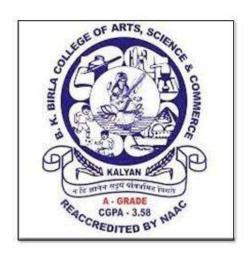# B. K. Birla College (Autonomous), Kalyan

OBE Manual
2022-23

B. K. Birla College (Autonomous), Kalyan

OBE Manual

INDEX

Abbreviations:

OBE	: Outcome Based Education
BTL	: Bloom's Taxonomy Level
LOT	: Lower Order of Thinking
HOT	: Higher Order of Thinking
PEO	: Program Educational Objectives
PO	: Program Outcome
CO	: Course Outcome
PSO	: Program Specific Outcome
ESE	: End Semester Examination
POE	: Practical Oral Exam
CE	: Course Exit Survey
HoD	: Head of Department
PC	: Program Coordinator
DAB	: Department Advisory Board
PAC	: Program Assessment Committee
AY	: Academic Year

1. Vision, Mission and Quality Policy of the Institution

B. K. Birla College (Autonomous), Kalyan

Vision

We aspire to be a premier institution of higher education, an inspiring Nodal Center, catering to the diverse needs of student fraternity, providing them State–of–the-Art facilities and a stimulating Teaching–Learning–Environment, to groom them into socially–responsible, excellent human resource.

Mission

To enable students to develop as intellectually alive, socially responsible citizens ever ready for continuous personal and professional growth.

QUALITY POLICY

B. K. Birla College of Arts, Science and Commerce (Autonomous), is a premier institute of higher education located at Kalyan, Dist. Thane, Maharashtra, India. The College aspires to be a nodal centre catering to the diverse needs of the student fraternity by providing state-of-the-art facilities and stimulating teaching-learning environment to groom them into excellent human resource.

We are committed to continually improve our Quality Management System and develop students as intellectually alive and socially responsible citizens, so as to enable them to meet the future developments and challenges.

The College shall regularly endeavour to set and review objectives in line with the organisational strategic direction and risk assessment. The College ensures compliance with all applicable requirements.

The Quality Policy shall be communicated to all persons working for or on behalf of the organisation and is available to the relevant interested parties on request.

10th June, 2019
(Revision - 3)

Principal
B. K. Birla College (Autonomous), Kalyan

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2. OBE Framework of the Institution

Preamble:

B. K. Birla College of Arts, Science and Commerce, Kalyan, an Autonomous Institution, is dedicated to actively contributing to the advancement of the Indian Higher Education System. Our goal is to enhance the competence of our graduates to meet global demands. We achieve this through a meticulous and rigorous educational approach known as Outcome Based Education (OBE), designed to enrich student learning through measurable outcomes. This curriculum model aims to optimize student learning by fostering skill development. OBE supports graduates in acquiring intellectual knowledge, skills, and attitudes, ensuring a holistic learning environment characterized by clarity, flexibility, and effective engagement.

Scope:

The OBE framework serves as the blueprint to elevate the teaching and learning standards of Nehru Arts and Science College, ensuring global recognition and opening doors to international employment opportunities. It equips graduates to excel in their professions and achieve significant career milestones.

These OBE guidelines apply universally to all students and faculty members of Nehru Arts and Science College, encompassing all academic programs, courses, and curricular activities undertaken by the institution.

Objectives:

The objectives of the OBE policy are outlined as follows:

1. Develop a curriculum that is learner-centric and focused on outcomes.
2. Establish Program Educational Objectives (PEOs) and Graduate Attributes that align with the institution's vision and mission.
3. Define Program Outcomes (POs) aimed at achieving the identified graduate attributes.
4. Specify Program Specific Objectives (PSOs) and Course Outcomes (COs) for all programs based on established benchmarks.
5. Ensure the creation of learner-centric course materials.
6. Empower facilitators to effectively implement OBE practices.
7. Define outcome-based assessment rubrics to assess outcomes at both course and program levels.

OBE Committee:

The OBE process in the institution shall be governed by the OBE Committee. The compositions of the committee are as follows,

Principal	:	Chairman
Vice Principals	:	Ex-Officio Members
Controller of Examinations	:	Ex-Officio Examination Office Member
IQAC Coordinator	:	Ex -Officio IQAC member
Coordinator	:	Faculty Nominee
Members (2)	:	Faculty Nominee

Roles and Responsibilities:

The committee is responsible for designing OBE curriculum policies and evaluation frameworks for outcomes. It will provide training and guidelines for implementing OBE practices. The committee will establish continuous monitoring strategies and conduct annual reviews to ensure effective implementation.

Furthermore, the committee is tasked with defining Program Educational Objectives (PEOs) and Graduate Attributes. It will guide departments in defining Program Outcomes (POs), Program Specific Outcomes (PSOs), and Course Outcomes (COs). Periodic reviews of outcome achievements are also within the committee's purview.

Additionally, the committee ensures quality assurance of curriculum and pedagogical methods to achieve desired outcomes.

3. Revised Bloom's Taxonomy

The following alphabet is used to denote the Knowledge Level as per the Blooms Verb,

K1 – Remember

K2 – Understand

K3 – Apply

K4 – Analyse

K5 – Evaluate

K6 - Create

Graduate Attributes

4. Action Verbs for Course Outcome

Lower Order of Thinking(LOT)			Higher Order of Thinking(HOT)		
Remember	**Understand**	**Apply**	**Analyze**	**Evaluate**	**Create**
Define	Explain	Solve	Analyze	Reframe	Design
Describe	Describe	Apply	Compare	Criticize	Create
List	Interpret	Illustrate	Classify	Judge	Plan
State	Summarize	Calculate	Distinguish	Recommend	Formulate
Match	Compare	Sketch	Explain	Grade	Invent
Tabulate	Discuss	Prepare	Differentiate	Measure	Develop
Record	Estimate	Chart	Appraise	Test	Organize
Label	Express	Choose	Conclude	Evaluate	Produce

Illustration (use of action verb with respect to knowledge dimension and order of thinking):

Use of action verbs	Factual	Conceptual	Procedural	Meta cognitive
Remember-K1	List properties of soil	Recognize characteristic of material	Explain working of pump	Identify strategies for report writing
Understand-K2	Summarize features of a new product.	Classify adhesives by toxicity.	Explain assembly instructions.	Predict the behavior of member
Apply-K3	Respond to frequently asked questions.	Provide advice to team members	Carry out pH tests of water samples.	Use modern techniques to get solution
Analyze-K4	Explain the selection of tool/activity.	Differentiate LOT and HOT	Integrate compliance with regulations.	Assess The project work
Evaluate-K5	Select the appropriate tool	Determine relevance of results.	Judge efficiency of sampling techniques.	Reflect on one's progress.
Create – K6	Generate a log of daily activities.	Assemble a team of experts.	Design efficient project workflow.	Create a learning portfolio.

The cognitive process dimensions categories					
Lower Order of Thinking (LOT)			Higher Order of Thinking (HOT)		
Remember	Understand	Apply	Analyze	Evaluate	Create
Recognizing(identifying) Recalling(re trieving)	Interpreting Illustrating Classifying Summarizing Inferring (concluding) Comparing Explaining	Executing Implementing	Differentiating Organizing Attributing	Checking(coordi nating, detecting, testing, monitoring) Critiquing (judging)	Planning Generating Producing (constructing)

5. Guidelines for Writing Course Outcome Statements

Well-written course outcomes involve the following parts:
Action verb
Subject content
Level of achievement as
Modes of performing task

Illustration: Students are able to
Design column splices and bases.
Action verb (underlined)
Determine the losses in a flow system.
Subject content
Use structural analysis software to a competent Level. Level of achievement
Present seminar on real life problems.
Modes of performing task with action verb (underlined)

While writing CO's the following questions/points must be addressed properly.

Specific	Is there a description of precise behaviour and the situation it will be performed in? Is it concrete, detailed, focused and defined?
Measurable	Can the performance of the outcome be observed and measured?
Achievable	With a reasonable number of efforts and application can the outcome be achieved? Are you attempting too much?
Relevant	Is the outcome important or worthwhile to the learner or stakeholder? Is it possible to achieve this outcome?
Time-Bound	Is there a time limit, rate, number, percentage or frequency clearly stated? When will this outcome be accomplished?

Note: If the Laboratory is given as a separate course (with course code) then there should be separate course outcomes for the Laboratory.

Number of COs	2 to 4
CO essentials	Action Verb, Subject Content, Level of Achievement, Modes of Performing task (If Applicable)
Based on ABTL	Understand, Remember, Apply, Analyse, Evaluate, Create
Number of ABTL Considered in one course	Minimum 3
Technical Content/ point of curriculum	All curriculum contents are covered
Curriculum gap	Additional CO for gap identified/filling. Adds more weightage

6. CO-PO Mapping Guidelines / CO Attainment Calculations

1. Course- Programme outcome Matrix:

The Programme Outcomes are developed through the curriculum (curricular/co-curricular, extra-curricular activities). The programme outcomes are attained through the course implementation. As an educator, one must know, to which POs is his/her course contributing to; so that one can design the learning experiences, select teaching methods and design the tools for assessment. Hence, establishing the Course-PO matrix is an essential step in the OBE. The course-programme outcomes matrix indicates the correlation between the courses and programme outcomes. The CO-PO matrix is the map of the list of courses contributing to the development of respective POs. The CO-PO Matrix is provided in the table for each programme.

2. Course Outcomes (for all courses):

The course outcomes are the statement that describes the knowledge & abilities developed in the student by the end of course (subject) teaching. The focus is on development of abilities rather than mere content. There can be 5 to 7 course outcomes of any course. These are to be written in the specific terms and not in general. The list of Course Outcomes is the part of Annexure-C attached herewith.

3. Set Target levels for Attainment of Course Outcomes:

The course outcome attainment is assessed in order to track the graduates' performance w.r.t target level of performance. The CO-PO attainment is the tool used for continuous improvement in the graduates' abilities through appropriate learning & teaching strategies. In order to assess students' performance with respect to abilities (at the end of course teaching/by the end of program) the course outcome attainment are measured/calculated. In order to calculate the program outcome attainment, the course outcome attainment is calculated. Prior to that, the course-program outcome mapping is done.

4. Set Target level for Attainment of Program Outcomes:

The program outcome (PO) attainment is assessed in order to track the graduates' performance w.r.t target level of performance. The CO-PO attainment is the tool used for continuous improvement in the graduates' abilities through appropriate learning & teaching strategies. In order to assess students' performance with respect to abilities (at the end of course teaching/by the end of program) the course outcome (CO) attainment and program outcome attainment is measured/calculated. The program outcome attainment is governed by curricular, co-curricular and extra-curricular activities including the stakeholders' participation. The direct method and indirect method is adopted to calculate the PO attainment. The direct method implies the attainment by course outcomes contributing to respective program outcomes. And indirect method is the satisfaction/feed-back survey of

stakeholders. In order to calculate the program outcome attainment, the course outcome attainment is calculated. Prior to that, the course-program outcome mapping is done.

The set target level is the set benchmark to ensure the continuous improvements in the learners/ graduates' performance.

5. Course Outcome Attainment Levels:

a. CO attainment is defined/set at five levels;

b. The CO attainment is based on end term examination assessment and internal assessment;

c. The Co attainment is defined at five levels in ascending order

The following are the defined CO attainment level.

e.g. For end term and internal examination;

i.   **Level-1**: 40% to 49.99% students scored more than class average
ii. **Level-2**: 50% to 59.99% students score more than class average;
iii. **Level-3:** 60% to 69.99% students score more than class average;
iv. **Level-4**: 70% to 79.99% students score more than class average;
v.   **Level 5**: 80% to 89.99% students score more than class average.

d. The target level is set (e.g. Level-2). It indicates that, the current target is level-2; 50% students score more than class average. The CO attainment is measured and the results are obtained. Based on the results of attainment, the corrective measures/remedial action are taken.

e. CO Attainment= 75% (Attainment level in end term examination) + 25% (Attainment level in internal examination).

For academic year 22-23 (Semester I only)

CO Attainment= 60% (Attainment level in end term examination) + 40% (Attainment level in internal examination).

6. Program attainment Level:
a. PO attainment is defined at five levels in ascending order;
b. The PO attainment is based on the average attainment level of corresponding courses (Direct Method) and feed-back survey (Indirect method);
c. The PO attainment levels are defined / set as stated below

i.   Level-1: Greater than 0.5 and less than 1.0 (0.5>1)- Poor
ii. Level-2: 1.0>1.5-Average
iii. Level-3: 1.5>2.0-Good
iv. Level-4: 2.0>2.5-Very Good
v.   Level-5: 2.5>3.0 –Excellent

d. The PO attainment target level is set/defined (say, Level-4). It implies that, the department is aiming at minimum level-4 (very good) in the performance of abilities by the graduates. Based upon the results of attainment, the remedial measures are taken;

e. PO Attainment= 80% (Average attainment level by direct method) + 20% (Average attainment level by indirect method)

f. One example on calculation of PO attainment for Master of Commerce is provided under point No. 8 in the below paragraph

Indirect Attainment Calculation

The feedback from the following aspects are used as rubrics,

- Current Passing out Students
- Stakeholders
- Alumni
- Survey from Placement Officer

The questions in the survey sheet represented the PO'. All these survey needs to be a quantified one (1, 2, 3) and there must be based on predefined levels like Rubric's defined for direct calculation. Sample rubrics are denoted below.

60% People are giving above 3 –	1 (LOW)
70% People are giving above 3 –	2 (MEDIUM)
80% People are giving above 3 –	3 (HIGH)

7. Rubrics for Assessment

Rubric is a scoring guide with criteria for evaluating students' work in direct relation to one or more of the PO's and a rating scale indicating differing levels of performance. Rubric is,

1. Used to examine how well students have met CO or PO rather than how well they perform compared to their peers.
2. Typically include measurable descriptors that define expectations at each level of performance for each criterion.

Rubric's for Attainment Calculation

Survey	Indirect Attainment									
	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5
Current Passing out students	3	2	3	3	3	2	3	2	2	1
Alumni	3	2	3	1	2	3	2	1	3	2
Survey from placement Cell	3	3	2	3	3	1	2	3	2	1
Indirect PO Attainment	3	2.33	2.67	2.33	2.67	2	2.33	2	2.33	1.33

Student Competency

Base Score for Student Category

- <50%   - Slow Learner

- 50% to 75%   - Average Learner

- >75%   - Advanced Learner

Strategies for Slow, Average and Advanced Learners

For Slow learners
- Document/record of remedial classes with timetable & attendance
- Specially designed assignment/ task
- Student study group for peer-to-peer learning
- Individual Counseling
- Student help desk

Note: Remedial sessions should be conducted once in a week.

For Average Learners

- Additional assignment/ task
- Encouraging for timely and effective completion of work

- Conduction of quiz, orals etc.
- Solving previous year University question papers and test papers
- Presentation on technical topics/ case studies/mini projects

Note: Activities should be on a continuous basis.

For Advanced Learners

- Encouraging to present & publish papers in Journals/Conferences/Competitions
- Guidance for GATE/ competitive Examination
- Encouraging participating in professional activities.
- Specially designed activities to improve the portfolio of students.
- Individual guidance for career building

Note: Activities should be on a continuous basis.

Rubrics for Class Participation

OBE Tool	Evaluation Rubrics			
Class Participation	Open book test	Flip Test	Instant Assignment	Just a Minute Presentation
Seminar	Content	Knowledge	Eye contact	Communication
Assignment	Content	Work shown	Completion	Presentation
Group Discussion	Content	Knowledge	Communication	Problem Analysis and Suggestions
Case Study	Findings	Recommendations	Conclusion	Oral Presentation

Rubrics for Seminar

Criteria	Excellent 5	Very Good 4	Good 3	Average 2 or 1
Content	Information presented with logical examples, easy to follow	Information presented in sequence, easy to follow	Most of the information presented in sequence	Quit low relevant information, Hard to follow
Knowledge	Demonstrated full knowledge; answered all questions with elaboration	Answered all questions but need to elaborate more	Answered most questions but failed to elaborate	Grasped the information; answered basic questions
Eye contact	Completely encaged with all the audience	Eye contact Majority of the time	Eye contact at a point	occasional eye contact
Communication	Precise pronunciation, Voice is clear and steady all the time	Precise pronunciation, Voice fluctuations from clear to low	Correct pronunciation, Voice is clear with few fluctuations	Incorrectly pronounces some terms, Audible voice

Rubrics for Assignment

Criterion	Excellent 5	Very Good 4	Good 3	Average 2 or 1
Content	High quality useful information was presented	Correct and most useful information presented	Information presented are mostly correct	Incorrect information presented
Work shown	All work meticulously shown	Most work meticulously shown	Few work meticulously shown	Some steps for problem solving are missing
Completion	Students submitted before due date	Students submitted on date	Students submitted two days late	Students submitted up to a week
Presentation	Precise solution step by step	Easy understanding of solution step by step	Solution is presented in a Logical manner	Solution is difficult to follow

8. Assessment Pattern

Distribution of marks for the Internal assessment for all Courses
Internal Assessment is for 40% of the total marks.

Sr. No	Internal Assessment	Marks allotted
1	Assignments/ Projects	20
2	Viva based on the above	05
3	Class Test (MCQ)	15
4	Class Participation	05
	Total	40

Internal Assessment is a separate head of passing. If a student is unsuccessful in internal assessment, he may be allowed to appear for semester end examination but may be declared unsuccessful in overall result.

Distribution of marks for the semester end examination assessment for all Courses
Semester end exam Assessment is for 60% of the total marks.

S.No.	Question based on Unit	Distribution of marks
1.	Unit I A or B/ A+ B or C+D	15
2.	Unit II A or B/ A+ B or C+D	15
3.	Unit III A or B/ A+ B or C+D	15
4.	Unit IV A or B/ A+ B or C+D	15
	TOTAL MARKS	60

Distribution of marks for the External assessment in Practical Courses

S.No.	For -UG Practical Courses	Distribution of marks
1.	Experiment-I	15
2.	Experiment-II	15
3.	Record	10
4.	Viva Voce	10
	TOTAL MARKS	50

9. Continuous Improvement

A) Contribution of CO in PO attainment and Continuous Improvement (Faculty Level)

Outcome	Action to be taken by faculty
High attainment of all CO-PO (>2.5 out of 3)	Frame higher targets or attainment levels for next Academic Year (A.Y.).
Moderate attainment of all CO-PO(1.8 to 2.49 outof3)	Record observations, Continue action plan of last A.Y. with plan for improvements.
Low attainment of all CO- PO(0.9 to 1.79 out of 3)	Recordobservations, assess the target set, revise/improve action plan of last A.Y. to achieve the attainment with plan for improvements.
CO-PO not attained, poor performance(<0.9outof3)	Record observations, Critical assessment of target with Program Assessment Committee (PAC), Revise action plan of last A.Y. at faculty/department level.

B) Contribution to Continual Improvement of CO and PO attainment (College Level)

The College organises various faculoty development and training programs for revising the CO and PO.

10.Review of OBE System

All Program Outcomes (POs) are effectively addressed through the selection of core courses and their corresponding Course Outcomes (COs). When assessments align with COs, student performance reflects their attainment. These measurements serve as a foundation for continuously enhancing the quality of learning. Achieving outcomes at the Course, Program, and Institutional levels ensures quality assurance for stakeholders. Analysis of these achievements drives continuous improvement in course delivery, assessments, and curriculum.