Guidelines to
OUTCOME BASED EDUCATION
for Three Years Undergraduate Degree
and Two Years Post-Graduate Degree
with
Programme Outcomes (POs)
Programme Specific Outcomes (PSOs)
&
Course Outcomes (COs)

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This OBE manual is prepared for faculty members of SIES College of Arts, Science & Commerce (Autonomous) for internal circulation only.

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Principal
SIES College of Arts, Science & Commerce (Autonomous)
Sion (West), Mumbai - 400 022.

An Introduction to Outcome Based Education (OBE)

OBE is learner-centric instruction model focusing on measuring learners' performance, based on attainment of learning outcomes. In OBE, curriculum, instruction, and assessment should be viewed as flexible and alterable means for accomplishing clearly defined learning "ends." OBE often uses the term "Exit Outcome."

Features of OBE system:

1. Depending upon the exit outcomes defined in the Curriculum. Learning, results and performance expectations are to be clearly defined ahead of time with Top Down Approach
2. Top Down Approach helps in designing curriculum back from where you want your learners to successfully end up.
3. An outcome of an education is what the learners should be able to achieve at the end of a course.
4. The evaluation process may differ from course to course.
5. The learners know what they are expected to learn, and instructors know what to help them learn.
6. There are no surprises in what is to be learned and what will be assessed. What you see is what you get.

If learning is clearly defined and instruction takes the learner's experience, learning style, and learning rate into account, almost anyone can learn anything that is truly essential for learners' success and well-being. Clear standards for receiving official certification are tied to consistent, quality accomplishments and performance.

What are learning outcomes?

Learning Outcomes are specific intentions of a programme or module, written in clear terms. It describes what a learner should know, understand, or be able to do at the end of that programme or module. Outcomes are clear learning results that we want learners to demonstrate at the end of significant learning experiences. They are not just values, beliefs, attitudes, or psychological states of mind. Instead, outcomes are what learners can actually do with what they know and have learnt. They are the tangible application of what has been learnt, such as-

- Outcomes are actions and performances that embody and reflect learners' competence in using content, information, ideas, and tools successfully.
- Outcomes involve actual doing, rather than just knowing or a variety of other purely mental processes, they must be defined according to the actions or demonstration processes being sought.
- Outcomes can take many forms, ranging from specific content skills to complex performances important in life.
- There are several outcomes that a learner of the course should have demonstrably mastered (within a range from "inadequate" to "excellent") by the end of the course.

While defining and developing outcomes, instructors must use observable action verbs like describe, explain, design, or produce rather than vague or hidden non demonstration processes like know, understand, believe, and think.

For example, the possible outcome "explain the major causes of inflation in capitalist economies" implies that to be successful; the learner will be expected to develop both the competence of explaining and the knowledge of the major causes of inflation in capitalist

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economies. Since outcome-based systems expect learners to learn the processes defined within an outcome statement, they are careful to build those processes directly into the outcome through demonstration verbs.

Therefore, an outcome statement without clearly defined demonstration verb or demonstration process, may be called a goal rather than a true outcome statement.

In short, a learning outcome should be articulated in such a way that the outcome can be achieved in a variety of ways, allowing for academic freedom, choice of text, and assessment methods.

Outcome Based System build everything on a clearly defined framework of exit outcomes. The **5 major components of learning** are developed and implemented to facilitate, namely in

- Defining Outcomes
- Designing Curriculum
- Delivering the Instructions Strategically
- Assessment Methods and
- Performance Standards

Examples of outcome-based models

Some contemporary examples of outcome-based models include
- technical training programs in the military
- flight schools, ski schools
- karate instruction
- scuba instruction and
- any other area of learning where clearly defined competence and performance is essential to carrying out a role effectively.
- professional licensure of doctors, lawyers, real estate brokers, and cosmetologists
- merit and honour badges for Boy and Girl Scouts.

Each model is focused on a clearly defined performance result for learners that is not compromised. Second, in each example WHAT and WHETHER students learn successfully is more important than 'WHEN and HOW they learn it. In short, successful learning results are more important in outcome-based models than the schedule followed or the methods used.

Levels of Outcomes-
✔ Programme Outcome (PO):
PO is a statement that describe what the learners graduating from any of the educational programmes should be able to do.

✔ Programme Specific Outcome (PSO):
PSO is a statement that describe what the graduates of a specific programme within Arts, such as Economics, English, Hindi, etc.; Science, such as Bio-chemistry, Botany, Chemistry, etc.; Commerce, such as Accountancy, Finance Management, etc.; and many more disciplines should be able to do.

✔ Course Outcome (CO):
CO is a statement that describe what students should be able to do at the end of a course.

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SECTION A - SIES Vision and Mission

Vision

The Institution aims at all round development of its learners in a favourable environment to nurture their intellectual, cultural, social, physical and recreational skills by imparting the education to attain global competencies.

Mission

With a spirit of sincerity we:

- foster an integrated character in the learners
- mould the facilitators to be role models for the learners
- prepare the learners with technological knowledge, communication skills, social awareness, critical thinking and problem solving ability
- develop inquisitive minds to inculcate a culture of research and innovation
- equip the learners with leadership skills to become the agents of social change
- initiate sensitivity towards environmental, gender and ethnic diversity
- promote values of responsible citizenship

Qualification Descriptors

SIES College of Arts, Science & Commerce (Autonomous) is committed to a learner-centric environment and assessment procedures are designed to provide every learner with the opportunity to achieve the intended programme learning outcomes. Keeping in mind the changing trends in teaching-learning, SIES necessitates the effective use of technological tools in order to meet the growing employability requirements. For this, under Degree (Graduate and Post-graduate) programmes and Diploma programmes, New Value added courses are designed periodically.

Our graduates–

➢ demonstrate (i) a coherent understanding of the academic field of study, its different learning areas and applications, and its linkages with related disciplinary subjects; (ii) procedural knowledge that creates different types of professionals related to the subjects of study, including research and development, teaching and government and public services; (iii) skills that are subject centred and multidisciplinary based knowledge and abilities, develop creative expertise, critical proficiencies and rational skills of inquiry.

➢ use subject-related and transferrable skills that are relevant to some of the job trades and employment opportunities.

➢ recognise and decisively evaluate issues of social responsibility, ethical conduct, sustainability by solving complex problems with well-defined solutions and open attitude to accept constructive feedback.

➢ embrace the diversity and recognise that all are unique in their own ways by working in collaboration with a sense of inter-cultural sensitivity.

➢ respond to the opportunities and challenges of the future using the main concepts, constructs and techniques of the subjects as accomplished communicators, skilful professionals and resourceful citizens in local, national, and global society.

➢ reflect the values of the Institution by meeting one's own learning needs, drawing on a range of current research and development work through professional acumen.

Based on these paradigms every department initiates their respective programme outcomes, programme specific outcomes which are classified into two levels: skills; attitudes and course outcomes focus at knowledge level.

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SECTION B - Our Institutional POs

Our learner-centric teaching and learning methodology focuses at course delivery, plans to achieve respective outcomes. With this goal, *learners' performances are enhanced at different levels:* knowledge, skills and attitudes.

Programme Outcomes (POs) focuses at Skill and Attitude levels-

PO Skill Level: The expected graduate attributes is directed towards the following-

PO1. Solving Complex Problem:
Applying the knowledge of various course learned under a program with an ability to break down complex problems into simple components, by designing processes required for problem solving.

PO2. Critical Thinking:
Organizing thoughts to identify assumptions, verifying the accuracy and validity of assumptions, making informed decisions that guide actions (at Institutional, Personal and Intellectual level), developing the ability to think with different perspectives and ideas.

PO3. Reasoning ability and Rational thinking:
Developing rational thinking on the basis of acquired contextual knowledge, assessing societal, public health and safety, cultural, legal, gender, ethnic and environmental issues, and performing with decisive responsibility.

PO4. Research skill:
Utilizing the contextual knowledge in an inter-disciplinary framework. Integrating research-based knowledge and research methods involving problem definition, analysis and interpretation of data, synthesis of the information to provide valid conclusions. Exercising analytical skill, research ability, creativity, for employability and collaborating with industries.

PO5. Effective Communication skill:
Facilitating to speak, read, write and listen effectively through both formal language and in one's own mother tongue, in order to make meaning of the world around. Enabling to comprehend and write effective reports and documentation, make successful presentations, give and receive clear instructions.

PO6. Proficiency with ICT:
Equipping to create, select, apply appropriate tools and techniques, resources through electronic media for the purpose of gathering, analyzing data and drawing inference with an understanding of its merits and demerits.

PO7. Social Interactive Skills and team work:
Eliciting networking with people, mediate disagreement and help reach conclusions in group settings. Functioning effectively as an individual, and as a member in diverse groups, and in multidisciplinary settings exhibiting adaptability, leadership quality and team-building.

PO Attitude Level: The expected graduate attributes aim at inculcation of the following-

PO8. Ethical values:
Recognizing and respecting different value systems including one's own, to understand the moral dimensions of one's decisions, intention to help the society and feeling good about it, commitment to professional duties and responsibilities.

PO9. Self-directed Learning:
Acquiring the ability to explore and gain knowledge in independent ways, keep evolving life-long in the broad context of socio-technological changes.

PO10. Sensitization towards Environment and Sustainability:
Understanding the need for sustainable development and concern for environmental issues, realizing the importance of co-habitation, co-evolution in our achievements of sustainable development goals.

PO11. Gender Sensitization:
Demonstrating knowledge and understanding of gender equity-issues and gender justice.

PO12. Civic Values and Global Citizenship:
Expressing empathetic social concern while helping others when their rights are violated, no matter where in the world they live, to act with an informed awareness on issues, to participate in civic life by volunteering for social justice.

Programme Specific Outcomes (PSOs)
(Each Department can utilize the PSOs or define its own PSOs as per the programme requirements) The list below is just a suggested sample-

Programme Specific Outcomes (PSOs) **Skill and Attitude Levels: The PSOs are indicative with respect to each programme offered to learners.**	Course Outcomes (COs) **Knowledge Level: The COs aim to develop the following abilities in the learners.**
PSO1. Exhibiting factual, conceptual, procedural and metacognitive categories which are central to Humanities (BMM), Science, Commerce (BMS), Bio-Chemistry, Biotechnology, Computer Science, Information Technology, DMLT, as a discipline	**CO1**. to remember learned facts **CO2**. to comprehend and understand complex concepts **CO3**. to apply them in new and real life situations **CO4**. to analyse the fundamental connotations **CO5**. to evaluate the learned concepts **CO6**. to synthesize the practical applications
PSO2. Demonstrating depth and breadth of cognitive/affective(emotion based/psychomotor activity across the range of disciplinary and multi-disciplinary curriculum areas and professional study units	the above listed Cos can be mapped with any of POs + PSOs

PSO3. Articulating the transformative purpose and potential of education in society. Reflecting on, evaluating learning, teaching approaches and explaining why current educational knowledge is contestable and open to research and further enquiry	the above listed Cos can be mapped with any of POs + PSOs
PSO4. Incorporating insights from theory and research evidence into their developing teaching practice; demonstrating graduate level proficiency in teaching settings – notably in teaching literacy and numeracy and attaining the graduate professional standards relevant to programmes	the above listed Cos can be mapped with any of POs + PSOs
PSO5. Demonstrating language and literacy across a broad range of communication modes and technologies with broad range of professional stakeholders; critically engage with, and communicate ideas in a structured, cohesive, and ethical manner within respective programmes	the above listed Cos can be mapped with any of POs + PSOs
PSO6. Showing their commitment to professional learning by being independent, open-minded, and critically reflective learners; working responsibly in individual and collaborative contexts; seeking out - and learning from - constructive feedback; recognizing the benefits of ongoing professional learning and refinement of their learning practice.	the above listed Cos can be mapped with any of POs + PSOs

Course Outcomes (COs) aims at Knowledge level
Easy Tips:

Use the following chart to see if your outcomes follow **SMART** principles:

Specific	Is there a description of a precise behavior and the situation in which the actions will be performed? Is it concrete, detailed, focused and defined?
Measurable	Can the performance of the qualification descriptors be observed and measured?
Achievable	With a reasonable amount of effort and application can the qualification descriptors be achieved ?
Relevant	Is the qualification descriptor worthwhile to the learner? Is it possible to achieve
Time-bound	Is there a time limit, percentage or frequency clearly stated? When will the qualification descriptors be accomplished?

Bloom's Taxonomy Based Action Verbs to prepare Course Outcomes (COs)
NOTE: as per each departments requirements any one action verb under each listed levels to be used to prepare the COs

Remembering	Understanding	Applying	Analysing	Evaluating	Creating
Exhibit memory of previously learned content by recalling facts, terms, basic concepts and answers.	**Demonstrate understanding of facts and ideas by organizing, comparing, interpreting, giving descriptions and stating main ideas.**	**Solve problems to new situations by applying acquired knowledge, facts, techniques and rules in a different way.**	**Examine and divide information into parts by identifying motives or causes. Draw inferences and find evidence to support generalizations.**	**Present and defend opinions by making judgments about information, validity of ideas, or quality of work based on a set of criteria.**	**Compile information together in a different way by placing elements in a new pattern or proposing new solutions.**
define	ask	act	advertise	appraise	adapt
describe	associate	administer	analyse	argue	anticipate
enumerate	cite	apply	appraise	assess	assemble
examine	classify	articulate	calculate	choose	collaborate
identify	compare	calculate	categorize	compare	combine
label	contrast	change	classify	conclude	compile
list	convert	chart	compare	consider	compose
locate	differentiate	choose	conclude	convince	construct
match	discover	collect	connect	criticize	create
memorize	discuss	complete	contrast	critique	design
name	distinguish	compute	correlate	debate	develop
observe	estimate	construct	criticize	decide	devise
quote	explain	determine	deduce	defend	express
read	express	develop	devise	discriminate	facilitate
recall	extend	discover	differentiate	distinguish	formulate
recite	generalize	dramatize	discriminate	editorialize	generalize
recognize	give examples	employ	dissect	estimate	hypothesize
record	illustrate	establish	distinguish	evaluate	infer
repeat	indicate	examine	divide	find errors	integrate
reproduce	infer	experiment	estimate	grade	intervene
retell	interpret	explain	evaluate	judge	invent
select	judge	illustrate	experiment	justify	justify
state	observe	interpret	explain	measure	manage
tabulate	order	judge	focus	order	modify
tell	paraphrase	modify	illustrate	persuade	negotiate
visualize	predict	operate	infer	predict	originate
	relate	practice	order	rank	plan
	report	predict	organize	rate	prepare
	represent	prepare	plan	recommend	produce
	research	produce	prioritize	reframe	propose
	restate	record	select	score	rearrange
	review	relate	separate	select	reorganize
	rewrite	report	subdivide	summarize	report
	select	schedule	survey	support	revise
	show	simulate	test	test	rewrite
	summarize	sketch		weigh	role-play
	trace	solve			simulate
	transform	teach			solve
	translate	transfer			speculate
		write			structure
					test
					validate
					write

Adapted from Anderson, L.W., Krathwohl, D.R. (2001). *A taxonomy for learning, teaching and assessing,* Abridged Edition. Boston, MA: Allyn and Bacon.

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POs-PSOs-COs Table and its Affinity
Mapping of each course of the program to be prepared as listed below:

Name of the Programme		-	Name of the Department		
Programme Code		Name of the Course		Course Code:	
Semester		Credits		Lectures per week	

Note: 1. At the department level, prepare a table of POs (6 – 9 statements) and PSOs (3-4 statements)
2. If departments <u>do not have PSOs</u>, place a dash under PSO Column
3. If certain <u>departments have PSOs</u>, state it under the column
4. It is recommended to implement POs as a gradual improvement that starts from First Year level advancing to Third Year and eventually to Post-graduate level

POs	PO Statements
PO1	
PO2	
...	
PSOs	PSO Statements
PSO1	
...	

Affinity with		COs	Statements	Cognitive Levels
PO	PSO			
		CO1		
		CO2		
		CO3		
		CO4		
		CO5		
		CO6		
PO- **Program Outcome,** PSO-**Program Specific outcome;** CO-**Course Outcome;** Cognitive Levels**: R-Remembering; U-Understanding; Ap-Apply; An-Analyze; E-Evaluate; C-Create**				

SECTION C – Appendix

Sample POs and COs

Manual for Self-study Report Autonomous Colleges NAAC *for Quality and Excellence in Higher Education*
NOTES
It is considered necessary to provide some examples for the different levels of learning outcomes at higher education level. While no agency has defined the POs of General Higher Education three year programme in India, POs of all professional Programmes in engineering and other areas are identified at the national level by the concerned accrediting agency. Given below is set of POs of an engineering Programme identified by National Board of Accreditation (NBA). In respect of PSOs and COs, examples from science and social science disciplines are given. These are not comprehensive or exhaustive. But, they point out the manner in which these outcomes can be stated for any educational Programme/course. In case the HEI has these already stated, they may be submitted; however, if at any of these three levels outcomes are not listed, they may be developed and uploaded in Institutional website.

Credits
A credit system is a systematic way of describing an educational programme by attaching credits to its components. University Grants Commission defines one credit as
1 Theory period of one hour per week over a semester
1 Tutorial period of one hour per week over a semester
1 Practical period of two hour per week over a semester

Programme Outcomes
For Every degree Programme broad expectations should be listed by the Institution. Examples are given below from NBA for an Engineering Degree Programme.

POs of General Higher Education Programmes should be identified by the Institution/Autonomous College offering the three year Programmes

Sample POs of General Higher Education Programmes:
Students of all undergraduate general degree Programmes at the time of graduation will be able to
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.**Effective Communication**: Speak, read, write and listen clearly in person and through electronic media in English and in one Indian language, and make meaning of the world by connecting people, ideas, books, media and technology.
PO3. **Social Interaction**: Elicit views of others, mediate disagreements and help reach conclusions in group settings.
PO4. **Effective Citizenship**: Demonstrate empathetic social concern and equity centred national development, and the ability to act with an informed awareness of issues and participate in civic life through volunteering.
PO5. **Ethics**: Recognize different value systems including your own, understand the moral dimensions of your decisions, and accept responsibility for them.

PO6. **Environment and Sustainability**: Understand the issues of environmental contexts and sustainable development.

PO7. **Self-directed and Life-long Learning**: Acquire the ability to engage in independent and life-long learning in the broadest

Program Specific Outcomes:

These should largely reflect the PO's defined by the Institute. However, some PSO's may be different from PO's

Sample PSOs of BSc Zoology

PSO1. Describe 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 and Ecology

PSO4. Explain the applications of biological sciences in Apiculture, Aquaculture, Agriculture and Medicine

Sample PSOs of BA Economics

PSO1: Describe the behaviour of Indian and World economy,

PSO2: Analyse macroeconomic policies including fiscal and monetary policies of India

PSO3: Determine economic variables including inflation, unemployment, poverty, GDP, Balance of Payments using statistical methods

PSO4: Understand the behaviour of financial and money markets and perform cost-benefit analysis for making investment decisions

Sample COs of the course "Animal Diversity – Non Chordata"

CO1 Describe general taxonomic rules on animal classification

CO2 Classify Protista up to phylum using examples from parasitic adaptation

CO3 Classify Phylum Porifera with taxonomic keys

CO4 Describe the phylum Coelenterata and its polymorphism

CO5 Write down the life history of Fasciola and its classification

CO6 Describe Phylum Nematoda and give examples of pathogenic Nematodes

CO7 Identify the characters of Phylum Annelida with its classification

CO8 Write down the classification and characteristics of Phylum Arthropoda

CO9 Identify the given Mollusca with respect to economic importance

CO10 Write down the classification and characteristics of Phylum Echinodermata, Phylum Hemichordata and minor phylas

References

Anderson, L.W., Krathwohl, D.R. (2001). *A taxonomy for learning, teaching and assessing,* Abridged Edition. Boston, MA: Allyn and Bacon

Spady, William G., *Outcome-Based Education: Critical Issues and Answers*, American Association of School Administrators, Arlington, Va. ISBN-0-87652-183-994

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http://www.naac.gov.in/images/docs/Manuals/RAF-Autonomous-Manual 14_02_2019.pdf