A handbook on

Learning Outcomes based Curriculum Framework (LOCF)

under the international standards of

Outcome Based Education (OBE)

Prepared by

Dr. Shaji E. & Dr. Gabriel Simon Thattil

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Email: team.iqac@gmail.com

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Disclaimer: This is a draft document prepared using resources from different published works, training materials, UGC and web sources. We admit that Outcomes are highly area specific, discipline specific and has a lot to do with context and level of application. What is referred to here is only suggestive, each BOS should look into what suits them best, however University of Kerala should develop a uniform pattern for PSOs and Cos. While efforts have been taken to provide accurate and authentic information, it may be noted that this is not a document which should be relied on as legally undertaken by the University of Kerala. The document is presented and approved by the University Syndicate.

Comments, suggestions and modifications, if any, are welcome.

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Dr. Shaji E., Associate Professor, Dept. of Geology

Dr. Gabriel Simon Thattil, Professor, Dept. of Commerce (Director, IQAC)

Outcome Based Education (OBE)

Introduction

Teaching is not only a profession but also a noble and challenging task of educating and empowering students and through them enabling social transformation for healthy living. This process makes the students skilled, conceptually, ethically and professionally, to achieve their goals in life. The current higher education system has been relying on the quantitative dimensions of student output measured more in terms of marks and scores attained through the conduct of examinations which always do reflect knowledge assimilated, creative thinking under specific conditions and ability to skilfully engage and perform under conditions that demand contextual action. The mark sheets/scores/grades, often, do not completely represent the actual behaviour of the student in real and professional life.

The University Grants Commission (UGC) has initiated the mission of improving the quality of higher education in India through its Quality Mandate (QM) brought in to force during 2018. The quality mandate of the UGC has given thrust on curriculum reforms with an aim to equip the students with knowledge, skill, values and attitude. Therefore, QM recommends the drive for developing Learning Outcomes based Curriculum Framework (LOCF) under the international standards of Outcome Based Education (OBE).

Periodic curriculum revision process is critically important to ensure that the programmes offered in the universities are at par with the global standards, according to the UGC guidelines and as demanded by the fast changing environment in which the learner has to operate.. Therefore, University of Kerala has decided to switch over all its programmes to the Outcome Based Education (OBE) mode . The basic difference between traditional teaching and outcome based education is summarised in Table 1.

Table1. The difference between traditional teaching and OBE

Category	Output Based Education (Traditional Teaching)	Outcome Based Education (Transformation Teaching)
Teaching philosophy	Teacher – centered	Learner – centered
Focus Points	Number of students graduated	Programme out comes, program specific outcomes and course outcomes; Course Outcome that describes what a student is expected to know and can do at the end of the course.
Achievements	Grades and /or ranks of the students	Attitude, Skills and real Knowledge of students
	Number of students employed or campus selection	Professional achievements of graduates
Role of Instructor	Teacher	Facilitator
Degree	Course Eg:- BA, BSc, B.Ed, M.Sc. course M Phil, PhD	Programme Eg:- BA, BSc, B.Ed, MSc Programme M Phil, PhD Programme
Courses	Core, Elective, Extra Departmental Elective	Core Courses(C), Discipline Specific Elective Courses (DSE), Generic Elective, Ability Enhancement Course (AEC), Skill Enhancement Course(SEC)

Outcome Based Education (OBE).

There are different definitions for outcome-based education. The most widely used one is suggested by Prof. William Spady, Faculty of Education and Arts, University of Newcastle, Australia. **Outcome Based Education (OBE)** means focusing and organizing an institute's/University's entire programmes and instructional efforts around the clearly defined outcomes (Spady,1994). Further, all students should be able to demonstrate the outcomes of the programme when they leave the college/University. In other words, one would determine what kind of skills, knowledge, ethics and professionalism that a student should

possess after the graduation and subsequently the courses and curriculum content are framed focusing on those key factors.

Every student has to accomplish the objectives at the end of the instructional experience and the same need to get demonstrated in the form of explicit outcomes or capabilities where they are fit to execute, act or simply perform as was conceived. OBE is not limited to well-defined teaching or direct assessment strategies but involves indirect assessment to assist the learners in the attainment of defined outcomes.

OBE organizes the curriculum, instruction style and assessment pattern for all course in an effective manner ensuring that the learning ultimately happens. Such Learning involves transformation in the learner.

Key OBE Drivers

1. It should be seen as a Holistic system
2. Keep in mind what you expect from students on completion of the course (outcomes)
3. How are you going to transact to attain the same?
4. How are you going to evaluate whether the learner has attained what you expect from him or her?

The University of Kerala has conducted several workshops/trainings to implement OBE in all teaching departments and affiliated colleges. This is in addition to the workshops organised by the Kerala State Higher Education Council for Board of Studies members and other teachers as well as several other interventions carried out both inside and outside the State. The teaching-learning methodology envisaged by the University of Kerala is more concentrated on what students should learn rather than what they were taught and were expected to do. The University of Kerala also attempts to blend character and skills along with a creative urge to excel such that they can play a major role in the betterment of society, act as responsible citizens and contribute to the nation as a whole.

OBE addresses the following key questions:

- What should the students know, why and what should they do? (What does the facilitator expect)
- How can you best help students achieve it?
- How will you know what they have achieved? (ascertain outcomes)
- How would you bridge the gap between Expectations and Outcomes?

Learning Outcomes based Curriculum Framework (LOCF)

The task at hand is to develop Learning Outcome-Based Curriculum Framework (LOCF), for UGs and PGs in different disciplines (*UGC Public Notice reg.: Learning Outcome based Curriculum Framework (LOCF); UGC website-www.ugc.ac.in*).

The LOCF for undergraduate and postgraduate education is based on specific learning outcomes and academic standards expected to be attained by graduates of a programme of study. However, an outcome-based approach identifies moves way from the emphasis on what is to be taught to focus on what is actually learnt by way of demonstrable outcomes. This approach provides greater flexibility to the teachers to develop and the students to accept and adopt different learning and teaching pedagogy in an interactive and participatory ecosystem. The idea is to integrate social needs and teaching practices in a manner that is responsive to the need of the community.

When rainfall occurs, the downpour is uniform on a surface, while the accumulation of water is different based on the location and topography. Similarly, the teaching methodology remains uniform for all the students, however, the accumulation of knowledge remains uneven. The role of a teacher and teaching pedagogy is instrumental here to make this accumulation uniform throughout the class. Teaching and learning methodology should adapt in a manner that the concept and its content linkages become understandable to everyone as per students' capacity (Rao,2020).

Outcomes for a higher education program are defined at three levels as program outcomes (POs), program specific outcomes (PSOs), and course outcomes (COs). The most important aspect of an outcome is that it should be observable and measurable (Rao, 2020).

Benjamin S. Bloom identified three 3 hierarchical models under which learning process takes place, to classify educational learning objectives in to Cognitive, Affective and Psychomotor (sensory) domains.

Domains of Learning Outcomes:

COGNITIVE - Thinking, intellectual abilities. Comprehending information, organizing ideas, evaluating information and actions.

AFFECTIVE - A learner's emotions toward learning. Interests, feelings, attitudes, opinions, appreciations, values, emotional sets

PSYCHOMOTOR - Basic motor skills, coordination, and physical movement. Speech development, reading readiness, handwriting, physical education, manipulative skills (keyboarding), industrial technology, performance areas in science, art, music.

American education and Indian education have been leaning more toward the cognitive domain at the exclusion of the affective and psychomotor domains. Well-rounded and fully functioning people need development in all three domains.

The Taxonomy of cognitive objectives developed by Benjamin Bloom continues to be one of the most universally applied models, which provide a way to organize thinking skills into six levels, from the most basic to the higher order levels of thinking. Lorin Anderson (former student of Bloom) revisited the taxonomy during 1990.

The flowchart of the taxonomy is given in the figure 1.

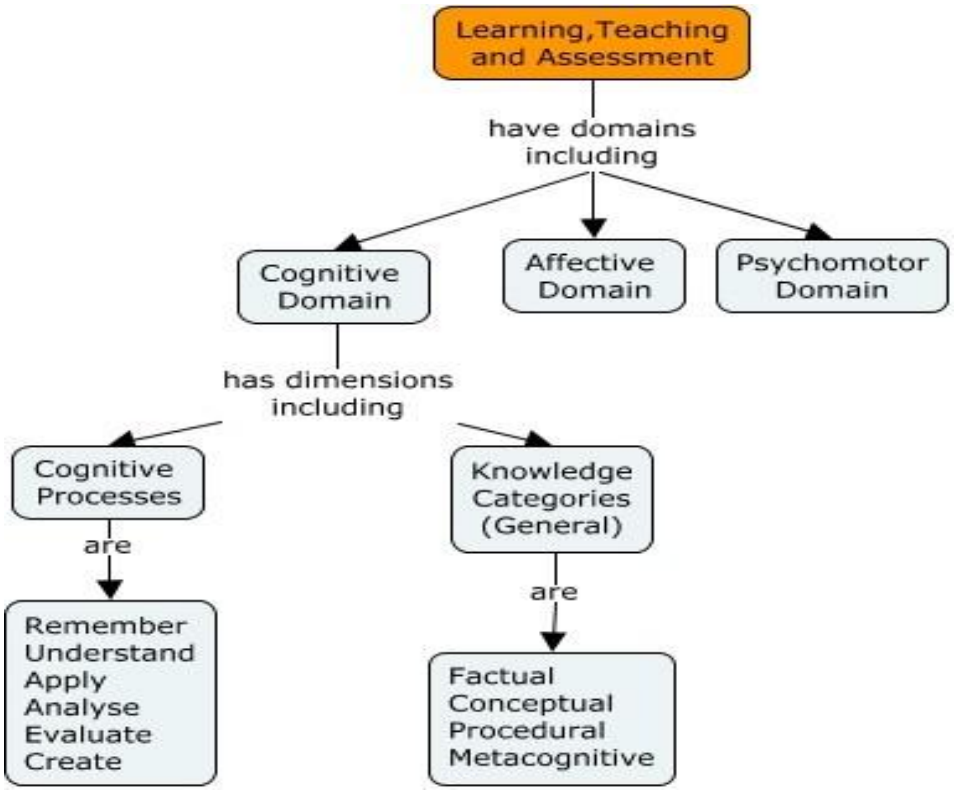


Figure 1 . Flow chart of the Bloom taxonomy.

There are certain changes incorporated in the process category and are shown in figure 2.

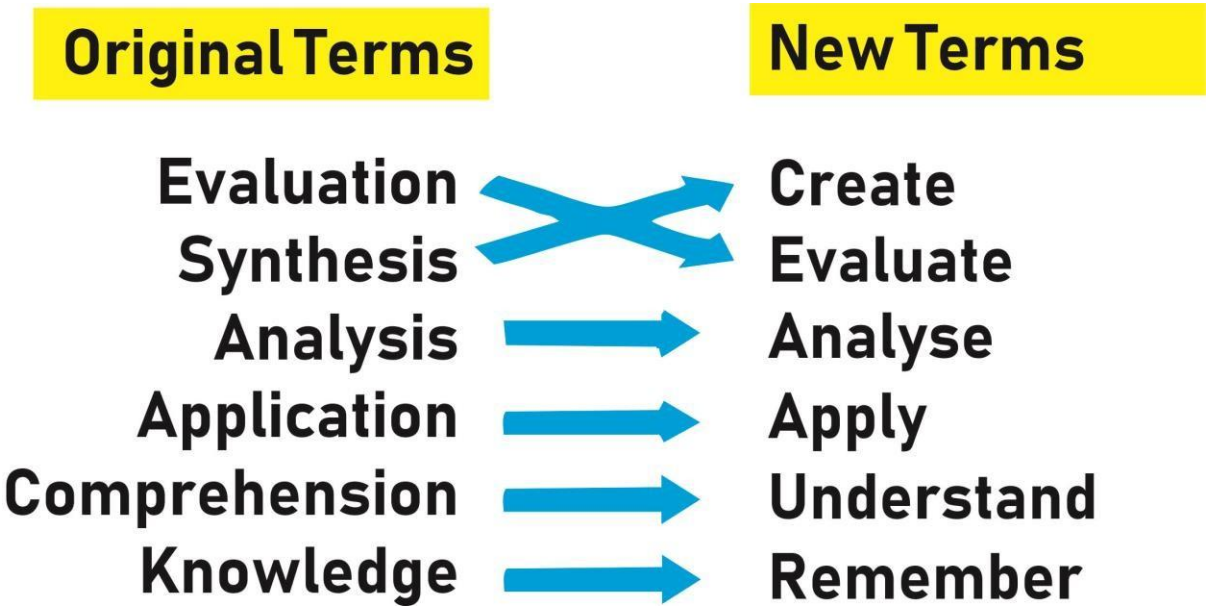


figure 2. Changes in the process category of OBE

Bloom's taxonomy may be depicted as a set of stairs that students climb from one level to the next and is pictorially represented in figure 3.

Figure 3. Stairs of Bloom's Taxonomy

Let us examine details of each levels of cognitive domain (after Coyle et al., 2010)

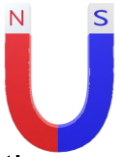
1. **Remembering**

This is to check if the learner is able to recall, restate and remember learned information. Check if the students recall information?

Action verbs: Describing, Finding, Identifying, Listing, Retrieving, Naming, Locating, Recognizing.

(Examples: Make a story map showing the main events of the story.Make a time line of your typical day.Make a concept map of the topic.Write a list of keywords you know about….What characters were in the story? Make a chart showing…Make an acrostic poem about…Recite a poem you have learned.)

2. **Understanding**



Students' ability to grasp the meaning of information by interpreting and translating what has been learned.

Action verbs: Classifying, Comparing, Exemplifying, Explaining, Inferring, Interpreting, Paraphrasing, Summarizing.

(Examples: Write in your own words…, Draw pictures to illustrate a particular event in the story., Report to the class…,Illustrate what you think the main idea may have been. Make a cartoon strip showing the sequence of events in the story., Write and perform a play based on the story., Write a brief outline to explain this story to someone else, Explain why the character solved the problem in this particular way, Write a summary report of the event.Prepare a flow chart to illustrate the sequence of events.)

3. **Applying**

Student makes use of information in a context different from the one in which it was learned. Can students use the information in another familiar situation? Check?

Action verbs: Implementing, Carrying out, Using, Executing

(Examples: Construct a model to demonstrate how it looks or works, Practice a play and perform it for the class, Write a diary entry, Make a scrapbook about the area of study., Prepare invitations for a seminar etc. Make a topographic map, Take and

display a collection of photographs on a particular topic., Make a clay model…,Paint a mural using the same materials.)

4. Analyzing

Student breaks learned information into its parts to best understand that information.

Action verbs: Attributing, Comparing, Deconstructing, Finding, Integrating, Organizing, Outlining, Structuring.

(Examples: Use a Venn Diagram to show how two topics are the same and different, Design a questionnaire to gather information., Survey classmates to find out what they think about a particular topic. Analyse the results., Make a flow chart to show the critical stages., Classify the actions of the characters in the book, Create a sociogram from the narrative, Construct a graph to illustrate selected information. Make a family tree showing relationships, Conduct a field investigation to produce information to support a theory).

5. Evaluating

Student makes decisions based on in-depth reflection, criticism and assessment. Judgments based on criteria and standards.

Action verbs: Checking, Critiquing, Detecting, Experimenting, Hypothesising, Judging, Monitoring, Testing.

(Examples: Write a letter to the editor, Prepare and conduct a debate, Prepare a list of criteria to judge…, Write a persuasive speech arguing for/against…, Make a booklet about five rules you see as important. Convince others., Form a panel to discuss viewpoints on….Write a half-yearly report. Etc.).

6. Creating

Student creates new ideas and information using what previously has been learned.

Key words: Constructing, Designing, Devising, Inventing, Making, Planning, Producing.

(Examples: Use the . . . strategy to invent a new type of compound., Invent a machine to do a specific task. Design a robot to do your homework. Create a new product. Give it a name and plan a marketing campaign. Write about your feelings in relation to..., Design a new monetary system),

Categories of Knowledge

Revised Bloom taxonomy (Anderson et al., 2001) suggests the following four categories of knowledge applicable to all disciplines:

- Factual Knowledge
- ConceptualKnowledge
- Procedural Knowledge
- Metacognitive Knowledge

The table 2 describes the types of knowledge and its elements.

Types	Elements
Factual Knowledge	"Inert" knowledge; that is, students often seem to acquire a great deal of factual knowledge, but they may not understand it at a deeper level. *Knowledge of terminology* (e.g., words, numerals, signs, pictures) *Knowledge of specific details and elements (Celsius, Fahrenheit, Kelvin etc.)*
Conceptual Knowledge	Relationships amongst pieces of a larger structure that make them part of the whole. Knowledge of classification and categories, theories, models structure etc. eg. Ideas about Earth, Rotation, Seasons etc. Concepts of the Evolution Theory, Origin of Life etc. Relationship between scarcity and choice, opportunity cost
Procedural Knowledge	How to do something, eg.- Knowledge of subject specific skills and algorithms Knowledge of the skills" to do painting with watercolours Knowledge and skills on psychometric testing
Metacognitive Knowledge	Knowledge on one's own cognition in general Knowledge of thinking in general and individual thinking in particular, eg. Strategic Knowledge, Knowledge about cognitive tasks Self Knowledge

Table 2

Anderson-Bloom Taxonomy is given below in table 3, which can be used for practice while preparing question papers and assignments.

Cognitive Process	**Knowledge Category**			
	Factual	Conceptual	Procedural	Metacognitive
Remember				
Understand				
Apply				
Analyze				
Evaluate				
Create				

Table 3 Anderson-Bloom Taxonomy (Source: Rao,2020)

Using the table 3 teachers can prepare two levels of questions based on the OBE curriculum.

(1) Lower level questions—remembering, understanding & lower level applying types

Lower level questions will evaluate students' preparation and comprehension, diagnose students' strengths and weaknesses and review and/or summarizing content.

(2) Higher level questions – uses complex application, analysis, evaluation or creation skills

Higher level questions will encourage students to think more deeply and critically, facilitate problem solving, encourage discussions, stimulate students to seek information on their own.

Remember how outcomes are to be assessed ALL outcomes at different levels may require different evaluation methods, certain cognitive skills at the level of create can at times be tested only through practical's, observational recording or physical doing or experiencing such outcomes perhaps cannot be tested in an examination hall through a written examination. This implies that your assessment mode is important while

you fix outcome. Some of your outcome can be assessed only through the use of Continuous assessment practices like practical's, case studies, model building, field work, live projects, such outcome-assessment should be left out from examinations in a Hall through writing alone. A common error committed is that we put outcomes at the level of create, evaluate etc. without keeping in mind how you would transact and assess the outcome achievement rate. From curriculum to end-evaluation the process needs to be integrated

The flowing table 4 gives idea about the questioning style by using all cognitive process and its stems.

Cognitive process	Stems
Remember	What happened after...? ,How many...?, What is...?, Who was it that...? Name ..., Find the definition of…, Describe what happened after… Who spoke to...?, Which is true or false...?
Understand	Explain why…,Write in your own words… Clarify…, Illustrate… How would you explain…? Write a brief outline... What do you think could have happened next...? Who do you think...? What was the main idea...?
Apply	Explain another instance where… Group by characteristics such as… Which factors would you change if…? What questions would you ask of…? From the information given, develop a set of ideas about..
Analyze	Which events could not have happened? How is...similar to...? What do you see as other possible outcomes? Why did...changes occur? Explain what must have happened when... What are some or the problems of...? Distinguish between... What was the turning point? What was the problem with...?
Evaluate	Judge the value of... What do you think about...? Defend your position about... Do you think...is a good or bad thing? How would you have handled...? What changes to… would you recommend? Do you believe...? How would you feel if...? What are the alternatives? Who will gain & who will loose
Create	Design a tool… Devise a possible solution to... If you had access to all resources, how would you deal with...? Devise your own way to... How many ways can you...? Create new and unusual uses for... Develop a proposal which would...

Table 4

Outcomes

Outcomes can be defined at three different levels in the case of undergraduate/masters programmes: (a) Programme Outcomes (POs) or statements that describe what the students graduating from general programmes should be able to do, (b) Programme Specific Outcomes (PSOs) which are statements that describe what the graduates of a specific programme should be able to do and (c) Course Outcomes (COs) or statements that describe what the students should be able to do at the end of a course. We should clearly understand the meaning of programme outcomes , specific programme outcomes and course outcomes and their relatedness (Figure 4)

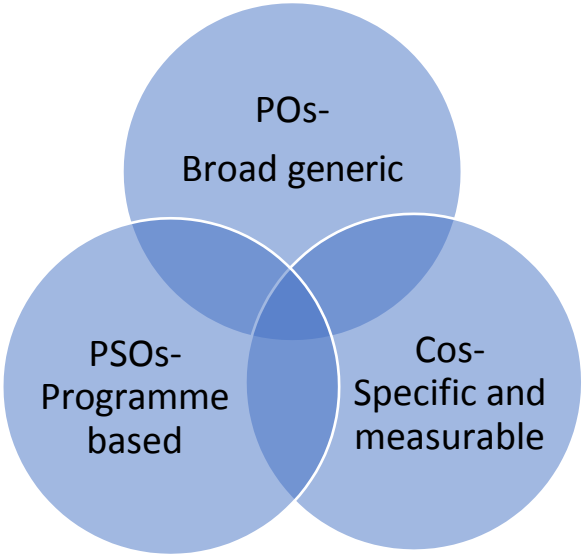


Figure 4. POs, PSOs, COs and its relatedness

Programme Outcomes (POs)

Programme Outcomes (POs) shall be designed by the University/Institution.

POs represent the knowledge, skills and attitudes and all students are required to attain at the time of graduation from any programme. POs need to be identified by the university/institute offering general programmes. POs are often called as Graduate Attributes (GA).

A set of POs identified (Rao,2020), which can be used by universities is listed below in Table 5.

PO number	Name of Programme Outcomes
PO 1	Critical Thinking
PO 2	Problem Solving
PO 3	Computational Thinking
PO 4	Effective Communication:
PO 5	Social Interaction
PO 6	Self-directed and Life-long Learning
PO 7	Effective Citizenship
PO 8	Ethics
PO 9	Environment and Sustainability
PO 10	Global Perspective
PO 11	Any other which is deemed fit for the university

Table 5.

Programme Specific Outcomes (PSOs)

Programme Specific Outcomes (PSOs) shall be developed by each Department/ BOS offering the Program in a discipline within the University/Institution. Examples PSO for B Sc Physics, BA Economics or MA History

The PSOs are outcomes that are specific to a programme. They characterize the specificity of the core courses of a programme. The PSOs of a general programme can be two to four in number.

A sample prepared by Rao (2020) on PSOs for BSc (Zoology) can be as follows:

PSO1. Understand the nature and basic concepts of Cell biology, Biochemistry, Taxonomy and Ecology
PSO2. Analyse the relationships among animals, plants and microbes
PSO3. Perform procedures as per laboratory standards in the areas of Biochemistry, Bioinformatics, Taxonomy, Economic Zoology
PSO4. Understand the applications of biological sciences in Apiculture, Aquaculture, Agriculture, and Medicine

For sociology it can be as under.

PSO1. Understand human society with methodological, theoretical, cultural, religious and sociological perspectives
PSO2. Understand the nature of social institutions, social processes, social movements and Indian Diaspora
PSO3. Understand Indian Society focusing on Rural societies, Urban Societies, Agrarian Societies, Tribal Societies and Industrial Societies
PSO4. Understand the Gender issues and develop measures for upliftment of women.

Course Outcomes (COs)

The COs represent what the students should be able to do at the end of a course. Some sample the COs from different BSc courses are as follows:

1. Understand aspects of human development including pregnancy, parturition, birth control, infertility, developmental defects and miscarriage

2. Synthesize specified chemicals and characterize them and interpret spectral data to elucidate the structure of the synthesized chemical compound

3. Write programmes for one-dimensional and two-dimensional array manipulation and string-handling functions

A sample of a course outcome of **Course: Sociological Analysis for**

B A Sociology is given below in Table 6 (only a model).

CO	CO Statement	PO/ PSO	CL	KC	Class hours
CO1	Understand the Founders of Sociology	PO1/PSO1	R	F, C	20
CO2	Identify the Formal and informal agencies of Socialization Process	PO5/PSO2	U	P	12
CO3	Understand the emergence, process and effects of Social Change	PO4/PSO1	U	C	10
CO4	Classify social movements and their role in restructuring the society	PO1/PSO2	An	F	12
CO5	Differentiate between informal and formal social control measures	PO5/PSO2	An	M	10
	Total Number of Hours				64

Table 6. (CL- Cognitive Level: R-remember, U-understand, Ap- Apply, An-analyses, E- evaluate, C- create, KC- Knowledge Category: F-Factual, C-Conceptual, P-Procedural, M- Metacognitive)

How to become a graduate ?

Graduates of all undergraduate and master's general programmes in India are required to attain the POs identified by the University/college and the PSOs identified by the Department offering the Programme. The POs and PSOs are to be attained through courses, projects and co-curricular and extracurricular activities in which the performance of the students is evaluated (Rao,2020).

Courses are broadly classified into core courses, electives, ability enhancement courses and skill enhancement courses. The POs and PSOs are to be attained through core courses, ability enhancement courses and activities in which all students participate.

Courses constitute the important part of any programme. The course credits can be fixed by the University. It should be remembered that One Credit is defined as follows:

- One hour of classroom interaction per week over a semester
- One hour of tutorial per week over a semester
- Two hours of laboratory/field work per week over a semester

The following flow chart gives an idea about distribution of credits for different courses (Figure 5).

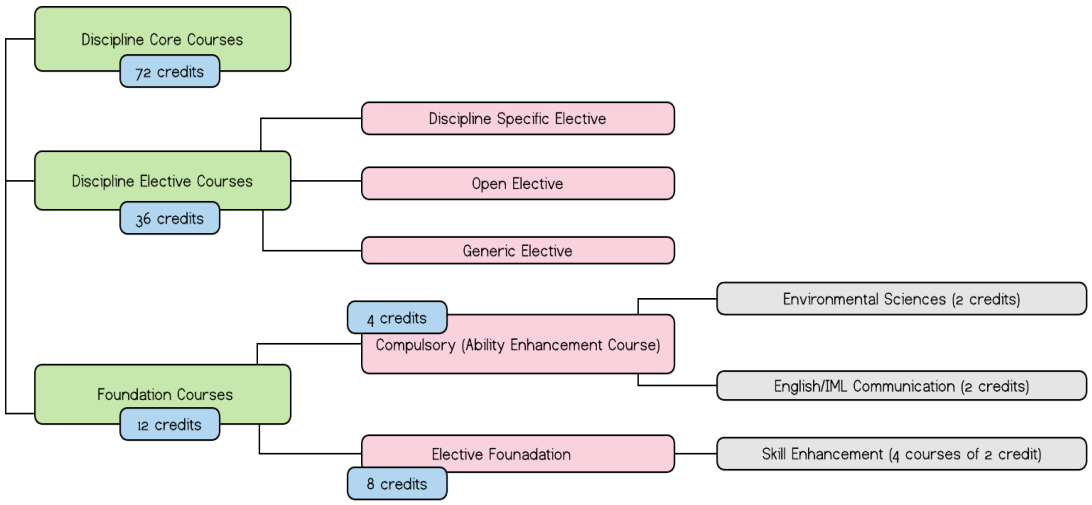


Figure 5. Flow chart shows distribution of credits (only model)

A model of Learning Outcomes based Curriculum Framework (LOCF) under the international standards of OBE is prepared and is presented in in the figure 6.

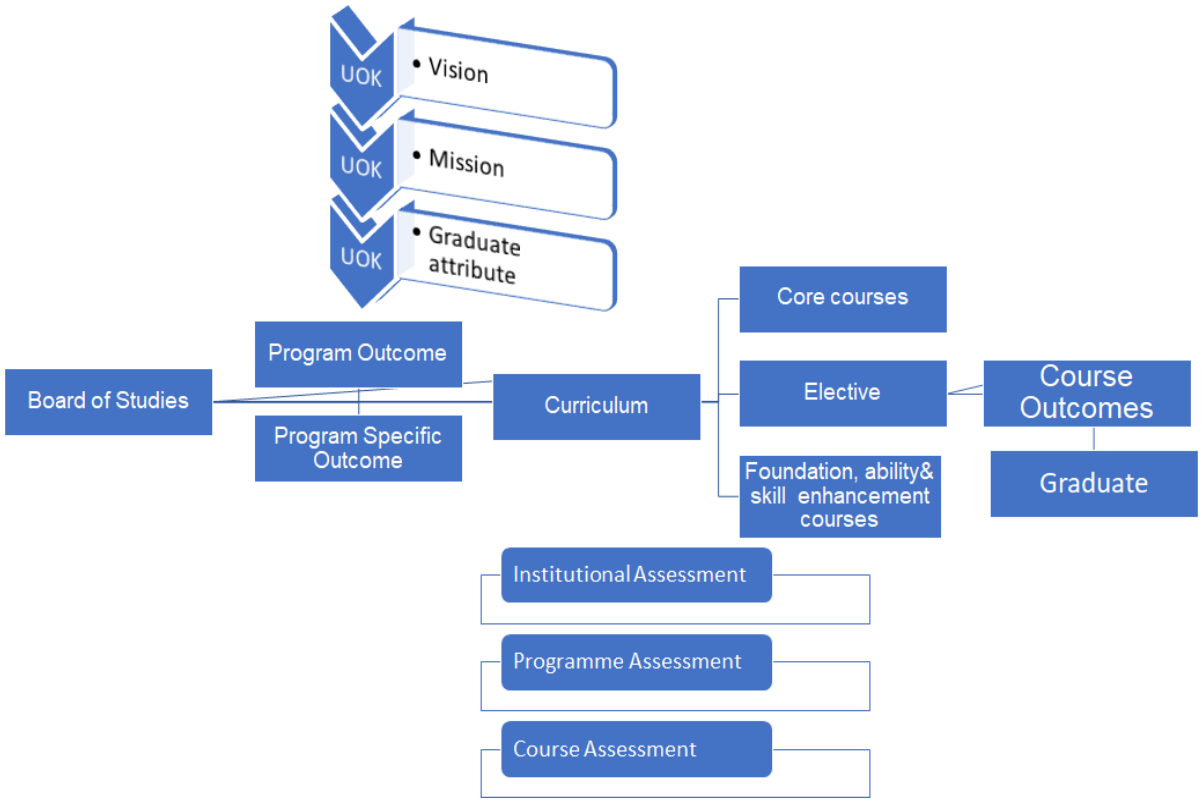


Figure 6. OBE framework model.

Advantages of OBE

1. Relevance: fitness for practice and education for professionalism.
2. Discourse: identification of the outcomes & promotes discussion
3. Clarity: clarifies the curriculum for both students and teachers
4. Provision of a Framework: provides a robust framework for integration of the curriculum.
5. Accountability: emphasizes accountability.

6. Self-Directed Learning: student-centered approach
7. Flexibility: have flexibility and does not specify educational strategies or teaching methods.
8. Guide for Assessment: The outcomes provide the framework for student examinations
9. Facilitates Curriculum Evaluation: The outcomes provide benchmarks against which the curriculum can be judged.

Assessment Practices in Outcome-Based Education: Evaluation Drives Education

Evaluation is an essential process for the measurement of transformation that a student attains after a teaching learning process. The OBE system departs from the traditional method where assessment of students is based only on marks, grades and/or ranks. This method does not address the level of transformation in the learner, whereas outcome is the measurement of level of achievement showing the transformation. Assessment tools are required for the measurement of outcome. These tools could be direct tools for direct assessment or indirect tools for indirect assessment. An assessment can be a formative assessment or summative assessment. Learning is complete only if transformation is observable in all the vital aspects of attitude, skill, and knowledge. It is widely accepted that all these aspects can be measured in OBE.

The present assessment consists of mid-term tests, end-semester examination, assignments, seminars, quizzes, reports, presentations and laboratory/field performances. If assessments are in alignment with the COs, then their attainment can be readily computed following a non-unique but academically justifiable process. Computing the attainment of POs is a non-unique, imprecise process. However, it is necessary to follow a well-defined process consistently to plan for continuous improvement in the quality of learning.

NEED FOR ASSESSMENT

The three vital things in any teaching learning process are objectives, teaching methodologies and assessment. Assessment by the teacher is to support teaching learning process. It provides significant probability for improving student learning and to develop competency. During this process, teacher needs to assess and evaluate whether the teaching methodologies contribute to behavioural transformation or not. They also need to identify the student performance as an individual and as a group

member in all vital aspects of attitude, skills and knowledge. Assessment is the key to measure performance. Continuous assessment by teachers along with appropriate feedback, leads to the development of essential changes in the way students can be encouraged to express their point of view and the ability to deal with and guide their own learning.

Ethics

Moral values and personal ethics at one end and professional and social ethics at the other end are to be considered while designing the programme outcomes. Under graduate and masters programmes should strive to offer ethics and professionalism either through elective courses or through embedded capsules in appropriate courses.

Approach in implementing OBE in our University

- Modify existing curriculum (rather than start from scratch)
- Revise Course Content Structure
- Introduce Innovative Delivery Methods
- Introduce Innovative Assessment Evaluation Tools
- Continuous Quality Improvement
- Prepare and display Vision and Mission of the University /Department (re-look at the existing one if necessary)
- Link Graduate Attribute of the University to Programme outcome.
- Learning outcomes must be Understandable , Measurable, Achievable , Participant-oriented
- To make University of Kerala a centre of excellence in academic and research

Graduate Attribute

This is a model of Graduate Attribute (discussed in the IQAC)

Green Protocol

Energy	• Green energy practices – switch to solar energy • Turn off lights, fans, AC, when not in use, aim for carbon neutral campus, promote open classes
Water &Air	• Water harvesting and recharging groundwater • Save every drop of water; reuse; reduce wastage • Clean air, reduce PM 2.5 and PM10, grow and protect trees
Waste	• Plastic free campus, reduce, recycle and reuse • Print less and burn less • Segregate waste and use bins

This is a model of Green Protocol (discussed in the IQAC)

Vision

The University of Kerala aims at fostering scholarship which is independent, critical, innovative, inclusive and emancipatory in a manner that it contributes to the intellectual, cultural, social and economic development of the individual and society

Mission

The University shall continuously

- **Facilitate measures to ensure that knowledge leads to practice, thus realizing the motto of the University, 'Karmani Vyajyate Prajna'(Wisdom emerges through action)**
- **Design, implement, and review and revise schemes for promoting innovation**
- **Strengthen existing policies to ensure inclusiveness, equity, and access to education for all**
- **Focus teaching and research in inter-disciplinary and multi-disciplinary areas with a view to promote economic vitality, environmental sustainability, and quality of life**
- **Adopt, promote, and disseminate eco-friendly practices**
- **Ensure world class infrastructure equipped with latest technologies**
- **Promote transparency, social accountability, and democratic practices**
- **Focus on cutting edge sciences, technologies and humanities**
- **Become socially relevant by tuning teaching and research to suit local and global social needs**
- **Initiate pedagogic reforms in tune with technology and times**
- **Develop human potential to hone intellectually and imaginatively gifted leaders**
- **Promote reciprocal linkages with local and global industries**
- **Transform the University as a favoured destination for research in niche areas**
- **Facilitate, promote and disseminate critical thinking**
- **Define and refine working definitions of quality, excellence and access based on universal principles**
- **Re-engineer the administrative system and practice to suit the vision**
- **Encourage all stakeholders of the University to constantly evolve a code of conduct to achieve the vision**

Exercise 1: Program Outcomes and Program Specific Outcomes

Program Outcomes (POs) indicate the generic knowledge, skills and attitudes that every student graduating from a PG program should attain. While every course of the program can address only a subset of POs, all the core courses together should be able to address all the POs. All the PG students would have worked to attain all the POs of UG programs. The number of POs of PG programs may be restricted to 3 to 4.

Please select 5 or 6 of the POs indicated and reword them if necessary keeping the Vision and Mission of University of Kerala

University/Institute:

Program:

Faculty Members:

PO	Statement	Selected/ Not Selected
PO1	**Critical Thinking**: Take informed actions after identifying the assumptions that frame our thinking and actions, checking out the degree to which these assumptions are accurate and valid, and looking at our ideas and decisions (intellectual, organizational, and personal) from different perspectives.	
PO2	**Problem Solving**: Identify, formulate, conduct investigations, and find solutions to problems based on in-depth knowledge of relevant domains.	
PO3	**Communication**: Speak, read, write and listen clearly in person and through electronic media in English/language of the discipline, and make meaning of the world by connecting people, ideas, books, media and technology.	
PO4	**Responsible Citizenship**: Demonstrate empathetic social concern, and the ability to act with an informed awareness of issues.	
PO5	**Ethics**: Recognize different value systems including your own, understand the moral dimensions of your decisions, and accept responsibility for them.	
PO6	**Self-directed and Life-long Learning**: Acquire the ability to engage in independent and life-long learning in the broadest context socio-technological changes	

PO 7	**Effective Citizenship**	
PO 8	**Ethics**	
PO 9	**Environment and Sustainability**	
PO 10	**Global Perspective**	
PO 11	**Any other which is deemed fit for the university**	

Exercise 2: Course Outcomes

Write Course Outcomes of a course you taught paying attention to all the Do's and Don'ts, making sure all the items in check list are checked out.

Dos and Don'ts

- Use only one action verb (two if absolutely necessary).
- Do not use words including 'like', 'various', 'such as', 'different', 'etc.' with respect to knowledge elements. Enumerate all the knowledge elements.
- Put in effort to make the CO statement as detailed as possible and measurable.
- Do not make it either too abstract or too specific.

Check List

1. Does the CO begin with an action verb (e.g., state, define, explain, calculate, determine, identify, select, design etc.)?
2. Is the CO stated in terms of student performance (rather than teacher performance or subject matter to be covered)?
3. Is the CO stated as a learning product (rather than in terms of the learning process)?
4. Is the CO stated at the proper level of generality and relatively independent of other COs (i.e., is it clear, concise, and readily definable)?
5. Is the CO attainable (do they take into account students' background, prerequisites, facilities, time available and so on)?

Program:

Course: **Credits:**

Faculty Members:

CO	CO Statement
CO1	
CO2	
CO3	
CO4	
CO5	
CO6	
CO7	
CO8	
CO9	
CO10	

Exercise 3 Try to fill up the following

Define the teaching aim/s (general) and objectives (specific) of your course

What are the course outcome outcomes?

What processes did you have to go through to identify these?

How easy is this to do?

What are the issues?

What will they learn?

What kind of questions must I ask in order to go beyond ‘display’ questions?

Which tasks will I develop to encourage higher order thinking ?

What kind of questions must I ask in order to represent the PO, PSO and CO ?

Planning the OBE curriculum

Stage one	• Learn about Learning Outcomes based Curriculum Framework (LOCF) under OBE • Discuss these with other colleagues in your own department and in other departments • Define aims and objectives of teaching programme as well as course outcomes as they fit in with the whole programme
Stage two	• Arrange workshop on LOCF and OBE • Carry out curriculum revision, i.e. identify the content knowledge, skills and understanding to be taught in the topic/theme/module etc. • Modify the syllabus in tune with model syllabus uploaded in the UGC website .
Stage three	• Prepare modified syllabus • Approval of BOS, Faculty and Academic council etc. • Identify appropriate teaching strategies – how to support learners • Identify appropriate learning strategies – how learners can learn to support their own learning • Prepare appropriate materials – with special attention to those incorporating learning strategies and pedagogical scaffolding
Stage four	• Ensure teaching objectives and learning outcomes are clear and achievable • Develop a monitoring system • Evaluation of teaching and learning process • Publish your syllabus and results

Visit UGC website for model syllabus

Learning Outcomes based Curriculum Framework (LOCF)

(Syllabus outline model)

Table of Contents

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