Steps of attainment of CO- POs (2020 pattern syllabus)

1. Calculate CO attainment for each course of internal assessment
   i. Consolidated for all Assessment methods (Direct & Indirect)
      1. PBA- Practical Based assessment
      2. TBA- Tutorial base assessment
      3. Mid Term
      4. SPPU Exam
      5. Indirect - Course Exit Survey

   ii. Refer the below table for attainment level

Criteria	Attainment Level
less than 50% having more than average marks	1
50% or more students having more than average marks	2
60% or more students having more than average marks	3

   iii. Calculate CO attainment for each course of external assessment

2. Distribute these values proportionately (Strong - 3, Medium - 2, Low/Poor - 1) in CO-PO matrix of the respective course.

3. Calculate final attainment for related PO.

4. Calculate indirect assessment values based on Alumni Survey, Student Survey and Employer Survey.

5. Calculate final Attainment value by considering Direct Assessment -80% and Indirect Assessment -20%.

Evaluation of Course Outcomes:

Method	Tools for Assessment	% Contribution	
Direct (Internal+External)	Internal Exam including Internal Assessment	30	80%
	External Examination	50	
Indirect	Course Exit Survey	20%	

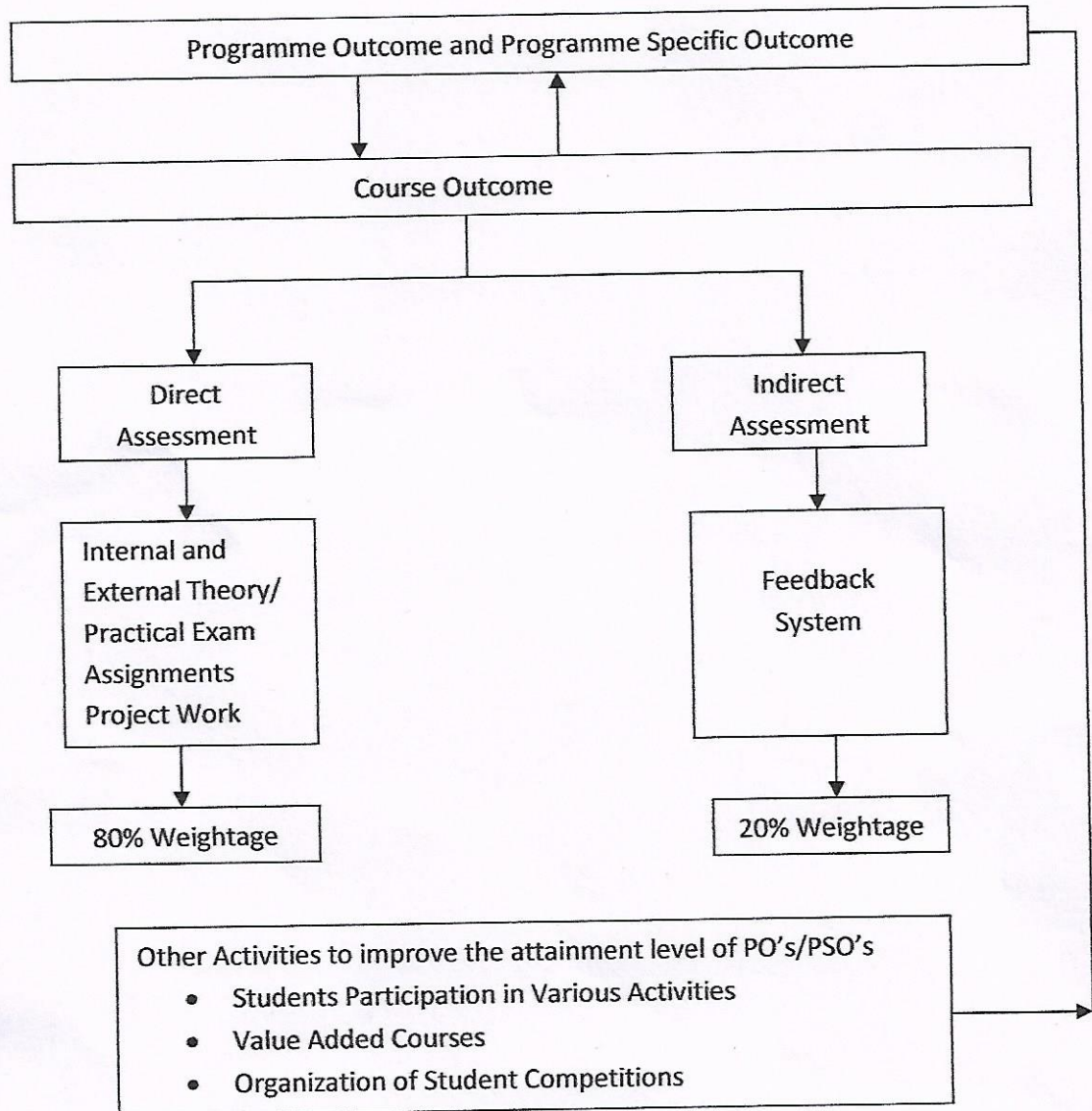## MECHANISM OF COURSE OUTCOME PROGRAMME OUTCOME ATTAINMENT

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┌─────────────────────────────────────────────────────────────┐
│      Programme Outcome and Programme Specific Outcome         │
└─────────────────────────────────────────────────────────────┘

┌─────────────────────────────────────────────────────────────┐
│                      Course Outcome                          │
└─────────────────────────────────────────────────────────────┘

        ┌──────────────────┐          ┌──────────────────┐
        │      Direct      │          │     Indirect     │
        │    Assessment    │          │    Assessment    │
        └──────────────────┘          └──────────────────┘

    ┌──────────────────────┐       ┌──────────────────────┐
    │ Internal and         │       │                      │
    │ External Theory/     │       │     Feedback         │
    │ Practical Exam       │       │     System           │
    │ Assignments          │       │                      │
    │ Project Work         │       │                      │
    └──────────────────────┘       └──────────────────────┘

       ┌──────────────────┐           ┌──────────────────┐
       │  80% Weightage   │           │  20% Weightage   │
       └──────────────────┘           └──────────────────┘
```

Other Activities to improve the attainment level of PO's/PSO's

- Students Participation in Various Activities
- Value Added Courses
- Organization of Student Competitions

Evaluation of Attainment of Programme Outcomes:

Method	Tools for Assessment	% Contribution
Direct	PO Attainment of all courses(Average)	80%
Indirect	1. Programme Exit Survey 2. Alumni Survey 3.Empolyer Survey 4. Extracurricular activities	20%

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Course Exit Survey(OS)

1. Exam Seat No.

    _____

2. Student name

    _____

3. How far student the need of Operating System?

    Mark only one oval.

    ( ) Excellent

    ( ) Very Good

    ( ) Good

    ( ) Satisfactory

    ( ) Poor

4. Degree of understanding the usage of different Process scheduling in order to increase the time utilization of CPU.

    Mark only one oval.

    ( ) Excellent

    ( ) Very Good

    ( ) Good

    ( ) Satisfactory

    ( ) Poor

5. How far inter-process communication and associated techniques will make use of resources in efficient manner.

Mark only one oval.

- ◯ Excellent
- ◯ Very Good
- ◯ Good
- ◯ Satisfactory
- ◯ Poor

6. Usage of different techniques (Paging, Partitions and Segmentation) for better memory management.

Mark only one oval.

- ◯ Excellent
- ◯ Very Good
- ◯ Good
- ◯ Satisfactory
- ◯ Poor

7. How analyze the effective usage of different input and output devices with deadlock issues.

Mark only one oval.

- ◯ Excellent
- ◯ Very Good
- ◯ Good
- ◯ Satisfactory
- ◯ Poor

8. How we can optimize the usage of file system with access methods and directory structure. Case Study - Linux system.

Mark only one oval.

◯ Excellent

◯ Very Good

◯ Good

◯ Satisfactory

◯ Poor

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