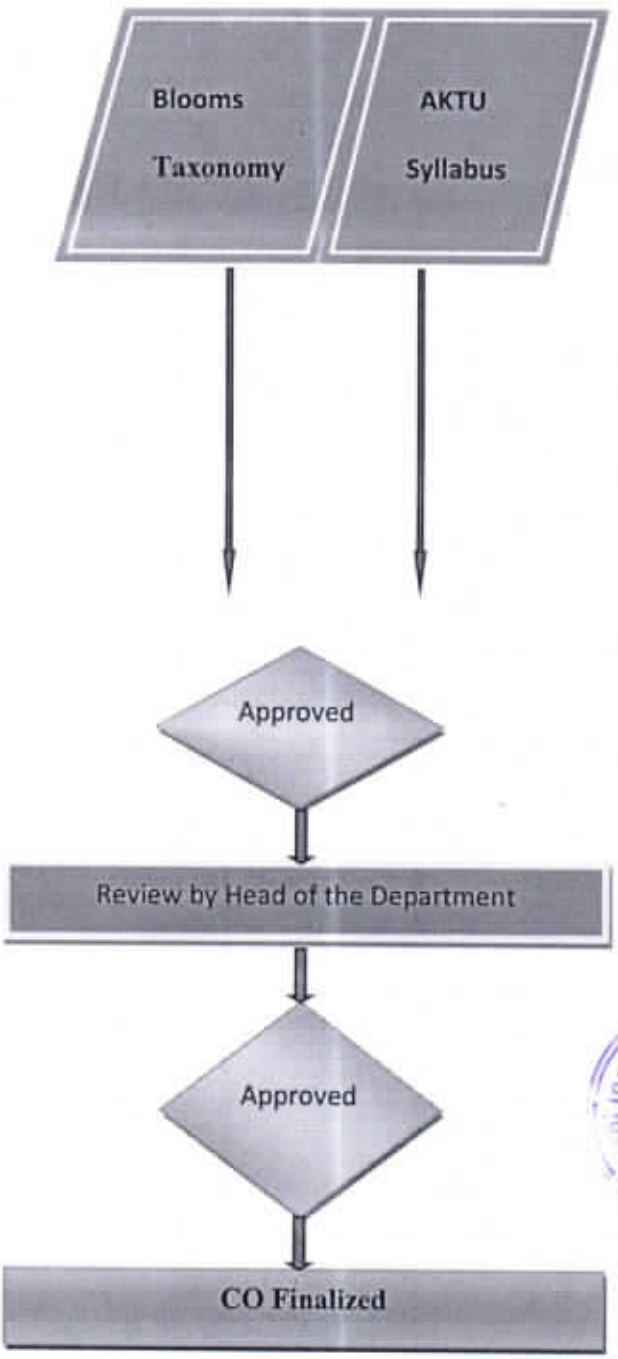
The description of Assessment tools used for the evaluation of program outcomes is given in Table below. The various assessment tools used to evaluate COs and the frequency with which the assessment processes are carried out are listed in this table In each course, the level of attainment of each CO is compared with the predefined targets, if is not, the course coordinator takes necessary steps for the improvement to reach the target. With the help of CO against PO/PSO mapping, the PO/PSO attainment is calculated by program coordinator. Assessment Tools are of two types' direct tools and indirect tools. Which are described below?



Assessment process for calculating the attainment of POs and PSOs

Assessment Process for Evaluation of Course Outcomes:

Assessment tools and its frequency, the responsible authority to collect the data and its relevant COs, are tabulated as follows:



Assessment Method & Attainment Level:

Step 1: Obtain Course Outcome.

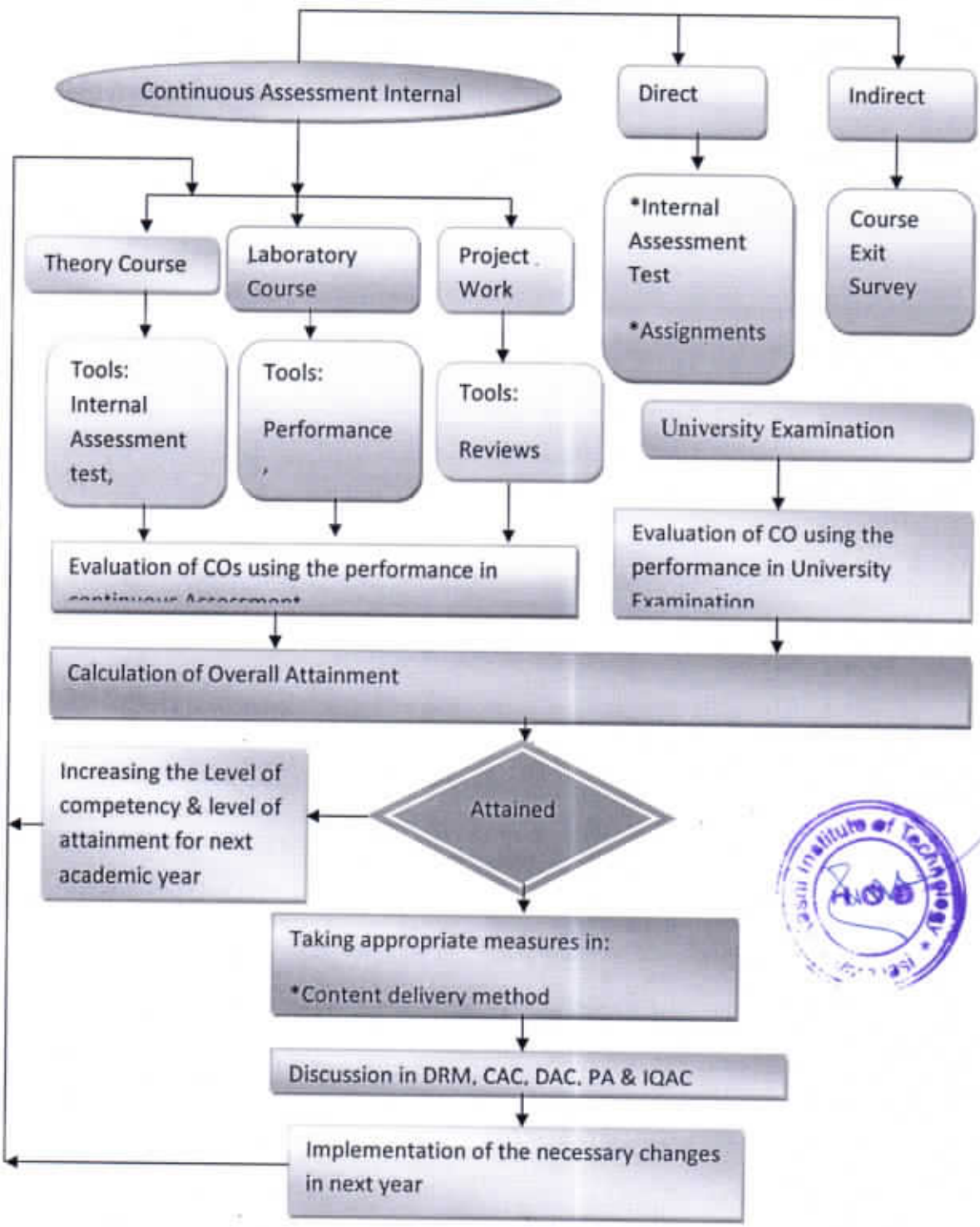
Step 2: Mapping of CO with PO.

Step 3: Setting weight- age for CO assessment.

Step 4: COs measurement through assessment.

Step 5: Obtain PO attainment table through direct and indirect method.

Process for CO Attainment: Fig. 10



Methodology for Evaluating Course Outcomes (COs) Internal

Concurrent Evaluation Criteria				
Pattern	**Nature of Course Full / Half Credit**	**Concurrent Evaluation**	**Nature of Exam/Assignments/Others**	**Converted Marks**
1. B. Tech Odd/Even (2022- 23)	1- Generic Core Courses (Full credit) 2- Generic Elective courses (Half Credit)	**Internal Test 1** & **Internal Test 2 (PUT)**	**Test 1 Marks- 30 (CO1 & CO2- 15 Marks each)** **Test 2 (PUT) Marks – 70** (CO_3 ,CO4 & CO5 - 16 Marks each)	**Test 1**: CO1 & CO2) = 20 (10 marks each) **Test 2** : CO3,CO4 & CO5 = 30 (10 marks each)
		Assignments (Unit wise)	Unit-1 Unit-2 Unit-3 Unit-4 Unit-5	25 (5 Marks Each)
		***Others**	Seminar/Presentation/Project (Mini/Major)/Viva/Quiz/Work shop etc.	25 (5 Marks Each)
			Total Marks (Each COs)-	100

Table: 2

*** Presentation / Case Study / Role Play/ Industrial Visit/Field Visit/ Seminar/Guest Lecture /MCQs/Research paper writing/ Viva etc.**

Methodology for Evaluating Course Outcomes (COs) External

COMPUTATION OF SGPA, YGPA & CGPA

The Dr. A.P.J. Abdul Kalam Technical University (APJAKTU), Lucknow adopts absolute grading system wherein the marks are converted to grades and every semester results will be declared with semester grade point average (SGPA). Yearly Grade Point Average (YGPA) shall be calculated at each year by calculating from the formula given in section 14.4 (b) of an academic year. The Cumulative Grade Point Average (CGPA) shall be calculated at the end of last semester of the program. The grading system is with the following letter grades and grade points scale as given below:

Score (Marks) Range	(AKTU Guidelines) Letter Grade	Level	Grade Points
≥ 90	A^+	Outstanding	10
<90	A	Excellent	9
<80 , ≥70	B^+	Very Good	8
<70 ,≥60	B	Good	7
<60 ,≥50	C	Above Average	6
<50 ,≥45	D	Average	5
<45 ≥ 40	E	Poor	4
<40	F	Fail	00

Rationale :

Since question wise students marks are not provided by affiliating university these marks are kept separate. If results are ailable with question wise marks **COs** wise analysis might have been done .

As we expect that each student must at least get 40% marks and he/ she may secure with pass percentage.

% of Marks Secured in a Subject / Course	Letter Grade (AKTU Guidelines)	LEVEL	Grade Points
≥ 90	A+	(Outstanding)	10
< 90	A	(Excellent)	9
< 80, ≥ 70	B+	(Very Good)	8
< 70, ≥ 60	B	(Good)	7
< 60, ≥ 50	C	(Above Average)	6
< 50, ≥ 45	D	(Average)	5
< 45, ≥ 40	E	(Poor)	4
< 40	F	(Fail)	0

Target / Threshold Level & Attainment Level

60% Students Scoring >=50% Marks	If 50% Students Scoring >=50%	If 40% Students Scoring >=50% Marks
Attainment Level - 3 (H)	Attainment Level - 2	Attainment Level - 1 (L)

Direct Assessment of COs, POs & PSOs:

(Quality / Relevance of Assessment Process)

Assessment Process for Evaluation of Theory Courses

Assessment Tools and its frequency, the responsible authority to collect the data and its relevant COs, are tabulated in tables.

Assessment Tools	Assessment Period	Assessed By	Reviewed By	Mapping with COs
Class Test -1 Class Test -2 (Pre University Test) (PUT)	Once Per Semester	Course Instructor	Department Advisory committee (DAC)	Relevant CO
Assignments-1	Once Per Semester	Course Instructor	Department Advisory committee (DAC)	CO1
Assignments-2				CO2
Assignments-3				CO3
Assignments-4				CO4
Assignments-5				CO5
Quizzes	Once Per Semester	Course Instructor	Department Advisory committee (DAC)	All COs
University Semester Exam	Once Per Semester	Course Instructor	Department Advisory committee (DAC)	All COs

Assessment Process for Evaluation of Laboratory Courses

Assessment Tools	Assessment Period	Assessed By	Reviewed By	Mapping with COs
Lab Experiment	Throughout Semester	Course Instructor	Department Advisory committee (DAC)	All COs
Viva Voce	Throughout Semester	Course Instructor		All COs
Practical Record	Throughout Semester	Course Instructor		All COs
Internal Practical Exam	Once Per Semester	Internal Examiners		All COs
University Semester Exam	Once Per Semester	Internal Examiners appointed by the department & External Examiners Appointed by AKTU		All COs

Assessment Tools		Assessed Period	Assessed By	Reviewed By	Mapping with COs
Topic Approval		7th Sem	Project Review committee	Department Advisory committee (DAC)	All COs
Progress Presentation 1	Presentation Skill	7th Sem			All COs
	Viva Voce				
	Implementation report				
	Faculty Interaction				
Progress Presentation 2	Presentation Skill	7th Sem			All COs
	Viva Voce				
	Implementation report				
	Faculty Interaction				
Internal Final Presentation	Presentation Skill	8th Sem			All COs
	Viva Voce				
	Implementation report				
	Faculty Interaction				
External Presentation	Presentation Skill	8th Sem	Internal Examiners appointed by the department & External Examiners Appointed by AKTU		All COs
	Viva Voce				
	Implementation report				
	Faculty Interaction				

Assessment Process for Evaluation of Project Courses

Assessment Process for Evaluation of Seminar Courses & Industrial Training Courses

Assessment Tools		Assessed Period	Assessed By	Reviewed By	Mapping with COs
External Presentation	Presentation Skill Viva Voce Implementation report Faculty Interaction	Once Per Semester	Seminar Review committee	Department Advisory committee (DAC)	All COs

Assessment Process for General Proficiency Course

Assessment Tools	Assessed Period	Assessed By	Reviewed By	Mapping with COs
Sports Event	**Throughout the program**	**Sports Committee**	**Department Advisory Committee (DAC)**	**CO1**
Cultural Events		**Cultural Committee**		**CO2**
Technical Events		**Technical Committee**		**CO3**
Societal & Environmental Events		**Societal & Environmental Committee**		**CO4**
Discipline		**Proctorial Board**		**CO5**

CO Attainment Target Level Methods:

Target Level:

- **Targets are quantized in to certain level, 3 being the most common number of levels.**
- **Level 3: If 70% students scoring ≥ 60% of Marks allocated to CO**
- **Level 2: If 60% student scoring ≥ 60% of Marks in CO**
- **Level 1: If 50% student scoring ≥ 60% of Marks in CO**
- **Level 0: If < 50% student scoring ≥ 60% of Marks in CO**

Aim is to attain Level 3

CO Attainment Calculation:

The course outcomes for all the courses are calculated in terms of percentage using the formula.

$$\textbf{CO}x \textbf{ in \%} = \frac{\text{Marks obtained by the students in CO}x}{\text{Maxium marks alloted in CO}x} \times 100$$

Where x = [1 to N], N= Number of COs

Each course outcome is calculated for all the students based on marks obtained by the students.

$$\textbf{CO}x \textbf{ Attainment in \%} = \left[\frac{\text{No. of Students scored } \geq 70 \text{ of Marks in CO}x}{\text{Total No. of students}} \times 100\right]$$

Where x = [1 to N], N= Number of Cox

CO Attainment Level is defined based on the following criteria:

After calculating the attainment level of each COs from the performance of Internal Assessment Test 1 & 2, the attainment level of Internal Assessment Test is calculated with ratio of sum of all

the COs attained by total number of COs as shown below:

Assessment Method	COs Attainment Level	
Internal Assessment	Level 3	If 70% students scoring ≥ 70% of Marks in COs
	Level 2	If 60% student scoring ≥ 70% of Marks in COs
	Level 1	If 50% student scoring ≥ 70% of Marks in COs

$$\textbf{IAT Attainment Level} = \frac{\text{Sum of all COs attained by students}}{\text{Total Number of COs}}$$

Where IAT = Internal Assessment Test

IAT is calculated as follows:

$$\text{E.g. Internal Assessment Test} = \frac{CO1+CO2+CO3+CO4+CO5}{5}$$

Based on university grade, the attainment level of COs is calculated. The attainment level is decided on the following criteria.

Assessment Method	Cox Attainment Level	
University (External) Assessment	Level 3	If 60% student scoring ≥ 50% of Marks in University Exam
	Level 2	If 50% student scoring ≥ 50% of Marks in University Exam
	Level 1	If 40% student scoring ≥ 50% of Marks in University Exam

The university attainment level is calculated as follows:

Final CO attainment @ Internal = (0.8× External Attainment) + (0.2× Internal Attainment

(Where n = Number of course outcome)

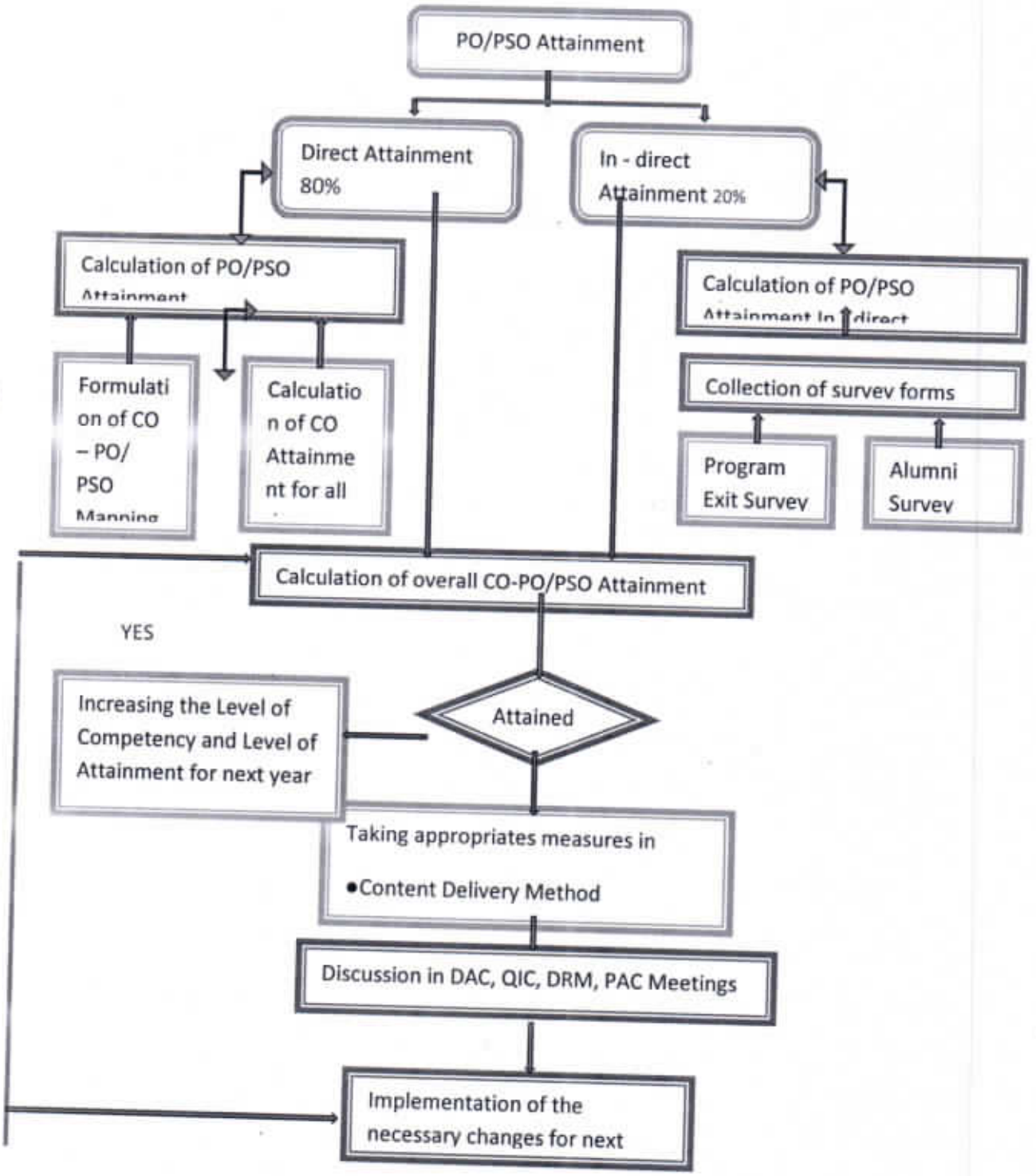
$$\textbf{Over all Attainment} = \frac{(\text{DTA} + \text{UA}) + \text{IDA}}{2}$$

(Where UA = University Attainment level)

(DTA= Direct Attainment level, IDA = Indirect attainment Level)

Process for PO/PSO Attainment

Fig: 1

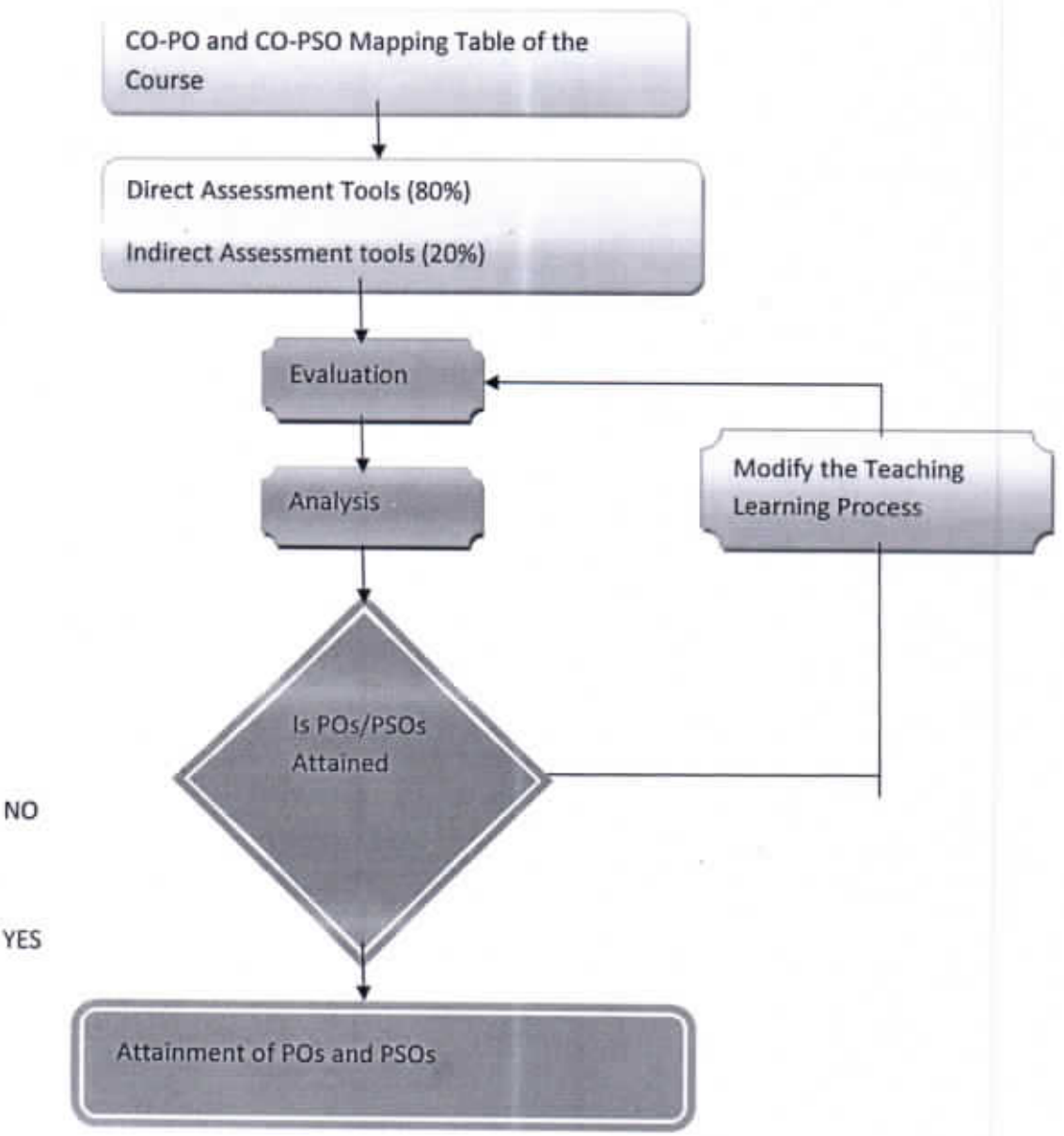

PO/PSO Attainment
Direct Attainment 80%
In - direct Attainment 20%
Calculation of PO/PSO Attainment
Calculation of PO/PSO Attainment In direct
Formulation of CO – PO/ PSO Mapping
Calculation of CO Attainment for all
Collection of survey forms
Program Exit Survey
Alumni Survey
Calculation of overall CO-PO/PSO Attainment
YES
Attained
Increasing the Level of Competency and Level of Attainment for next year
Taking appropriates measures in
•Content Delivery Method
Discussion in DAC, QIC, DRM, PAC Meetings
Implementation of the necessary changes for next


Institute of Technology
HOD

Assessment tools and processes used for measuring the Attainment of each of the Program Outcomes (POs) and Program Specific Outcomes (PSOs):

Evaluation of attainment of POs and PSOs is based on direct and indirect assessment tools. Direct assessment of POs and PSOs is based on student's performance in continuous assessment and university examination. Indirect assessment is based on Program Exit Survey (Theory & Practical). The various direct and indirect tools and its frequency, the responsible authority to collect data for assessing the attainment of each POs and PSOs are given below table.

Fig.



Course level PO & PSO Attainment Calculation:

The PO & PSO attainment for the course is calculated using following formula

PO Attainment of Course (*X*)

= CO Attainment % of Course (*X*) × PO*y mapping value of course(x)/100*

PO Attainment Level of Course (*X*)

= (weighted Average Value of PO × CO Attainment Average) / 3

PSO Attainment of Course (*X*)

= CO Attainment % of Course (*X*) × PSO*y mapping value of course(x)/100*

(Where, *y* = [1 to N], N= Number of Program Outcomes

PSO Attainment Level of Course (*X*)

= (weighted Average Value of PSO × CO Attainment Average) / 3

(Where, *y* = [1 to N], N= Number of Program Specific Outcomes)

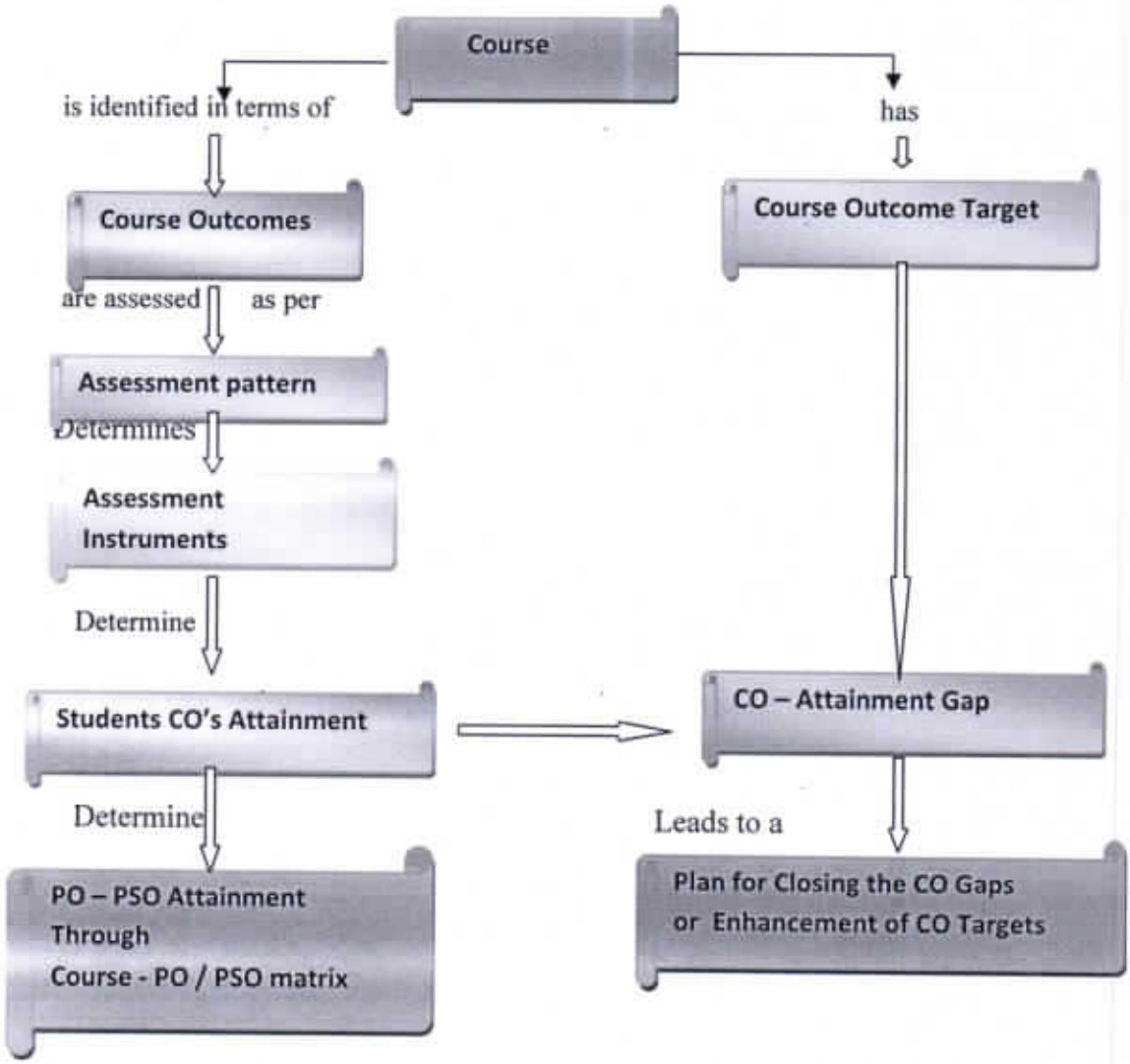
PO/PSO Attainment =

(CO attainment × CO-PO mapping) ÷ Maximum co-relation strength

Final PO Attainment =

(0.8×direct attainment + 0.2× indirect attainment

CO attainment and Gap Analysis:



Calculation of Gap Analysis:

Gap = Target in level - Attainment in level

Action Taken Report

COs	Action Taken
CO1, CO2, CO3, CO4,CO5	Attained

Action taken after identifying the gaps:

Convey the identified gaps to Board of Governors.

Considering the feedback from faculty, PAC committee, students and DAB committee, a representation is prepared by the department to convey the gaps and possible action plan to the Board of Studies (BOS. These inputs are taken into consideration by BOS while revising the syllabus

Following activities are planned to fulfil the identified gap.
*Students are encouraged to Enrol NPTEL online certification course and to appear for certification exam.
*Remedial Classes will be conducted.
*Bridge classes for units.
*Assignments for critical topic.
*Solution for university question for unit.

KASHI INSTITUTE OF TECHNOLOGY, VARANASI

CO Attainment for End Semester Examination (AKTU 80%)

Course : B.Tech **Semester: 1 st** **Odd Sem**
Academic Year:2023-24
Course Code : BAS102
Course Name : Engineering Chemistry
Name of the Faculty : Dr. Rupesh Kumar Singh
Branch : Biotech, CE, EC, EN, ME

S.N.	University Roll No.	NAME OF STUDENT	BRANCH	Internal Marks (30)	External Marks (70)	Total Marks (100)	Percentage	Grade Point Obtained
				Marks Obtained	Marks Obtained			
1	2304280540001	ABHAY KUMAR KANNAUJIYA	Bio-Tech	22	9	31	31	F
2	2304280540002	ANNU SINGH	Bio-Tech	22	3	25	25	F
3	2304280540003	ANSHU SINGH	Bio-Tech	27	59	86	86	A
4	2304280540004	AYUSH ANSH	Bio-Tech	19	8	27	27	F
5	2304280540005	BULBUL SINGH	Bio-Tech	24	24	48	48	D
6	2304280540006	EKANSH SRIVASTAV	Bio-Tech	24	28	52	52	C
7	2304280540007	JAYA MAURYA	Bio-Tech	23	14	37	37	F
8	2304280540008	NAMRATA CHAKRAVARATI	Bio-Tech	28	5	33	33	F
9	2304280540009	NIDHI KUMARI	Bio-Tech	23	24	47	47	D
10	2304280540010	PALLAVI PATEL	Bio-Tech	28	37	65	65	B
11	2304280540011	Raja Kumari	Bio-Tech	23	24	47	47	D
12	2304280540013	SHRADDHA SRIVASTAVA	Bio-Tech	22	7	29	29	F
13	2304280540014	SHWET SINGH	Bio-Tech	22	18	40	40	D
14	2304280540015	THAKUR ANIKET SATISH	Bio-Tech	0	0	0	0	F
15	2304280000001	AAKASH RAJ	Civil	18	0	18	18	F
16	2304280000002	ABHIJEET DUBEY	Civil	22	1	23	23	F
17	2304280000003	ADARSH SINGH	Civil	18	0	18	18	F
18	2304280000004	BHANU PRATAP SINGH	Civil	0	0	0	0	F
19	2304280000005	IND SURAJ KUMAR TEJBAHADU	Civil	24	16	40	40	D
20	2304280000006	DEEPAK KUMAR	Civil	21	3	24	24	F
21	2304280000007	GARGI DUBEY	Civil	22	3	25	25	F
22	2304280000008	HIMANSHU PANDEY	Civil	28	40	68	68	B
23	2304280000009	RANJEET CHAUHAN	Civil	20	1	21	21	F
24	2304280000010	VIVEK YADAV	Civil	23	21	44	44	D
25	2304280310001	ADITI SRIVASTAVA	EC	23	21	44	44	D
26	2304280310002	ANNI SINGH	EC	28	53	81	81	A
27	2304280310003	MANISH KUMAR PATEL	EC	21	8	29	29	F
28	2304280310004	NILAKSHI SINHA	EC	23	21	44	44	D
29	2304280310005	NITISH KUMAR	EC	23	27	50	50	C
30	2304280310006	RIYA SINGH	EC	23	35	58	58	C
31	2304280310007	SAAD ALI	EC	23	11	34	34	F
32	2304280310008	SONU SINGH	EC	21	22	43	43	D
33	2304280310009	SOURAV KUMAR TIWARY	EC	25	15	40	40	D
34	2304280310010	SUDHANSHU MISHRA	EC	25	33	58	58	C
35	2304280210001	ADARSH DUBEY	EN	24	28	52	52	C
36	2304280210002	ADITYA KUMAR GUPTA	EN	24	44	68	68	B
37	2304280210003	ANUSHKA PATEL	EN	22	9	31	31	F
38	2304280210004	ARUN KUMAR	EN	22	22	44	44	D
39	2304280210005	ARUN VERMA	EN	22	3	25	25	F
40	2304280210006	AVANISH PATEL	EN	29	38	67	67	B
41	2304280210007	HIMANSHU YADAV	EN	25	21	46	46	D
42	2304280210008	KISHAN PAL	EN	22	7	29	29	F
43	2304280210009	KSHAMA MISHRA	EN	29	36	65	65	B
44	2304280210010	MANISH KUSHAWAHA	EN	21	22	43	43	D
45	2304280210011	RAJ MAURYA	EN	20	38	58	58	C
46	2304280210012	RANJAN KUMAR	EN	20	12	32	32	F
47	2304280210013	VIKAS KANNAUJIYA	EN	24	34	58	58	C
48	2304280210014	VIKAS KUMAR	EN	25	32	57	57	C
49	2304280400001	ABHAY CHAUHAN	ME	25	3	28	28	F
50	2304280400002	ARUN KUMAR VERMA	ME	23	15	38	38	F
51	2304280400003	ASHISH SINGH	ME	22	29	51	51	C
52	2304280400004	AYUSH KUMAR	ME	19	1	20	20	F
53	2304280400005	KULDEEP YADAV	ME	22	21	43	43	D
54	2304280400006	MOHIT RAI	ME	24	14	38	38	F
55	2304280400007	PRIYANSHU KUMAR	ME	22	21	43	43	D
56	2304280400008	RAM KRISHNA TIWARI	ME	27	35	62	62	B
57	2304280400009	RAM MOHAN TIWARI	ME	29	45	74	74	B+
58	2304280400010	SHREEYASH MISHRA	ME	21	8	29	29	F

Total Number Of Student	**58**
Number of Students Secured >= 50 % Marks	**18**
% of Students Attained	**31.03**
Attainment Level	**1**

Gap Analysis

Achieved Attainment %	Target Attainment %		Target in Level	Attainment Level	Gap = Target in level - Attainment in level
31.03	Target Attainment= 50 %		3	1	2

Action Taken Report

COs	Action Taken
CO1, CO2, CO3, CO4,CO5	Attained

Action taken for identified Gap (For Next Semester)

*Students are encouraged to Enrol NPTEL online certification course and to appear for certification exam.

*Remedial Classes will be conducted.

Rationale :

1- Since question wise students marks are not provided by affiliating university these marks are kept separate. If results are available with question wise marks **COs** wise analysis might have been done .

2- As we expect that each student must at least get 40% marks and he/ she may secure with pass percentage.

% of Marks Secured in a Subject / Course	Letter Grade (AKTU Guidelines)	LEVEL	Grade Points
≥ 90	A+	(Outstanding)	10
< 90	A	(Excellent)	9
< 80, ≥ 70	B+	(Very Good)	8
< 70, ≥ 60	B	(Good)	7
< 60, ≥ 50	C	(Above Average)	6
< 50, ≥ 45	D	(Average)	5
< 45, ≥ 40	E	(Poor)	4
< 40	F	(Fail)	0

Target / Threshold Level & Attainment Level		
If 60% Students Scoring >=50% Marks	If 50% Students Scoring >=50%	If 40% Students Scoring >=50% Marks
Attainment Level - 3 (H)	Attainment Level - 2	Attainment Level - 1 (L)

Action taken for identified Gap (For Next Semester)
*Students are encouraged to Enrol NPTEL online certification course and to appear for certification exam.
*Remedial Classes will be conducted.
*Bridge classes for units.
*Assignments for critical topic.
*Solution for university question for unit.

Sign of Faculty

Head of the Department
Applied Science and Humanities

KASHI INSTITUTE OF TECHNOLOGY,VARANASI

DEPARTMENT OF APPLIED SCIENCE AND HUMANITIES

COURSE OUTCOMES ATTAINMENTS BASED ON DIRECT ASSESSMENT TOOLS (INTERNAL 20%)

INTERNAL TEST (IT), ASSIGNMENTS (A) & OTHER (O) (QUIZ / SEMINAR / PROJECT/ LAB EXP./WORKSHOP) MARKS

Course : B.Tech | Semester: 1st Odd Sem | Academic Year: 2023-24

Course Code : BAS102 | Course Name : Engineering Chemistry

Name of the Faculty : Dr. Rupesh Kumar Singh | Section : D

S.N.	University Roll No.	Students Name	Branch	MID-1 (30)								MID-2 (70)																			
				CO1				CO2				CO3				CO4				CO5				TOTAL CO1	% CO1	TOTAL CO2	% CO2	TOTAL CO3	% CO3	TOTAL CO4	% CO4	TOTAL CO5	% CO5
				Original Marks 15	IT 10	A 5	O 5	Original Marks 15	IT 10	A 5	O 5	Original Marks 14	PUT 10	A 5	O 5	Original Marks 14	PUT 10	A 5	O 5	Original Marks 14	PUT 10	A 5	O 5	25		20		20		20		20	
1	2104280540001	ABHAY KUMAR	Bio-Tech	1	2.5	5	5	3	1.5	5	5	2	1	5	5	0	0	4	5	0	0	4	5	13	65	11.5	57.5	11	55	9	45	9	45
2	2104280540002	ANNU SINGH	Bio-Tech	11	5.5	5	5	6	3	4	5	11	5.5	5	4	6	3	4	5	10	7.5	4	5	18	78	12	60	12	60	14.5	72.5	12	60
3	2104280540003	ANSHU SINGH	Bio-Tech	7	3.5	5	5	3	1.5	5	5	0	0	5	4	0	0	4	4	2	1	5	5	14	68	11.5	57.5	9	45	8	40	11	55
4	2104280540004	AYUSH ANSH	Bio-Tech	11	5.5	5	4	2	1	5	5	6	5	5	5	11	5.5	5	5	3	1.5	5	5	15	75	13	55	11	55	15.5	77.5	11.5	57.5
5	2104280540005	BULBUL SINGH	Bio-Tech	2	1	5	5	9	4.5	5	5	0	0	5	5	0	0	5	5	0	0	5	5	11	55	14.5	72.5	10	50	8	40	10	50
6	2104280540006	EKANSH SRIVASTAV	Bio-Tech	4	2	5	5	8	4.5	5	5	0	0	5	4	0	0	5	4	0	0	5	5	12	60	14.5	72.5	9	45	9	45	10	50
7	2104280540007	JAYA MAURYA	Bio-Tech	6	3	5	5	4	2	5	5	3	1.5	5	4	6	3	5	4	0	0	5	5	13	65	12	60	10.5	52.5	12	60	10	50
8	2104280540008	NAMRATA	Bio-Tech	4	5	5	5	1	0.5	5	5	2	1	5	5	5	2.5	5	5	1	0.5	5	5	13	65	10.5	52.5	11	55	12.5	62.5	10.5	52.5
9	2104280540009	NIDHI KUMARI	Bio-Tech	12	6	5	5	8	4	4	5	10	5	5	5	11	5.5	5	5	1	2.5	5	5	16	80	12	60	15	75	15.5	77.5	12.5	62.5
10	2104280540010	PALLAVI PATEL	Bio-Tech	6	3	5	4	8	4	5	5	4	2	5	4	8	3	4	4	0	0	5	4	12	60	12	60	11	55	11	55	9	45
11	2104280540011	Riya Kumari	Bio-Tech	10	5	5	5	4	2	4	5	2	1	5	5	2	1	5	4	2	1	5	5	13	65	11	55	11	55	10	50	11	55
12	2104280540013	SHRADDHA SRIVASTAVA	Bio-Tech	4	2	5	5	6	3	5	5	0	0	5	4	5	2.5	4	4	0	0	4	5	9	45	12	60	9	45	10.5	52.5	9	45
13	2104280540014	SHWET SINGH	Bio-Tech	7	3.5	5	5	2	1	5	5	0	0	5	4	0	0	4	5	0	0	4	5	14	68	11	55	9	45	9	45	9	45
14	2104280540015	THAKUR ANIKET SATISH	Bio-Tech	0	0	5	5	1	0.5	5	5	2	1	5	5	4	2	5	5	0	0	5	5	10	50	10.5	52.5	11	55	10	50	10	50
15	2104280000001	AAKASH RAJ	Civil	4	2	5	5	4	2	5	5	2	1	5	5	3	1.5	4	5	1	0.5	5	5	10	50	11	60	11	55	10.5	52.5	10.5	52.5
16	2104280000002	ABHIJEET DUBEY	Civil	5	2.5	5	5	0	0	5	5	0	0	5	4	0	0	4	5		0	5	5	13	65	10	50	9	45	10	50	10	50
17	2104280000003	ADARSH SINGH	Civil	3	1	5	4	4	2	5	5	0	0	4	5	0	0	5	4	0	0	5	5	9	45	12	60	9	45	9	45	10	50
18	2104280000004	BHANU PRATAP SINGH	Civil	5	2.5	5	5	7	3.5	4	5	7	3.5	4	5	6	3	5	5	3	1.5	4	5	13	65	12.5	62.5	12.5	62.5	11	55	10.5	52.5
19	2104280000005	D SURAJ KUMAR TEJBAHA	Civil	2	1	5	5	1	0.5	5	5	9	4.5	4	5	8	4	4	5	4	2	4	5	9	45	10.5	52.5	13.5	67.5	11	55	11	55
20	2104280000006	DEEPAK KUMAR	Civil	1	0.5	5	5	8	3.5	4	5	0	0	4	4	10	5	5	4	2	1	5	4	8	38	10.5	52.5	8	40	14	70	10	50
21	2104280000007	GARGI DUBEY	Civil	2	1	5	5	8	4	5	5	6	3	4	5	10	5	5	5	0	0	5	5	8	45	14	70	12	60	15	75	10	50
22	2104280000008	HIMANSHU PANDEY	Civil	7	3.5	5	5	5	2.5	5	5	0	0	5	5	0	0	5	5	0	0	4	5	14	68	12.5	62.5	10	50	10	50	9	45
23	2104280000009	RANJEET CHAUHAN	Civil	9	4	5	5	3	1.5	4	5	9	4.5	4	5	13	6.5	5	4	7	3.5	5	4	12	60	10.5	52.5	10.5	52.5	11.5	57.5	12.5	62.5
24	2104280000010	VIVEK YADAV	Civil	11	5.5	5	5	14	7	5	5	8	3.5	5	4	8	4	5	4	0	0	4	5	16	78	17	85	10.5	52.5	13	65	9	45
25	2104283310001	ADITI SRIVASTAVA	EC	6	3	5	5	2	1	5	5	5	2.5	5	5	1	0.5	5	4	0	0	5	4	13	65	11	55	12.5	62.5	9.5	47.5	9	45
26	2104283310002	ANNI SINGH	EC	5	2.5	5	5	2	1	5	5	5	2.5	4	5	12	6	5	5	8	4	5	5	13	65	11	55	11.5	57.5	10	50	14	70
27	2104283310003	MANISH KUMAR PATEL	EC	5	2.5	5	5	4	2	4	5	8	4	4	5	4	2	5	4	1	0.5	5	4	11	55	11	55	9	45	11	55	9.5	47.5
28	2104283310004	NILAKSHI SINHA	EC	8	4	5	5	2	1	5	5	2	1	4	5	5	2.5	4	4	2	1	4	4	14	70	11	55	10	50	10.5	52.5	9	45
29	2104283310005	NITISH KUMAR	EC	11	5.5	6	5	6	3	5	5	4	2	7	5	7	3.5	5	4	2	1	4	4	13	63	13	65	12	60	12.5	62.5	9	45
30	2104283310006	RIYA SINGH	EC	9	4.5	5	5	0	0	5	5	3	1.5	4	5	8	4	4	5	2	1	4	4	15	73	10	50	10.5	52.5	13	65	9	45
31	2104283310007	SAAD ALI	EC	3	1	5	5	2	1	4	5	5	2.5	4	5	1	0.5	5	5	4	2	5	5	10	50	10	50	11.5	57.5	10.5	52.5	12	60
32	2104283310008	SONU SINGH	EC	8	4	5	5	7	3.5	5	5	2	1	5	4	8	4	5	4	3	1.5	5	5	14	70	13.5	67.5	10	50	11	55	11.5	57.5
33	2104283310009	SOURAV KUMAR TIWARY	EC	6	3	5	5	7	3.5	5	5	1	0.5	5	4	10	5	5	4	1	0.5	4	5	13	65	13.5	67.5	9.5	47.5	14	70	9.5	47.5
34	2104283310010	SUDHANSHU MISHRA	EC	3	1.5	5	5	0	0	5	5	5	2.5	5	5	7	3.5	5	4	0	0	5	5	12	58	10	50	12.5	62.5	12.5	62.5	10	50
35	2104283210001	ADARSH DUBEY	EN	8	0	4	4	2	1	5	5	22	5.5	4	5	10	5	5	5	0	0	5	4	7	35	11	55	14.5	72.5	15	75	9	45
36	2104283110003	ADITYA KUMAR GUPTA	EN	3	1	5	5	7	3.5	4	5	8	3	4	5	11	5.5	4	5	1	1.5	5	4	9	45	12.5	62.5	12	60	14.5	72.5	10.5	52.5
37	2104283210001	ANUSHKA PATEL	EN	5	2.5	5	5	2	1	5	5	1	0.5	4	5	1	0.5	4	5	1	0.5	5	5	13	63	11	55	9.5	47.5	9.5	47.5	10.5	52.5
38	2104283210004	ARUN KUMAR	EN	2	1	4	5	6	3	5	4	3	1.5	4	5	6	3	5	5	2	1	5	5	10	50	12	60	10.5	52.5	11	55	11	55
39	2104283210005	ARUN VERMA	EN	13	6.5	5	5	6	3	5	5	3	1.5	4	5	8	3	4	5	2	1	5	5	17	83	12	60	10.5	52.5	12	60	11	55
40	2104283210006	AVANISH PATEL	EN	9	4.5	5	5	3	1.5	4	5	12	6	4	5	8	4	4	5	14	7	4	5	15	75	10.5	52.5	15	75	13	65	16	80
41	2104283210007	HIMANSHU YADAV	EN	6	3	5	5	5	2.5	4	4	8	4	4	5	5	2.5	5	5	8	4	5	4	12	60	10.5	52.5	13	65	10.5	52.5	13	65
42	2104283210008	KISHAN PAL	EN	10	5	5	5	4	2	5	5	1	0.5	5	5	0	0	5	5	2	1	4	5	15	75	12	60	10.5	52.5	10	50	10	50
43	2104283210009	KSHAMA MISHRA	EN	8	4	4	5	3	1.5	5	5	8	4	5	5	12	6	4	5	8	4	4	5	13	65	13.5	67.5	14	70	15	75	11	55
44	2104283210010	MANISH KUSHAWAHA	EN	10	5	4	5	3	1	5	5	4	2	5	5	8	3	5	5	2	1	5	5	14	70	11	55	12	60	13	65	11	55
45	2104283210011	RAJ MAURYA	EN	10	5	5	5	8	3	4	5	0	0	5	5	0	0	5	5	3	2.5	5	4	15	75	12	60	10	50	10	50	11.5	57.5
46	2104283210012	RANJAN KUMAR	EN	6	3	5	5	8	4	5	5	1	0.5	5	5	1	0.5	4	5	0	0	4	5	13	65	14	70	10.5	52.5	9.5	47.5	9	45
47	2104283210013	VIKAS KANNAUJIYA	EN	6	3	4	5	1	0.5	4	5	5	2.5	5	5	7	3.5	5	5	2	1	4	5	10	50	9.5	47.5	12.5	62.5	11.5	57.5	10	50
48	2104283210014	VIKAS KUMAR	EN	6	2	4	5	8	3	5	5	8	4	5	5	8	3	4	5	5	2.5	4	5	8	45	12	60	14	70	12	60	11.5	57.5
49	2104283400001	ABHAY CHAUHAN	ME	4	2	5	5	3	1.5	4	5	6	3	5	5	7	3.5	5	5	6	3	5	4	18	80	10.5	52.5	13	65	11.5	57.5	12	60
50	2104283400002	ARUN KUMAR VERMA	ME	7	3.5	4	4	2	1	4	5	6	3	5	5	6	3	5	5	6	3	5	5	12	58	10	50	13	65	13	65	11	55
51	2104283400003	ASHISH SINGH	ME	5	2.5	5	4	0	0	5	5	4	2	5	5	5	2.5	5	5	2	1	4	5	13	63	10	50	12	60	12.5	62.5	10	50
52	2104283400004	AYUSH KUMAR	ME	0	0	5	5	6	3	5	5	0	0	5	5	0	0	5	5	2	1	4	4	10	50	13	65	10	50	10	50	9	45
53	2104283400005	KULDEEP YADAV	ME	11	5.5	4	5	3	1.5	5	5	4	2	4	5	8	3	5	5	0	0	4	5	15	73	11.5	57.5	11	55	13	65	9	45
54	2104283400006	MOHIT RAJ	ME	5	2.5	5	5	9	4.5	4	4	9	4.5	4	5	8	4	4	5	3	1.5	5	5	19	93	10.5	52.5	13.5	67.5	12	60	10.5	52.5
55	2104283400007	PRIYANSHU KUMAR	ME	9	4.5	5	5	3	2.5	4	4	2	1	4	5	5	2.5	4	5	1	0.5	5	5	15	73	10.5	52.5	10	50	11.5	57.5	10.5	52.5
56	2104283400008	RAM KRISHNA TIWARI	ME	10	5	5	5	2	1	5	5	6	3	4	5	9	4.5	5	5	4	2	5	5	15	75	11	55	12	60	14.5	72.5	12	60
57	2104283400009	RAM MOHAN TIWARI	ME	11	5.5	5	5	0	0	5	4	12	6	4	5	10	5	5	5	7	3.5	4	5	18	78	9	45	15	75	15	75	12.5	62.5
58	2104283400010	SHREEYASH MISHRA	ME	8	4	5	5	8	4	4	5	5	1.5	4	5	4	2	5	5	1	0.5	5	5	10	50	9	45	10.5	52.5	12	60	10.5	52.5

Total number of Students	58		58		58		58		58
Number of Student Secured >= 70% Marks	16		5		6		12		2
% of Students Attained	28		9		10		21		3
Attainment Level	1		1		1		1		1

If 70% Students Scoring >=70% Marks
ATTAINMENT LEVEL 1
If 60% Students Scoring >=70% Marks
ATTAINMENT LEVEL 2
If 50% Students Scoring >=70% Marks
ATTAINMENT LEVEL 3

CO Attainments

S.N.	COs NO.	ATM Level	CO Attainments %
1	CO1	1	27.59
2	CO2	1	9.82
3	CO3	1	10.34
4	CO4	1	10.69
5	CO5	1	3.45
	Avg.	1.00	14.14

Signature of faculty

Head of the Department
Applied Science and Humanities

KASHI INSTITUTE OF TECHNOLOGY,VARANASI

DEPARTMENT OF APPLIED SCIENCE AND HUMANITIES

CO CORRECTIVE MEASURES OVER ALL ATTAINMENT (DIRECT+ INDIRECT)

COURSE OUTCOMES ATTAINMENTS BASED ON

INTERNAL TEST (IT), ASSIGNMENTS (A) & Other (O) MARKS

CO Attainments				Action Plan
S.N.	COs NO.	COs%	CO Attainment level	
1	CO1	28	1	*Remedial Classes will be conducted. *Bridge classes for units. *Assignments for critical topic. *Solution for university question for unit
2	CO2	9	1	*Remedial Classes will be conducted. *Bridge classes for units. *Assignments for critical topic. *Solution for university question for unit
3	CO3	10	1	*Remedial Classes will be conducted . *Bridge classes for units. *Assignments for critical topic. *Solution for university question for unit
4	CO4	21	1	* Remedial Classes will be conducted . *Bridge classes for units. *Assignments for critical topic. *Solution for university question for unit
5	CO5	3	1	*Remedial Classes will be conducted. *Bridge classes for units. *Assignments for critical topic. *Solution for university question for unit
		Average	1.00	

Signature of faculty

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KASHI INSTITUTE OF TECHNOLOGY,VARANASI

DEPARTMENT OF APPLIED SCIENCE AND HUMANITIES

CO-PO & PSO MAPPING

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	2	1	2	2	-	-	-	-	-	-	-	-	3	1	-
CO2	2	-	-	-	-	-	-	-	-	-	-	-	3	-	-
CO3	2	0	1	-	-	-	-	-	-	-	-	-	1	-	-
CO4	2	1	1	-	-	-	-	-	-	-	-	-	0	1	-
CO5	2	0	0	-	-	-	-	-	-	-	-	-	0	1	-

CO- PO & PSO COMPUTATION

		PO1		PO2		PO3		PO4		PO5		PO6		PO7		PO8		PO9		PO10		PO11		PO12		PSO1		PSO2		PSO3	
COs	CO Attainment %	P	A	P	A	P	A	P	A	P	A	P	A	P	A	P	A	P	A	P	A	P	A	P	A	P	A	P	A	P	A
CO1	27.59	2	0.6	1	0.28	2	0.552	2	0.552	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3	0.83	1	0.28	-	-
CO2	8.62	2	0.2	-	0	-	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3	0.26	-	0	-	-
CO3	10.34	2	0.2	0	0	1	0.103	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	0.1	-	0	-	-
CO4	20.69	2	0.4	1	0.21	1	0.207	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	0	1	0.21	-	-
CO5	3.45	2	0.1	0	0	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	0	1	0.03	-	-
TOTAL		10	1.4	2	0.48	4	0.862	2	0.552	-	-	0	-	0	-	0	-	0	-	0	-	0	-	0	-	7	1.19	3	0.52	0	-
Attainment %			14		24.1		21.55		27.59																		17		17.2		
Attained Level			2		2		2		2																		2		2		
WEIGHTED AVERAGE VALUE OF POs/PSOs			0.28		0.10		0.17		0.55	#####		#####		#####		#####		#####		###		#####		#####			0.24		0.10		###

P = PLANNED A = ATTAINED

CO Attainments			
S.N.	COs NO.	CO Percentage	CO ATM Level
1	CO1	27.59	1
2	CO2	8.62	1
3	CO3	10.34	1
4	CO4	20.69	1
5	CO5	3.45	1
AVERAGE		14.14	1.20

Action Taken Report	
COs	Action Taken
CO1	Attained
CO2	Attained
CO3	Attained
CO4	Attained
CO5	Attained

Signature of faculty

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Applied Science and Humanities

KASHI INSTITUTE OF TECHNOLOGY, VARANASI

DEPARTMENT OF APPLIED SCIENCE AND HUMANITIES

CO-PO & PSO ATTAINMENT

OVER ALL ATTAINMENT					
COs	Attainment	POs	Attainment	PSOs	Attainment
CO1	1	PO1	0.28	PSO1	0.24
CO2	1	PO2	0.10	PSO2	0.10
CO3	1	PO3	0.17	PSO3	0.00
CO4	1	PO4	0.55		
CO5	1	PO5	0.00		
AVERAGE	1.00	PO6	0.00		
		PO7	0.00		
		PO8	0.00		
		PO9	0.00		
		PO10	0.00		
		PO11	0.00		
		PO12	0.00		
		AVERAGE	0.09	AVERAGE	0.11

PO Attainment Result

Programme Outcomes (POs) Attainment

PO = (weighted Average Value of PO*CO Attainment Average)/3

Pos	Attainment level
PO1	0.094
PO2	0.032
PO3	0.057
PO4	0.184
PO5	0
PO6	0
PO7	0
PO8	0
PO9	0
PO10	0
PO11	0
PO12	0

PSO Attainment Results

Programme Specific Outcomes (PSOs) Attainment

PSO = (weighted Average value of PSO*CO Attainment Average)/3

PSOs	Attainment Level
PSO1	0.08
PSO2	0.03

PSO CORRECTIVE MEASURES		
PSOs	Attainment	Action Plan
PSO1	0.08	*Students are encouraged to Enroll NPTEL online certification course and to appear for certification exam.
PSO2	0.03	*Analyse complex problem reaching substantiated conclusions.

PO CORRECTIVE MEASURES		
POs	Attainment	Action Plan
PO1	0.09	*Students are encouraged to Enroll NPTEL online certification course and to appear for certification exam.
PO2	0.03	*Analyse complex problem reaching substaintiated conclusions.
PO3	0.06	*Designed based experiments using open ended software.
PO4	0.18	*Use different methods to solve complex problems. *Solve NPTEL Online Assignements.
PO5	0.00	
PO6	0.00	
PO7	0.00	
PO8	0.00	
PO9	0.00	

PO1

Action 1: Extra classes to be conducted for slow learners beyond the regular planned classes.
Action 2: Additional Chemistry classes are conducted during the semester after every internal based on the performance.
Action 3: Additional topic specific tests have been conducted.

PO2

Action 1: Hackathon events are conducted, where the students are exposed to latest technologies.
Action 2: Question bank comprising of important questions from typical previous year question papers were prepared and attached to department repository which was accessible to students for further self-improvement.
Action 3: During lab students complete the extra programs other than syllabus which helps them to increase analytical skills

PO3

Action 1: Students are motivated to develop mini-projects focusing on real world problems.

PO4

Action 1: More projects on solving complex problems will be focused.
Action 2: Mini projects given to students are quite complex to help them in understanding complex problems

Signature of faculty

Head of the Department
Applied Science and Humanities

KASHI INSTITUTE OF TECHNOLOGY, VARANASI

DEPARTMENT OF APPLIED SCIENCE AND HUMANITIES

INDIRECT ATTAINMENT

Course : B.Tech Semester: 1st Odd Sem Academic Year:2023-24
Course Code : BAS102 Course Name : Engineering Chemistry
Name of the Faculty : Dr. Rupesh Kumar Singh Section : D

S. No.	Roll No.	Name		MM (20)	Percentage
1	2304280540001	ABHAY KUMAR KANNAUJIYA	Bio-Tech	14	70
2	2304280540002	ANNU SINGH	Bio-Tech	5	25
3	2304280540003	ANSHU SINGH	Bio-Tech	17	85
4	2304280540004	AYUSH ANSH	Bio-Tech	5	25
5	2304280540005	BULBUL SINGH	Bio-Tech	18	90
6	2304280540006	EKANSH SRIVASTAV	Bio-Tech	15	75
7	2304280540007	JAYA MAURYA	Bio-Tech	18	90
8	2304280540008	NAMRATA CHAKRAVARATI	Bio-Tech	18	90
9	2304280540009	NIDHI KUMARI	Bio-Tech	18	90
10	2304280540010	PALLAVI PATEL	Bio-Tech	18	90
11	2304280540011	Riya Kumari	Bio-Tech	15	75
12	2304280540013	SHRADDHA SRIVASTAVA	Bio-Tech	10	50
13	2304280540014	SHWET SINGH	Bio-Tech	14	70
14	2304280540015	THAKUR ANIKET SATISH	Bio-Tech	5	25
15	2304280000001	AAKASH RAI	Civil	18	90
16	2304280000002	ABHIJEET DUBEY	Civil	16	80
17	2304280000003	ADARSH SINGH	Civil	5	25
18	2304280000004	BHANU PRATAP SINGH	Civil	5	25
19	2304280000005	BIND SURAJ KUMAR TEJBAHADUR	Civil	15	75
20	2304280000006	DEEPAK KUMAR	Civil	15	75
21	2304280000007	GARGI DUBEY	Civil	15	75
22	2304280000008	HIMANSHU PANDEY	Civil	15	75
23	2304280000009	RANJEET CHAUHAN	Civil	10	50
24	2304280000010	VIVEK YADAV	Civil	17	85
25	2304280310001	ADITI SRIVASTAVA	EC	16	80
26	2304280310002	ANNI SINGH	EC	15	75
27	2304280310003	MANISH KUMAR PATEL	EC	18	90
28	2304280310004	NILAKSHI SINHA	EC	18	90
29	2304280310005	NITISH KUMAR	EC	15	75
30	2304280310006	RIYA SINGH	EC	15	75
31	2304280310007	SAAD ALI	EC	10	50
32	2304280310008	SONU SINGH	EC	15	75
33	2304280310009	SOURAV KUMAR TIWARY	EC	16	80
34	2304280310010	SUDHANSHU MISHRA	EC	18	90
35	2304280210001	ADARSH DUBEY	EN	18	90
36	2304280210002	ADITYA KUMAR GUPTA	EN	16	80
37	2304280210003	ANUSHKA PATEL	EN	18	90
38	2304280210004	ARUN KUMAR	EN	12	60
39	2304280210005	ARUN VERMA	EN	14	70
40	2304280210006	AVANISH PATEL	EN	15	75
41	2304280210007	HIMANSHU YADAV	EN	15	75
42	2304280210008	KISHAN PAL	EN	14	70
43	2304280210009	KSHANA MISHRA	EN	15	75
44	2304280210010	MANISH KUSHAWAHA	EN	15	75
45	2304280210011	RAJ MAURYA	EN	17	85
46	2304280210012	RANJAN KUMAR	EN	17	85
47	2304280210013	VIKAS KANNAUJIYA	EN	17	85
48	2304280210014	VIKAS KUMAR	EN	18	90
49	2304280400001	ABHAY CHAUHAN	ME	18	90
50	2304280400002	ARUN KUMAR VERMA	ME	18	90
51	2304280400003	ASHISH SINGH	ME	16	80
52	2304280400004	AYUSH KUMAR	ME	15	75
53	2304280400005	KULDEEP YADAV	ME	15	75
54	2304280400006	MOHIT RAI	ME	18	90
55	2304280400007	PRIYANSHU KUMAR	ME	18	90
56	2304280400008	RAM KRISHNA TIWARI	ME	18	90
57	2304280400009	RAM NIWAS TIWARI	ME	18	90
58	2304280400010	SHREEYASH MISHRA	ME	15	75
		Total number of Students			58
		Number of Student Secured >= 70% Marks			49
		% of Students Attained			84
		Attainment Level			3

If 70% Students Scoring >= 70% Marks
ATTAINMENT LEVEL 3
If 60% Students Scoring >= 70% Marks
ATTAINMENT LEVEL 2
If 50% Students Scoring >= 70% Marks
ATTAINMENT LEVEL 1

	Action Taken
	Attained

Signature of faculty HOD

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KASHI INSTITUTE OF TECHNOLOGY, VARANASI

DEPARTMENT OF APPLIED SCIENCE AND HUMANITIES

OVERALL ATTAINMENT

DIRECT ATM LEVEL	AKTU END SEM ATM LEVEL	DT*0.2+AE*0.8	INDIRECT ATM LEVEL	OVERALL ATM LEVEL
1.00	1	1.00	3	2.00
OVERALL ATM AVG.	2.00			

Gap Analysis

Target Attainment level	Attainment Level	Gap = Target in level -Attainment in level
3.00	2.00	1.00

Sign of Faculty

Head of the Department
Applied Science and Humanities

Action taken for identified Gap (For Next Semester)

*Students are encouraged to Enrol NPTEL online certification course and to appear for certification exam.
*Remedial Classes will be conducted.
*Bridge classes for units.
*Assignments for critical topic.
*Solution for university question for unit.

Kashi Institute of Technology ★ Director ★ Varanasi