

MUC WOMEN'S COLLEGE

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Program Outcomes and Program Specific Outcomes

The institutions should also set certain Course Outcomes (COs) to every course and subject. And there must be a documented process in place to measure the attainment of defined POs and the defined COs must contribute to the attainment of POs.

Program Outcomes (POs) represent the knowledge, skills and attitudes the students should have at the end of a three year undergraduation program in India. **Undergraduate college like us, POs are** what the graduates of an undergraduate program (**BA/BSc**) should be able to do at the time of graduation. **The POs are discipline non-specific.**

Pos:

BA/Arts

Sample

Upon graduation, students earning any of these degrees should be able to:

- PO1**· Assess the existing knowledge, concepts, techniques, and methodology appropriate to the graduate's chosen discipline.
- PO2**· Conceive and plan a high-quality research and/or creative capstone project in the appropriate disciplinary or multi-disciplinary context.
- PO3**· Apply discipline-based and/or cross-discipline-based knowledge to design a problem-solving strategy
- PO4**· Identify major issues, debates, or approaches appropriate to the discipline
- PO5**· Synthesize complex information appropriate to the discipline
- PO6**· Select and organize credible evidence to support converging arguments
- PO7**· Develop an argument in accordance with the methods of the discipline
- PO8**· Solve discipline-based and/or cross-discipline-based problems using strategies appropriate to the subject
- PO9**· Employ writing conventions appropriate to the discipline
- PO10**· Exhibit disciplined work habits as an individual

Program Specific Outcomes (PSOs) are what the graduates of **a specific undergraduate program (BA/BSc) should be able to do** at the time of graduation.

The PSOs are program specific. PSOs are written by the Department offering the program. **PSOs should be two to four in number.** A Department can differentiate its program through PSOs.

Some sample **PSOs** are:

Geography

Sample 1

PSO 1. Survey, map and plan layouts for different geographical areas

PSO 2. Specify, design, supervise, test and evaluate foundations and superstructures for residences, public buildings, industries, irrigation structures, powerhouses, highways, railways, airways, docks and harbors.

PSO 3. Analyze water resources hydrological systems to estimate safe and assured withdrawals, and specify, design, and evaluate water conveying systems, hydraulic machines and surge systems

PSO 4. Specify, assess and formulate environmental hazards monitoring systems

Sample 2

PSO 1. Survey, conduct geo-technical investigations collect data, make feasibility studies, and design irrigation structures, powerhouses and highways, dam, aligning a road or water way and creating a township in a region.

PSO 2. Understand the impact of water, air and noise pollution, and the methods of waste containment, and specify, design and analyze water, sewerage and industrial effluent conveying and treatment systems.

PSO 3. Analyze water resources and hydrological systems to estimate safe, flood discharges and assured withdrawals, and specify and design/select hydraulic machines/systems and surge systems

PSO 4. Understand modern management and construction techniques to complete the projects within the stipulated period and funds.

Economics

Sample 1

PSO 1· Students will analyze and evaluate positions on economic issues, showing that they can break an economic issue down into the various economic principles and concepts that form the basis of the position and identify the competing sides on the issue.

PSO 2· Students will critique an economic position in terms of the accuracy of its representations of economic principles and concepts and the soundness of its use of those concepts and principles to make a claim about economics.

PSO 3· Students will solve real-world economic problems effectively in the context of an industry or field of study, showing that they can identify and collect the appropriate economic data, analyze data in terms of costs and benefits, present economic data and solutions to problems in a way that is clear and accurate, and come to a reasoned judgment concerning benefits within the constraints of costs and can express that judgment convincingly for an audience who must act on it.

PSO 4· Students will explain economics to lay audiences, showing that they can translate economic concepts and principles into terms that can be understood by both general and specific audiences.

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POs:

BSc/Science

Sample

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PSOs for Pure science

Example: sample **PSOs FOR Computer Science** are:

Sample 1

PSO 1. Specify, design, develop, test and maintain usable software systems that behave reliably and efficiently and satisfy all the requirements that customers have defined for them

PSO 2. Develop software systems that would perform tasks related to Research, Education and Training and/or E-governance

Sample 2

PSO 1. Specify, design, and develop system software (Language Translators, Languages, Operating Systems and User Interface) to allow convenient use of a computer.

PSO 2. Determine and optimize the performance of a given algorithm on a given platform

PSO 3. Specify, design and develop software for intelligent systems.

PSO 4. Specify, design and develop concurrent and parallel programs

Sample 3

PSO 1. Specify, design, develop, test and manage reliable and efficient application software systems as per user requirements.

PSO 2. Specify, design, and develop system software to allow convenient use of computing systems.

PSO 3. Specify, design, develop and test application software systems for world-wide network of computers.

PSO 4. Develop application software that would perform tasks related to Information Management and Mobiles.

PSOs for Bioscience

Example:

PSOs for MICROBIOLOGY are:

Following Completion of the Microbiology Course students will be able to:

Knowledge/ Cognitive:

PSO 1· Use examples of infections, treatment, and epidemiologic control to compare and contrast the characteristics of prions, viruses, bacteria, protozoans, and multicellular parasites.

PSO 2· Explain the dynamics of commensal and pathological relationships that occur between microbes and humans.

PSO 3· Evaluate methods of microbial control and apply the proper methods necessary when given a scenario.

PSO 4· Briefly describe sample metabolic pathways found in microorganisms and their implications for food production and human disease.

PSO 5· Summarize basic bacterial genetic principles and analyze implications for mutation, genetic recombination, and bacterial control.

PSO 6· Articulate and diagram the role of the immune system in maintaining homeostasis, challenging infections, and fighting cancer.

Skills/ Psychomotor

PSO 1· Apply the scientific method by stating a question; researching the topic; determining appropriate tests; performing tests; collecting, analyzing, and presenting data; and finally

PSO 2· Correctly perform microbiologic lab skills and display a habit of good lab practices which extends to relevant situations in the student's homes.

Attitudes and behavior/ Affective

PSO 1· Retrieve, evaluate, and use microbiologic information regarding contemporary issues in the world and relevant to their everyday lives.

COURSE OUTCOME ASSESSMENT METHODOLOGY

The process of attainment of COs, POs and PSOs starts from writing appropriate COs for each course in the three-year UG degree program. The course outcomes are written using action verbs of learning levels as suggested by **Bloom Taxonomy**.

Then, a correlation is established between COs and POs and COs and PSOs on the **scale of 0 to 3**, **0** being **no correlation**, **1** being the **low correlation**, **2** being **medium correlation** and **3** being **high correlation**.

For example, A 6x12 mapping matrix of COs-POs and 6x3 mapping matrix of COs-PSOs is prepared in this regard for all courses (i.e. papers mentioned in the syllabus) in the program. Course Outcomes and the CO-PO & CO-PSO mapping matrix for a **sample course** are discussed below.

Course Outcomes (CO) of Course 1: Microprocessors and Microcontrollers (for Computer science)

The student will be able to

1. Apply the fundamentals of assembly language programming of microprocessor and microcontroller.
2. Implement microcontroller and microprocessor interfaces including serial ports, ADCs and DACs etc.
3. Utilize hardware and software interaction and integration.
4. Develop real time embedded systems using microprocessor and microcontrollers
5. Analyse microprocessor and microcontroller based digital circuits
6. Detect faults in commercial applications using microprocessor and microcontroller.

And POs are:

PO1. Engineering Knowledge

PO2. Problem Analysis

PO3. Design/development of solutions

PO4. Conduct Investigations of Complex Problems

PO5. Modern Tool Usage

PO6. The Engineer and Society

PO7. Environment and Sustainability

PO8. Ethics:

PO9. Individual and Team Work

PO10. Communication

PO11. Project Management and Finance

PO12. Life-long learning

Then **Table I** shows “CO-PO” mapping matrix and **Table II.2** shows CO-PSO” mapping matrix

Table II.1 CO – PO Matrix for EC- 504 Microprocessors and Microcontrollers

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1-01	3	3	3	2	-	2	1	2	2	3	3	3
CO1-02	3	3	2	-	3	2	1	2	-	1	3	3
CO1-03	3	3	2	3	3	2	1	2	2	3	3	3
CO1-04	3	3	2	2	-	2	1	2	3	-	3	3
CO1-05	3	2	2	-	3	2	1	2	-	-	3	3
CO1-06	2	3	2	2	3	2	1	2	3	3	3	3
Total	17	17	13	9	12	12	6	12	10	10	18	18
*Average	2.8	2.8	2.2	2.2	3.0	2.0	1.0	2.0	2.3	3	3	3

***[Each column Total / Total number of CO here 6]**

Similarly if PSOs are:

1. Specify, design, prototype and test modern electronic systems that perform analog and digital processing functions.
2. Architect, partition, and select appropriate technologies for implementation of a specified communication system.
3. Design essential elements (circuits and antennas) of modern RF/Wireless communication systems.

Then

Table II.2 CO – PSO Matrix for EC- 504 Microprocessors and Microcontrollers

	PSO1	PSO2	PSO3
CO1-01	3	2	-
CO1-02	3	3	-
CO1-.03	3	3	2
CO1- 04	3	2	-
CO1- 05	3	1	1
CO1- 06	3	1	1
Total	18	12	4
Average	3	2	1.5

Sd/-

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Sd/-

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