JSPM's

Imperial College of Engineering and Research, Wagholi, Pune.

(Approved by AICTE, Delhi & Govt. of Maharashtra, affiliated to Savitribai Phule Pune University)

Gat.No.720,Pune-Nagar road,Wagholi,Pune,412207

Phone No. 020-67335102   **website**: www.icoer.in   **Email**- principal.imperial2016@gmail.com

PROF. DR.T.J.SAWANT   **DR.R.S. DESHPANDE**
FOUNDER SECRETARY   **PRINCIPAL**

Attainment process of Course Outcomes and Program Outcomes
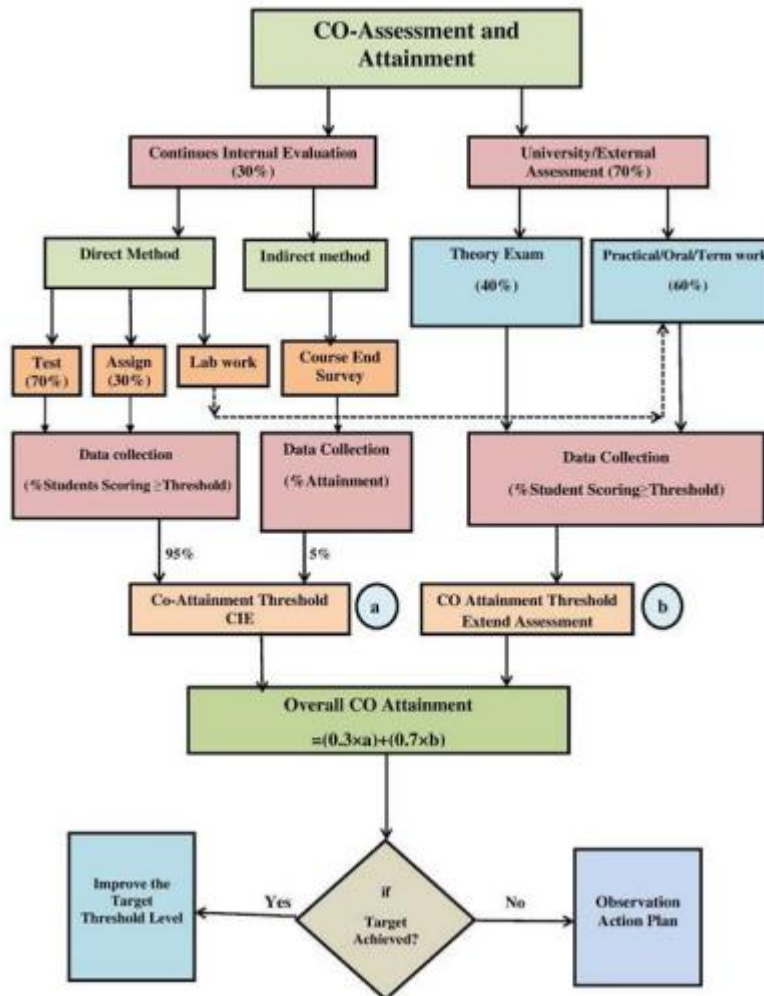## Computer Engineering Department

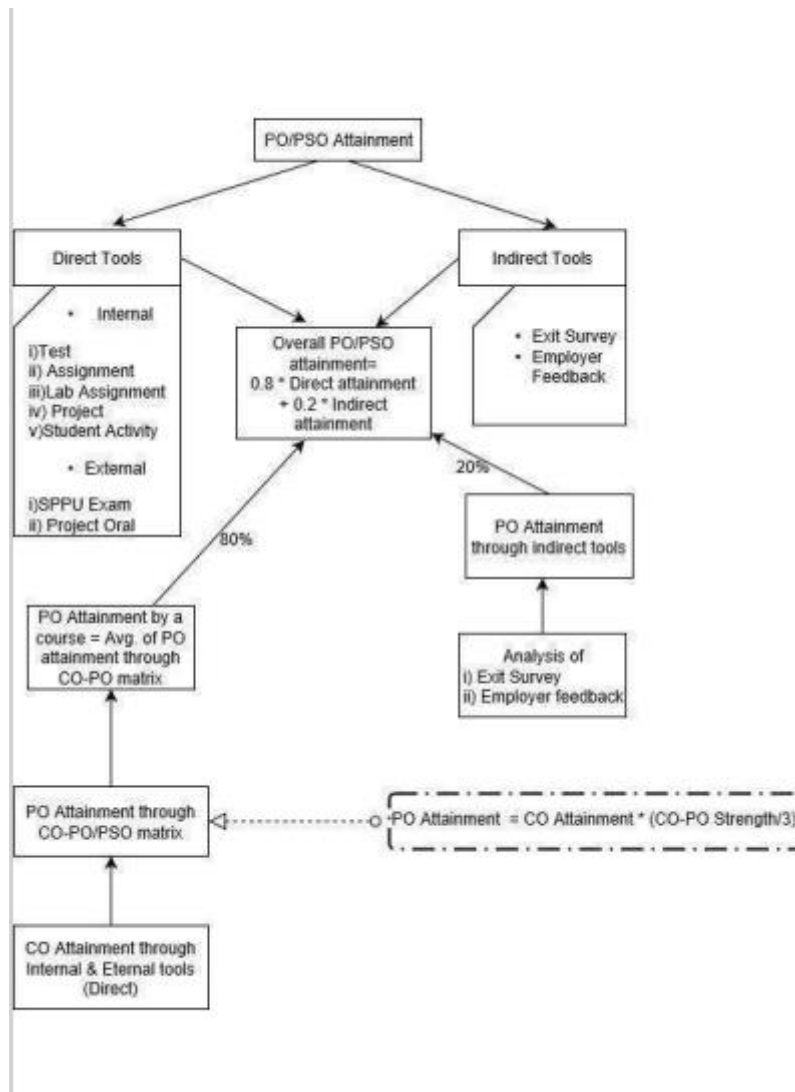## Fig. Flowchart for CO assessment & attainment

JSPM's
Imperial College of Engineering and Research, Wagholi, Pune.
(Approved by AICTE, Delhi & Govt. of Maharashtra, affiliated to Savitribai Phule Pune University)
Gat.No.720,Pune-Nagar road,Wagholi,Pune,412207
Phone No. 020-67335102   **website**: www.icoer.in   **Email**- principal.imperial2016@gmail.com

PROF. DR.T.J.SAWANT	DR.R.S. DESHPANDE
FOUNDER SECRETARY	PRINCIPAL

Fig. Flowchart for PO/PSO attainment

Program Outcomes provided by NBA are followed and Program Specific Outcomes as defined by the Program.

The following are the program specific outcomes:

PSO1	The ability to understand the principles and development methodologies in computer engineering.
PSO2	The ability to apply mathematical methodologies to solve computation task, model real world problem using appropriate data structures and suitable

JSPM's
Imperial College of Engineering and Research, Wagholi, Pune.
(Approved by AICTE, Delhi & Govt. of Maharashtra, affiliated to Savitribai Phule Pune University)
Gat.No.720,Pune-Nagar road,Wagholi,Pune,412207
Phone No. 020-67335102   **website**: www.icoer.in   **Email**- principal.imperial2016@gmail.com

PROF. DR.T.J.SAWANT   **DR.R.S. DESHPANDE**
FOUNDER SECRETARY   **PRINCIPAL**

	algorithms.
PSO3	The ability to use various programming languages and platforms to address industrial needs.

Course Outcomes (COs)

Course Name: Data Structure and algorithms	C2 13	Course Year: 2019-2020

Course/COs	Course Outcome
C2 13.1	Explain various data structure and algorithm design method for a specified application and analyze the complexity of given Algorithms.
C2 13.2	Implement various applications of array with operations like searching, insertion, and deletion, traversing mechanism etc
C2 13.3	Use dynamic memory allocation to implement linked list and its applications.
C2 13.4	Implement and apply stack concepts in applications like algebraic conversion.
C2 13.5	Identify basic operations of queue, circular Queue, DEQUE and its implementation.
C2 13.6	Compare various techniques for searching and sorting

Course Name: Principles of Programming Languages	C225	Course Year :2019-2020

Course/COs	Course Outcome
C2 25.1	Analyze the basic concepts of programming language, the general problems and methods related to syntax & semantics.
C2 25.2	Interpret the structured data objects, subprograms and programmer defined data types.
C2 25.3	To Explain different programming paradigms.
C2 25.4	To inculcate the principles underlying the programming languages enabling to learn JAVA programming language.
C2 25.5	To demonstrate the principles of Object-Oriented Programming using java.

JSPM's
Imperial College of Engineering and Research, Wagholi, Pune.
(Approved by AICTE, Delhi & Govt. of Maharashtra, affiliated to Savitribai Phule Pune University)
Gat.No.720,Pune-Nagar road,Wagholi,Pune,412207
Phone No. 020-67335102   **website**: www.icoer.in   **Email**- principal.imperial2016@gmail.com

PROF. DR.T.J.SAWANT   **DR.R.S. DESHPANDE**
FOUNDER SECRETARY   **PRINCIPAL**

Course Name: Database Management Systems	C312	Course Year :2019-2020

Course/COs	Course Outcome
C3 12.1	Design database schema using data models.
C3 12.2	Apply database techniques such as SQL and PL/SQL for DB design &develop
C3 12.3	Demonstrate an understanding of normalization theory and apply such knowledge to the database design.
C3 12.4	Discuss transaction management, Concurrency Control & query optimization.
C3 12.5	Describe different database architecture and analyses the use of appropriate architecture in real time application.
C3 12.6	Implement modern database techniques

Course Name: Information systems and Engineering Economics	C314	Course Year: 2019-2020

Course/COs	Course Outcome
C3 14.1	Understand the importance of an information system to an organization
C3 14.2	Understand activities in managing, designing, planning, implementation and deployment of computerized system in Information System to an organization
C3 14.3	Student would be aware of various Information System solutions like ERP, CRM, Data warehouses and the issues in successful implementation of these technology solutions in any organizations
C3 14.4	Outline the past history, present position and expected performance of a company engaged in engineering practice or in the computer industry.
C3 14.5	Evaluate present worth, future worth and annual worth analyses, economic alternatives
C3 14.6	Evaluate benefit/cost, lifecycle and breakeven analysis on one or more economic alternatives

Course Name: Machine Learning	C4 21	Course Year: 2019-2020

Course/COs	Course Outcome
C4 21.1	Describe basic knowledge of Machine Learning

JSPM's
Imperial College of Engineering and Research, Wagholi, Pune.
(Approved by AICTE, Delhi & Govt. of Maharashtra, affiliated to Savitribai Phule Pune University)
Gat.No.720,Pune-Nagar road,Wagholi,Pune,412207
Phone No. 020-67335102   **website**: www.icoer.in   **Email**- principal.imperial2016@gmail.com

PROF. DR.T.J.SAWANT   **DR.R.S. DESHPANDE**
FOUNDER SECRETARY   **PRINCIPAL**

C4 21.2	Apply different preprocessing methods to prepare training data set for machine learning
C4 21.3	Explain and implement various regression techniques to classify supervised and unsupervised ML algorithm
C4 21.4	Classify and apply the various regression mode and to compute predicted values for related cases
C4 21.5	Apply decision-based learning algorithm and Meta classifier to classify given data set
C4 21.6	Apply deep learning algorithm to solve real time problems

CO-PO-PSO matrices of courses selected above
1. Course name: C213

Course	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	P10	P11	P12
C213.1	2	1	-	-	-	-	-	-	-	-	-	-
C213.2	2	1	-	-	-	-	-	-	-	-	-	-
C213.3	2	1	-	-	-	-	-	-	-	-	-	-
C213.4	3	1	-	-	-	-	-	-	-	-	-	-
C213.5	2	1	-	-	-	-	-	-	-	-	-	-
C213.6	2	1	-	-	-	-	-	-	-	-	-	-
Average	**2.00**	**1.00**	-	-	-	-	-	-	-	-	-	-

2. Course name: C225

Course	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	P10	P11	P12
C225.1	1	1	1	3	1	-	-	-	-	-	-	-
C225.2	2	2	3	-	1	-	-	-	-	-	-	-
C225.3	2	2	1	-	1	-	-	-	-	-	-	-
C225.4	1	1	1	-	1	-	-	-	-	-	-	-
C225.5	1	1	1	-	1	-	-	-	-	-	-	-
C225.6	2	2	3	-	1	-	-	-	-	-	-	-
Average	**1.50**	**1.50**	**1.67**	**3**	**1.00**	-	-	-	-	-	-	-

3. Course name: C312

Course	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	P10	P11	P12
C312.1	1	1	1	-	1	-	-	-	-	-	-	-
C312.2	2	2	3	-	1	-	-	-	-	-	-	-
C312.3	2	2	1	-	1	-	-	-	-	-	-	-
C312.4	1	2	1	-	1	-	-	-	-	-	-	-
C312.5	1	2	1	-	1	-	-	-	-	-	-	-
C312.6	2	2	3	-	1	-	-	-	-	-	-	-

JSPM's
Imperial College of Engineering and Research, Wagholi, Pune.
(Approved by AICTE, Delhi & Govt. of Maharashtra, affiliated to Savitribai Phule Pune University)
Gat.No.720,Pune-Nagar road,Wagholi,Pune,412207
Phone No. 020-67335102   **website**: www.icoer.in   **Email**- principal.imperial2016@gmail.com

PROF. DR.T.J.SAWANT   **DR.R.S. DESHPANDE**
FOUNDER SECRETARY   **PRINCIPAL**

Average	2.50	1.50	1.67	-	1.0	-	-	-	-	-	-	-

4. Course name: C322

Course	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	P10	P11	P12
C322.1	1	1	1	-	-	-	-	-	-	-	-	-
C322.2	2	2	2	-	-	-	-	-	-	-	-	-
C322.3	2	2	2	-	-	-	-	-	-	-	-	-
C322.4	1	1	1	-	-	-	-	-	-	-	-	-
C322.5	1	1	1	-	-	-	-	-	-	-	-	-
C322.6	1	1	1	-	-	-	-	-	-	-	-	-
Average	**1.17**	**1.33**	**1.33**	-	-	-	-	-	-	-	-	-

5. Course name: C414

Course	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	P10	P11	P12
C414.1	1	1	1	-	1	-	-	-	-	-	-	1
C414.2	1	1	2	-	1	-	-	-	-	-	-	1
C414.3	1	1	2	-	1	-	-	-	-	-	-	1
C414.4	1	1	1	-	1	-	-	-	-	-	-	1
C414.5	1	1	1	-	1	-	-	-	-	-	-	1
C414.6	1	1	1	-	1	-	-	-	-	-	-	1
Average	**1.00**	**1.00**	**1.33**	-	**1.00**	-	-	-	-	-	-	**1.00**

6. Course name: C421

Course	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	P10	P11	P12
C421.1	-	-	-	-	1	2	2	1	2	2	2	1
C421.2	1	1	2	-	1	2	2	1	2	2	2	1
C421.3	1	1	2	-	1	2	2	1	2	2	2	1
C421.4	1	1	2	-	1	2	2	1	2	2	2	1
C421.5	2	2	2	-	1	2	2	1	2	2	2	1
C421.6	2	2	2	-	1	2	2	1	2	2	2	1
Average	**1.83**	**1.40**	**2.00**	-	**1.00**	**2.00**	**2.00**	**1.00**	**2.00**	**2.00**	**2.00**	**1.00**

1. Course Name: C213

Course	PSO1	PSO2	PSO3
C213.1	1	2	1
C213.2	1	2	1

JSPM's
Imperial College of Engineering and Research, Wagholi, Pune.
(Approved by AICTE, Delhi & Govt. of Maharashtra, affiliated to Savitribai Phule Pune University)
Gat.No.720,Pune-Nagar road,Wagholi,Pune,412207
Phone No. 020-67335102   **website**: www.icoer.in   **Email**- principal.imperial2016@gmail.com

PROF. DR.T.J.SAWANT   **DR.R.S. DESHPANDE**
FOUNDER SECRETARY   **PRINCIPAL**

C213.3	1	2	1
C213.4	1	2	1
C213.5	2	2	2
C213.6	2	2	2
Average	**1.33**	**2.00**	**1.33**

2. Course Name: C225

Course	PSO1	PSO2	PSO3
C225.1	1	1	-
C225.2	1	1	-
C225.3	1	1	-
C225.4	1	1	-
C225.5	1	1	-
C225.6	1	1	-
Average	**1.00**	**1.00**	**-**

3. Course Name: C312

Course	PSO1	PSO2	PSO3
C312.1	3	1	1
C312.2	3	1	3
C312.3	3	1	2
C312.4	3	1	1
C312.5	2	1	1
C312.6	3	1	3
Average	**2.83**	**1.00**	**1.83**

4. Course Name: C322

Course	PSO1	PSO2	PSO3
C322.1	2	2	3
C322.2	2	2	2
C322.3	2	2	3
C322.4	2	2	2
C322.5	2	2	2
C322.6	1	1	2
Average	**1.83**	**1.83**	**2.33**

5. Course Name: C414

Course	PSO1	PSO2	PSO3

JSPM's

Imperial College of Engineering and Research, Wagholi, Pune.
(Approved by AICTE, Delhi & Govt. of Maharashtra, affiliated to Savitribai Phule Pune University)
Gat.No.720,Pune-Nagar road,Wagholi,Pune,412207
Phone No. 020-67335102   **website**: www.icoer.in   **Email**- principal.imperial2016@gmail.com

PROF. DR.T.J.SAWANT   **DR.R.S. DESHPANDE**
FOUNDER SECRETARY   **PRINCIPAL**

C414.1	1	1	1
C414.2	1	2	1
C414.3	2	2	1
C414.4	2	2	2
C414.5	2	2	1
C414.6	1	1	1
Average	**1.50**	**1.67**	**1.17**

6. Course Name: C421

Course	PSO1	PSO2	PSO3
C421.1	2	1	1
C421.2	1	2	1
C421.3	2	2	1
C421.4	1	2	1
C421.5	2	2	1
C421.6	2	2	1
Average	**1.67**	**1.83**	**1.00**

Program level Course-PO matrix of all courses INCLUDING first year courses (10)

Course	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	P10	P11	P12
C111	2.00	2.00	-	-	-	-	-	-	-	-	-	-
C112	1.00	1.00	-	-	-	-	-	-	-	-	-	-
C113	2.00	1.00	-	-	-	-	-	-	-	-	-	-
C114	1.33	1.80	-	1.00	-	1.00	-	-	-	-	-	-
C115	1.75	-	-	-	-	-	-	-	-	-	-	-
C116	2.00	2.00	-	2.00	-	-	-	-	-	-	-	-
C117	2.00	-	2.00	-	-	-	-	-	-	-	-	-
C121	2.00	2.00	-	-	-	-	-	-	-	-	-	-
C122	1.67	1.00	-	-	-	-	1.00	-	-	-	-	1.00
C123	1.83	1.83	1.00	-	-	-	-	-	-	-	-	-
C124	2.00	1.67	1.00	-	-	-	-	-	-	-	-	-
C125	2.00	1.00	-	-	-	-	-	-	-	-	-	-
C126	1.25	-	-	-	-	-	-	-	-	-	-	-
C127	2.00	2.00	-	-	-	-	-	-	-	-	-	-
C211	1.67	1.33	-	-	-	-	-	-	-	-	-	-

JSPM's
Imperial College of Engineering and Research, Wagholi, Pune.
(Approved by AICTE, Delhi & Govt. of Maharashtra, affiliated to Savitribai Phule Pune University)
Gat.No.720,Pune-Nagar road,Wagholi,Pune,412207
Phone No. 020-67335102   **website**: www.icoer.in   **Email**- principal.imperial2016@gmail.com

PROF. DR.T.J.SAWANT   **DR.R.S. DESHPANDE**
FOUNDER SECRETARY   **PRINCIPAL**

C212	2.00	1.50	1.67	1.00	-	-	-	-	1.00	1.00	-	-
C213	2.00	1.33	-	-	-	-	-	-	-	-	-	-
C214	2.00	1.60	1.00	2.00	-	-	-	-	-	-	-	-
C215	1.67	1.00	-	-	-	-	-	-	-	-	-	-
C216	1.00	-	-	-	-	1.00	-	1.00	1.17	2.00	-	1.00
C221	2.00	1.50	-	-	-	-	-	-	-	-	-	-
C222	2.00	1.67	1.25	1.00	-	-	-	-	-	-	-	-
C223	1.67	1.50	-	-	-	-	-	-	-	-	-	-
C224	1.50	1.33	1.67	1.67	1.00	-	-	-	1.00	1.00	-	-
C225	1.50	1.50	1.60	-	1.00	-	-	-	-	-	-	-
C311	1.83	1.67	1.80	-	-	-	-	-	-	-	-	-
C312	2.50	1.50	1.67	-	1.00	-	-	-	-	-	-	-
C313	1.83	1.60	-	1.00	-	-	-	-	-	-	-	-
C314	1.67	1.25	-	-	-	-	-	-	-	-	-	-
C315	1.00	1.00	-	-	-	-	-	-	-	-	-	-
C316	2.33	2.33	2.67	2.00	1.00	2.00	1.67	1.00	1.67	1.67	1.33	1.33
C321	2.17	2.00	1.33	-	-	-	-	-	-	-	-	-
C322	1.17	1.33	1.33	-	-	-	-	-	-	-	-	-
C323	1.17	1.33	1.33	-	-	-	-	-	-	-	-	-
C324	2.00	1.83	2.00	-	-	-	-	-	-	-	-	-
C325	2.33	1.50	1.33	-	1.00	-	-	-	-	-	-	-
C326	1.00	-	-	-	-	1.33	1.00	1.67	1.67	2.00	-	1.00
C411	2.17	2.17	2.50	2.00	1.00	2.00	2.00	1.00	2.00	2.00	2.00	1.00
C412	2.00	1.25	1.17	1.33	1.00	2.00	2.00	1.00	2.00	2.00	2.00	1.00
C413	1.67	2.00	2.00	-	1.00	2.00	2.00	1.00	2.00	2.00	2.00	1.00
C414	1.00	1.00	1.33	-	1.00	-	-	-	-	-	-	1.00
C415	1.83	1.83	1.80	1.30	1.00	2.00	2.00	1.00	2.00	2.00	2.00	1.00

JSPM's
Imperial College of Engineering and Research, Wagholi, Pune.
(Approved by AICTE, Delhi & Govt. of Maharashtra, affiliated to Savitribai Phule Pune University)
Gat.No.720,Pune-Nagar road,Wagholi,Pune,412207
Phone No. 020-67335102   **website**: www.icoer.in   **Email**- principal.imperial2016@gmail.com

PROF. DR.T.J.SAWANT   **DR.R.S. DESHPANDE**
FOUNDER SECRETARY   **PRINCIPAL**

C416	2.50	3.00	2.33	2.33	2.00	2.00	2.00	1.00	3.00	3.00	2.00	2.00
C421	1.83	1.40	2.00	-	1.00	2.00	2.00	1.00	2.00	2.00	2.00	1.00
C422	2.00	1.00	-	-	1.00	2.00	2.00	1.00	2.00	2.00	2.00	1.00
C423	1.67	1.67	1.33	-	-	2.00	2.00	1.00	1.67	2.17	2.17	1.00
C424	2.00	1.00	-	-	1.00	2.00	2.00	1.00	2.00	2.00	2.00	1.00
C425	2.8	2.50	2.00	2.00	1.67	2.00	2.00	2.00	3.00	3.00	2.00	2.00

Program level Course-PSO matrix of all courses INCLUDING first year courses

Course	PSO1	PSO2	PSO3
C111	1.667	1	-
C112	-	-	1
C113	3	2	-
C114	-	-	1
C115	2.333	2	-
C116	1	1	-
C117	1	1	-
C121	-	-	-
C122	1	-	-
C123	1	-	-
C124	2	1	-
C125	-	-	1
C126	1	1.33	1.05
C211	-	-	1
C212	1.66	1	-
C213	2	1.5	-
C214	1.33	2	1.33
C215	2.333	2	-
C216	1	1	-
C221	1	-	-
C222	1	-	-

JSPM's
Imperial College of Engineering and Research, Wagholi, Pune.
(Approved by AICTE, Delhi & Govt. of Maharashtra, affiliated to Savitribai Phule Pune University)
Gat.No.720,Pune-Nagar road,Wagholi,Pune,412207
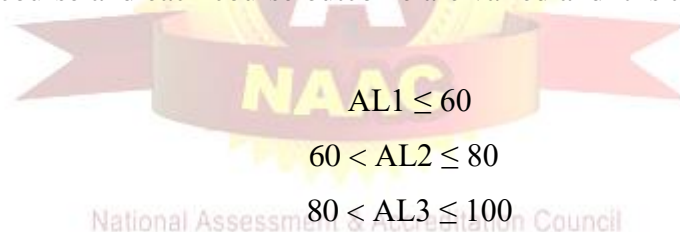**Phone No**. 020-67335102   **website**: www.icoer.in   **Email**- principal.imperial2016@gmail.com

PROF. DR.T.J.SAWANT   **DR.R.S. DESHPANDE**
FOUNDER SECRETARY   **PRINCIPAL**

C223	2	1	-
C224	-	-	1
C225	1	1	-
C311	1	1	-
C312	2.83	1	1.83
C313	1	-	-
C314	2	-	-
C315	1	-	-
C316	1	-	-
C321	1	-	-
C322	1.83	1.83	2.33
C323	1	-	-
C324	1	1	-
C325	1.33	-	1
C326	1	-	1
C411	1.33	-	1
C412	1	3	1
C413	-	3	1.5
C414	1.50	1.67	1.66
C415	2	-	-
C416	1	-	1.33
C421	1.66	1.83	1.00
C422	-	-	2
C423	1	2	-
C424	2	2	-
C425	2	1.33	-

Attainment of Course Outcomes

The assessment process used to gather the data for evaluation of course outcomes is presented here. The assessment is done in two ways, direct assessment and indirect assessment as shown in table below. The direct assessment can be internal and external.

Table 1 Assessment tools used for CO assessment

Type of Assessment	Assessment Tool	Frequency

JSPM's
Imperial College of Engineering and Research, Wagholi, Pune.
(Approved by AICTE, Delhi & Govt. of Maharashtra, affiliated to Savitribai Phule Pune University)
Gat.No.720,Pune-Nagar road,Wagholi,Pune,412207
Phone No. 020-67335102   **website**: www.icoer.in   **Email**- principal.imperial2016@gmail.com

PROF. DR.T.J.SAWANT   **DR.R.S. DESHPANDE**
FOUNDER SECRETARY   **PRINCIPAL**

Direct (Internal)	Test	SE- 3 in Semester
		TE, BE- 3 in Semester
	Assignments	SE- 3 in Semester
		TE, BE- 3 in Semester
	Lab Experiment	Each Experiment
	Review of Seminar	Once in semester
	Review of Project	Once in semester
	Activities e.g., Presentation, Quiz, Industrial Visits	As per requirement of Subject
Indirect (Internal)	Course End Survey	At the end of semester
	Student Exit Survey	At end of Course
Direct (External)	University Exam	As per University Schedule

The attainment level baskets are shown below which clearly states the various levels of attainments. Attainment level 1, attainment level 2 and attainment level 3. When more than 80% of students score more than target level then achieved attainment level is level 3. The target set for each course and each course outcome are varied and it is as per difficulty level of course.

$$AL1 \leq 60$$
$$60 < AL2 \leq 80$$
$$80 < AL3 \leq 100$$

The following figure shows course assessment tools and procedure of course attainment.

The Course Assessment is done in two ways- Internal and external assessment. The weightage defined for Internal Assessment is 30% of the total and for external assessment 70% of the total.

Internal assessment is done with the help of different direct and indirect tools. Thresholds for both the tools are defined and collected data is analyzed as per the defined thresholds. Attainment of Cos calculated by defining 95% weightage to direct tools and 5% for indirect tool.

JSPM's
Imperial College of Engineering and Research, Wagholi, Pune.
(Approved by AICTE, Delhi & Govt. of Maharashtra, affiliated to Savitribai Phule Pune University)
Gat.No.720,Pune-Nagar road,Wagholi,Pune,412207
Phone No. 020-67335102   **website**: www.icoer.in   **Email**- principal.imperial2016@gmail.com

PROF. DR.T.J.SAWANT   **DR.R.S. DESHPANDE**
FOUNDER SECRETARY   **PRINCIPAL**

External assessment is done with direct tools wherein the Final results from SPPU are considered (like Theory, Practical/Oral, and Term Work etc.) Thresholds for the tools are defined and collected data is analyzed as per the defined thresholds. Attainment of Cos calculated by defining 70% weightage to External assessment tools.

The overall CO attainment is calculated as per follows:

Overall CO Attainment = 30% of Internal Assessment + 70% of External Assessment

If the Set target for attainment of CO is achieved then for next year the target is revised for the course. If the target is not achieved then the analysis is done to define observations for the same and action plan is prepared for the improvement.

JSPM's
Imperial College of Engineering and Research, Wagholi, Pune.
(Approved by AICTE, Delhi & Govt. of Maharashtra, affiliated to Savitribai Phule Pune University)
Gat.No.720,Pune-Nagar road,Wagholi,Pune,412207
Phone No. 020-67335102   **website**: www.icoer.in   **Email**- principal.imperial2016@gmail.com

PROF. DR.T.J.SAWANT   **DR.R.S. DESHPANDE**
FOUNDER SECRETARY   **PRINCIPAL**

Figure 1 Process of CO assessment and attainment calculation

JSPM's
Imperial College of Engineering and Research, Wagholi, Pune.
(Approved by AICTE, Delhi & Govt. of Maharashtra, affiliated to Savitribai Phule Pune University)
Gat.No.720,Pune-Nagar road,Wagholi,Pune,412207
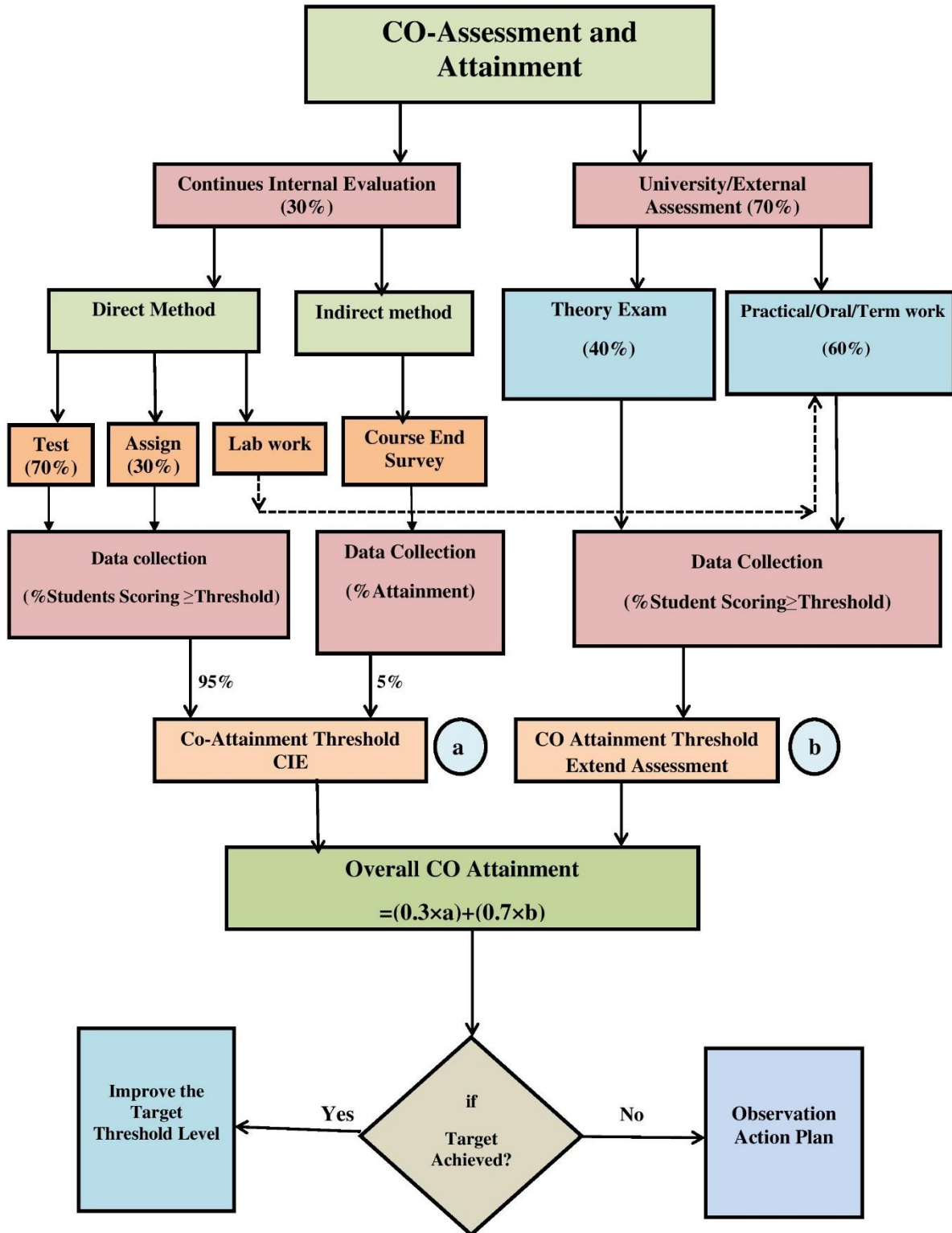**Phone No**. 020-67335102   **website**: www.icoer.in   **Email**- principal.imperial2016@gmail.com

PROF. DR.T.J.SAWANT   **DR.R.S. DESHPANDE**
FOUNDER SECRETARY   **PRINCIPAL**

JSPM's

Imperial College of Engineering and Research, Wagholi, Pune.

(Approved by AICTE, Delhi & Govt. of Maharashtra, affiliated to Savitribai Phule Pune University)

Gat.No.720,Pune-Nagar road,Wagholi,Pune,412207

Phone No. 020-67335102   **website**: www.icoer.in   **Email**- principal.imperial2016@gmail.com

PROF. DR.T.J.SAWANT   **DR.R.S. DESHPANDE**

FOUNDER SECRETARY   **PRINCIPAL**

Part A:

Record of Co attainment of sample course C212:

The attainment of course C212 for academic year 2018-19 is shown here. The internal (direct and indirect) and external assessment tools used for the assessments are provided here. The direct or internal attainment is done by assessment of taking test and assignments. The internal assessment for the course C212 and its course outcomes C212.1 is shown below.

Table 2 Assessment and Attainment of CO C212 for Internal Tools

Sr. No.	Students Name	Unit test 1				Assignment 1			
		Max Marks	Obt. Marks	Threshold Marks	Attainment Y or N	Max Marks	Obt. Marks	Threshold Marks	Attainment Y or N
1	Vaishnavee	15	7	9	Y	10	9	6	Y
2	Aditya	15	9	9	Y	10	8	6	Y
3	Yash	15	12	9	Y	10	8	6	Y
4	Dhanashree	15	12	9	Y	10	7	6	Y
5	Vaishnavi	15	13	9	Y	10	7	6	Y
6	Niranjan	15	8	9	N	10	7	6	Y
.	.	.	.	.	.	.	.	.	.
.	.	.	.	.	.	.	.	.	.
.	.	.	.	.	.	.	.	.	.
.	.	.	.	.	.	.	.	.	.
60	Yash	15	10	9	Y	10	6	6	Y
61	Samadhan	15	12	9	Y	10	7	6	Y
	Class Strength Z=61			Total	Y = 48			Total	Y = 59
					N = 13				N = 02
	C212.1 Attainment = (Y/Z) *100	78.69 %				96.72 %			
	Attainment Level of C212.1	2				3			
	Attainment Levels Basket	AL1 ≤ 60 60 < AL2 ≤ 80 80< AL3 ≤ 100							

JSPM's
Imperial College of Engineering and Research, Wagholi, Pune.
(Approved by AICTE, Delhi & Govt. of Maharashtra, affiliated to Savitribai Phule Pune University)
Gat.No.720,Pune-Nagar road,Wagholi,Pune,412207
Phone No. 020-67335102   **website**: www.icoer.in   **Email**- principal.imperial2016@gmail.com

PROF. DR.T.J.SAWANT	DR.R.S. DESHPANDE
FOUNDER SECRETARY	PRINCIPAL

The table 2 shows the assessment and attainment of course outcome C212.1 for internal tools assessment. The internal assessment tools used for C212.1 are Unit test 1 and Assignment 1. Similarly, the assessment and attainment for C212.2 to C212.6 are done.

JSPM's

Imperial College of Engineering and Research, Wagholi, Pune.
(Approved by AICTE, Delhi & Govt. of Maharashtra, affiliated to Savitribai Phule Pune University)
Gat.No.720,Pune-Nagar road,Wagholi,Pune,412207
Phone No. 020-67335102   **website**: www.icoer.in   **Email**- principal.imperial2016@gmail.com

PROF. DR.T.J.SAWANT   **DR.R.S. DESHPANDE**
FOUNDER SECRETARY   **PRINCIPAL**

Table 3 Attainment Analysis and Action taken

Outcome	Attainment		Gap to AL3		Action Taken	
	Unit Test 1	Assignment 1	Unit Test 1	Assignment 1	Unit Test 1	Assignment 1
C212.1	78.69 %	96.72 %	AL is 2	No Gap as attainment is 3	PIP is conducted	No action taken

The table 3 tells us about the attainment analysis of course outcome C212.1, whether any gap is there with respect to target and if there is any gap then the action taken to overcome this gap in subsequent years.

External Tool Assessments through SPPU

Attainment for Theory exam

The following table shows the external tool assessment of CO 212. The subject is of second year which consists of online examination of SPPU of 50 marks. The end semester final examination is of 50 marks.

Table 4 Attainment Analysis of external tool for CO212

Sr. No.	Name of Student	Online C212.1-C212.6			Attainment Y or N
		Max Marks	Obt Marks	Target Marks	
1	Vaishnavee	100	46	40	Y
2	Aditya	100	69	40	Y
3	Yash	100	69	40	Y
4	Dhanashree	100	61	40	Y
5	Vaishnavi	100	60	40	Y
6	Niranjan	100	40	40	Y
.	.	.	.	.	.
.	.	.	.	.	.
60	Uma	100	60	40	Y
61	Surekha	100	54	40	Y
	Class Strength Z =61			Total	Y = 61
					N = 00
	C212.1 Attainment =(Y/Z) *100	100%			

JSPM's

Imperial College of Engineering and Research, Wagholi, Pune.

(Approved by AICTE, Delhi & Govt. of Maharashtra, affiliated to Savitribai Phule Pune University)

Gat.No.720,Pune-Nagar road,Wagholi,Pune,412207

Phone No. 020-67335102   **website**: www.icoer.in   **Email**- principal.imperial2016@gmail.com

PROF. DR.T.J.SAWANT   DR.R.S. DESHPANDE

FOUNDER SECRETARY   PRINCIPAL

Attainment Level OfC212.1	3
Attainment Levels Basket	AL1 ≤ 60 60 < AL2 ≤ 80 80 < AL3 ≤ 100

Attainment level and gap analysis:

Table 5 Gap analysis of CO212 for Theory Exam

Outcome	Attainment	Gap to AL3	Action Taken
C212.1-C212.6	Theory	Theory	Theory
	100%	No Gap as attainment is 3	No action taken

As from table we can clearly see that, attainment level obtained for online exam of SPPU attainment level is 3 and there is no gap in the attainment level.

Attainment for Practical exam and Term work:

Here for calculation of attainment levels all the COs are considered as it is direct assessment of university examination. The practical exam is of 50 marks and threshold marks are 20 marks i.e., 60% of total marks and the TW is of 25 marks and threshold marks are 10 i.e., 40% of total marks.

Table 6 Attainment Analysis of external tool for CO212 of PR and TW

Sr. No.	Name of Student	PR (C212.1-C212.6)				TW (C212.1-C212.6)			
		Max Marks	Obt Marks	Threshold Marks	Attainment Y or N	Max Marks	Obt Marks	Threshold Marks	Attainment Y or N
1	Vaishnavee	50	42	20	Y	25	23	10	Y
2	Aditya	50	37	20	Y	25	22	10	Y
3	Yash	50	39	20	Y	25	21	10	Y
4	Dhanashree	50	38	20	Y	25	22	10	Y
5	Vaishnavi	50	41	20	Y	25	23	10	Y
6	Niranjan	50	23	20	Y	25	21	10	Y
.						.	.	.	.
60	Uma	50	30	20	Y	25	20	10	Y
61	Surekha	50	31	20	Y	25	21	10	Y
	Class Strength Z=61			Total	Y = 61 N = 00			Total	Y = 61 N = 00
	C212.1								

JSPM's
Imperial College of Engineering and Research, Wagholi, Pune.
(Approved by AICTE, Delhi & Govt. of Maharashtra, affiliated to Savitribai Phule Pune University)
Gat.No.720,Pune-Nagar road,Wagholi,Pune,412207
Phone No. 020-67335102   **website**: www.icoer.in   **Email**- principal.imperial2016@gmail.com

PROF. DR.T.J.SAWANT   **DR.R.S. DESHPANDE**
FOUNDER SECRETARY   **PRINCIPAL**

	Attainment = (Y/Z) *100	100%	100%
	Average Of the Above	100%	
	Attainment Level of C212.1-C212.6	3	
	Attainment Levels Basket	AL1 ≤ 60 60 < AL2 ≤ 80 80< AL3 ≤ 100	AL1 ≤ 60 60 < AL2 ≤ 80 80< AL3 ≤ 100

The table 6 shows the assessment and attainment of course outcome C212.1-C212.6 for external tools assessment

Outcome	Attainment	Gap to AL3	Action Taken
	PR/TW	**PR/TW**	**PR/TW**
C212.1- C212.6	100%	No Gap as attainment is 3	No action taken

Attainment for Survey Table 7 Gap analysis of CO212 for PR and TW

The table 7 tells us about the attainment analysis of course outcome C212.1-C212.6. There is no any corrective action taken as attainment level of 3 is achieved.

Attainment for Course End Survey:

Table 8 Attainment Analysis of Course End Survey for Course C212

Survey C212					
Sr. No.	Name of Student	Max Marks	Obt Marks	Target Marks (60%)	Attainment Y or N
1	Vaishnavee	10	7	6	Y
2	Aditya	10	9	6	Y
3	Yash	10	7	6	Y
4	Dhanashree	10	8	6	Y
5	Vaishnavi	10	4	6	N
6	Niranjan	10	5	6	Y
.	.	.	.	.	.
60	Uma	10	7	6	Y
61	Surekha	10	8	6	Y
				Total	Y = 51 N = 10

JSPM's

Imperial College of Engineering and Research, Wagholi, Pune.

(Approved by AICTE, Delhi & Govt. of Maharashtra, affiliated to Savitribai Phule Pune University)

Gat.No.720,Pune-Nagar road,Wagholi,Pune,412207

Phone No. 020-67335102   **website**: www.icoer.in   **Email**- principal.imperial2016@gmail.com

PROF. DR.T.J.SAWANT   **DR.R.S. DESHPANDE**
FOUNDER SECRETARY   **PRINCIPAL**

	C212 Attainment = (Y/Z) *100	83.61%
	Attainment Level Of C212	3
	Attainment Levels Basket	$AL1 \leq 60$ $60 < AL2 \leq 80$ $80 < AL3 \leq 100$

The table 8 shows the assessment and attainment of course C212 for Course End Survey.

Table 9 Gap analysis of Course End Survey for Course C212

Outcome	Attainment	Gap to AL3	Action Taken
C212.1- Co212.6	Survey	Survey	Survey
	83.61%	No Gap as attainment is 3	No action taken

The table 9 tells us about the attainment analysis of course C212, whether any gap is there with respect to target and if there is any gap then the action taken to overcome this gap in subsequent years. Consider a second-year subject named Digital electronics and Logic Design (DELD). The subject has six Cos. C212.1 to C212.6.

Internal Tools Assessment:

The internal assessment tools consist of unit tests and assignments.

Unit test 1 addresses C212.1 and C212.2. Out of the maximum 30 marks for this test 15 marks are associated with C212.1 and 15 marks are associated with C212.2. Unit test 2 addresses C212.3 and C212.4. Out of the maximum 30 marks for this test 15 marks are associated with C212.3 and 15 marks are associated with C212.4. Unit test 3 addresses C212.5 and C212.6. Out of the maximum 30 marks for this test 15 marks are associated with C212.5 and 15 marks are associated with C212.6.

Examples related to attainment levels Vs. targets:

Attainment Level 1: $AL1 \leq 60$, students scoring more than Unit test threshold percentage marks

Attainment Level 2: $60 < AL2 \leq 80$, students scoring more than Unit test threshold percentage

JSPM's
Imperial College of Engineering and Research, Wagholi, Pune.
(Approved by AICTE, Delhi & Govt. of Maharashtra, affiliated to Savitribai Phule Pune University)
Gat.No.720,Pune-Nagar road,Wagholi,Pune,412207
Phone No. 020-67335102   **website**: www.icoer.in   **Email**- principal.imperial2016@gmail.com

PROF. DR.T.J.SAWANT	DR.R.S. DESHPANDE
FOUNDER SECRETARY	PRINCIPAL

marks

Attainment Level 3: $80 < AL3 \leq 100$, students scoring more than Unit test threshold percentage marks

Assignment 1 addresses C212.1 and C212.2. Out of the maximum 20 marks for this Assignment 10 marks are associated with C212.1 and 10 marks are associated with C212.2. Assignment 2 addresses C212.3 and C212.4. Out of the maximum 20 marks for this assignment 10 marks are associated with C212.3 and 10 marks are associated with C212.4. Assignment 3 addresses C212.5 and C212.6. Out of the maximum 20 marks for this assignment 10 marks are associated with C212.5 and 10 marks are associated with C212.6.

The attainment of C212.1 to 212.6 for internal assessment is given in below able:

Table 10 Internal Attainment

	Unit Tests (C)	Assignments (D)	Total (0.7*C+ 0.3*D)	% Attainment of CES (E)	% Attainment of CIE (F)	Attainment Level (0.95E+0.05 F)
C212.1	78.69	96.72	84.09	83.61	84.07	3
C212.2	78.69	96.72	84.09	83.61	84.07	3
C212.3	83.61	96.72	87.54	83.61	87.34	3
C212.4	78.69	95.08	83.60	83.61	83.60	3
C212.5	78.69	96.72	84.09	83.61	84.07	3
C212.6	77.05	93.44	81.96	83.61	82.04	3

Explanation:

For course outcome C212.1 we have internal assessment tools as unit test and assignment. The threshold set for assignment and test are set as per the policy document.

In course outcome C212.1; 78.69% of the students have scored more marks than the threshold set for C212.1 in unit test. In case of assignment 96.72% of the students have scored more marks than the threshold set for C212.1. The total direct attainment is calculated as 70% of

JSPM's
Imperial College of Engineering and Research, Wagholi, Pune.
(Approved by AICTE, Delhi & Govt. of Maharashtra, affiliated to Savitribai Phule Pune University)
Gat.No.720,Pune-Nagar road,Wagholi,Pune,412207
Phone No. 020-67335102 **website**: www.icoer.in **Email**- principal.imperial2016@gmail.com

PROF. DR.T.J.SAWANT   DR.R.S. DESHPANDE
FOUNDER SECRETARY   PRINCIPAL

unit test assessment marks and 30% of assignment assessment marks**.** The In-direct Attainment is taken from course end survey. The total attainment is 95% of direct attainment and 5% of indirect attainment as shown in the example below.

e.g.

Direct Internal attainment for C212.1= 0.7* % obtained in Unit test + 0.3* % obtained in assignment

= (0.7 * 78.69 + 0.3 * 96.72)

= 84.09

In-direct Internal attainment for C212.1 = 83.61

Total CIE attainment = (Direct Internal attainment + In-Direct Internal Attainment) / 2

= (84.09 + 83.61) / 2

= 83.85

As per attainment level basket mentioned above achieved level is 3. Same is done for CO212.2 to CO212.6

External Tools Assessment

The external assessment tools consist of exams conducted by SPPU. External exam consists of online exam, End Sem Exam, Practical/Oral/Term work exam. The online exam addresses course outcomes C212.1 to C212.4. The End Sem exam, Practical/Oral/Term work exam addresses C212.1 to C212.6. The online exam is of 50 marks. End Sem exam is of 50 marks; out of these 50 marks, 24 marks are addressing to C212.1 to C212.4 and 26 marks are addressing to C212.5 to C215.6. The result of theory exam is declared commonly for In-sem and End-sem exam, so for evaluation total theory marks are considered along with practical/oral/term work marks.

Table 11 External Attainment

JSPM's

Imperial College of Engineering and Research, Wagholi, Pune.
(Approved by AICTE, Delhi & Govt. of Maharashtra, affiliated to Savitribai Phule Pune University)
Gat.No.720,Pune-Nagar road,Wagholi,Pune,412207
Phone No. 020-67335102   **website**: www.icoer.in   **Email**- principal.imperial2016@gmail.com

PROF. DR.T.J.SAWANT   **DR.R.S. DESHPANDE**
FOUNDER SECRETARY   **PRINCIPAL**

	Th	Pr	TW	Total = (0.4*th+0.3*pr+0.3*tw)	Attainment Level
C212.1	100	96.72	93.44	97.05	3
C212.2	100	96.72	93.44	97.05	3
C212.3	100	96.72	93.44	97.05	3
C212.4	100	96.72	93.44	97.05	3
C212.5	100	96.72	93.44	97.05	3
C212.6	100	96.72	93.44	97.05	3

Let us take example of C212.1-C212.6: there are three external tools, external theory exam, practical/oral and term work. In external theory exam tool,100 % students scored more than threshold set for same tool, in OR/PR 96.72% students score more than threshold value set for same tool and for TW 93.44% students scored more than threshold value set for same tool. Total attainment of C212.1 for external tool is calculated as 40% for online exam and External theory exam, 30% for External PR and 30% for TW as shown in the example below

e.g.

Total % for C212.1=0.4 * % of TH +0.3% of PR + 0.3 % of TW

$$= (0.4 * 100 + 0.3 * 96.72 + 0.3 * 93.44)$$

$$= 97.05$$

So, the attainment of C212.1 for external assessment tools is 97.05 %. As per attainment level basket mentioned above achieved level is 3. Same is done for CO212.2 to CO212.6

Course Outcome Attainment:

The overall attainment of Course is calculated as follows. To calculate overall course outcome attainment, we have considered the attainment of internal and external marks. The contribution of internal and external attainment for the calculation of overall course outcome attainment is 30%, and 70% respectively as shown in the example below.

E.g., For course outcome C212.1;

Internal attainment is 3 and external attainment 3.

JSPM's
Imperial College of Engineering and Research, Wagholi, Pune.
(Approved by AICTE, Delhi & Govt. of Maharashtra, affiliated to Savitribai Phule Pune University)
Gat.No.720,Pune-Nagar road,Wagholi,Pune,412207
Phone No. 020-67335102   **website**: www.icoer.in   **Email**- principal.imperial2016@gmail.com

PROF. DR.T.J.SAWANT   **DR.R.S. DESHPANDE**
FOUNDER SECRETARY   **PRINCIPAL**

Calculation for attainment level is given below.

Attainment level for C212.1 = (0.3 * Internal attainment + 0.7 * External Attainment)

$$= (0.3 * 3 + 0.7 * 3)$$

$$= 3$$

Hence the overall course outcome attainment for C212.1 is 3. All other course outcomes are calculated as above. The overall course outcome for course C212 is found out by taking average of all course outcomes i.e. (C212.1 to C212.6).

Hence the Course attainment for C212 is 2.13.

Table 11 Total Course Attainment

	Internal Attainment (CIE)	**External Attainment (CEA)**	**Attainment Level**
C212.1	3	3	3.0
C212.2	3	3	3.0
C212.3	3	3	3.0
C212.4	3	3	3.0
C212.5	3	3	3.0
C212.6	3	3	3.0
Course Attainment			3.0

Attainment of Program Outcomes and Program Specific Outcomes:

Table 12 PO- PSO Assessment Tools

Direct Assessment Methods			
Sr. No.	**Tool**	**Description**	**Conduction**
1	Internal Assessment Test	The internal assessment marks for a theory subject	Twice in a Semester for Third Year and thrice in a semester

JSPM's

Imperial College of Engineering and Research, Wagholi, Pune.
(Approved by AICTE, Delhi & Govt. of Maharashtra, affiliated to Savitribai Phule Pune University)
Gat.No.720,Pune-Nagar road,Wagholi,Pune,412207
Phone No. 020-67335102   **website**: www.icoer.in   **Email**- principal.imperial2016@gmail.com

PROF. DR.T.J.SAWANT	DR.R.S. DESHPANDE
FOUNDER SECRETARY	PRINCIPAL

			for Second year
2	Lab Internal Assessment Test	The internal assessment marks for performance in the laboratory	Before the end of every semester
3	Seminar (Internal Assessment)	The internal assessment marks in the case of seminars in the final year shall be based on the evaluation by a committee comprising of head of the department and senior faculty members.	VI th Semester
4	Project Stage- I(External Assessment)	The internal assessment marks in the case of project in the final year shall be based on evaluation by a committee comprising of head of the department, senior faculty members and project guide.	VII th Semester
5	Semester Examination- Theory (External Assessment)	Theory examination is focused on attainment of course outcomes through descriptive exams for the respective theory subjects.	End of every semester
6	Semester Examination- Laboratory (External Assessment)	Practical examination focuses	End of every semester

JSPM's
Imperial College of Engineering and Research, Wagholi, Pune.
(Approved by AICTE, Delhi & Govt. of Maharashtra, affiliated to Savitribai Phule Pune University)
Gat.No.720,Pune-Nagar road,Wagholi,Pune,412207
Phone No. 020-67335102   **website**: www.icoer.in   **Email**- principal.imperial2016@gmail.com

PROF. DR.T.J.SAWANT   **DR.R.S. DESHPANDE**
FOUNDER SECRETARY   **PRINCIPAL**

		on conduction of experiments and viva-voce for attaining their respective course outcomes.	
7	Project Stage- II(External Assessment)	The external assessment marks in the case of project viva voce in the final year shall be based on evaluation of presentation and project report by a committee comprising of internal and external examiner.	VIII th semester
Indirect Assessment Methods			
1	Course Exit Survey	Course exit survey assesses opinions or thoughts about the knowledge acquired by the students in respective theory courses.	End of each course
2	Program Exit Survey	The program exit survey identifies nine broad learning outcomes related to graduate education and asks graduates to indicate the level of reparation provided by their graduate	End of VIII semester

JSPM's
Imperial College of Engineering and Research, Wagholi, Pune.
(Approved by AICTE, Delhi & Govt. of Maharashtra, affiliated to Savitribai Phule Pune University)
Gat.No.720,Pune-Nagar road,Wagholi,Pune,412207
Phone No. 020-67335102   **website**: www.icoer.in   **Email**- principal.imperial2016@gmail.com

PROF. DR.T.J.SAWANT   **DR.R.S. DESHPANDE**
FOUNDER SECRETARY   **PRINCIPAL**

		program.	
3	Employer survey	Employer survey is indicative of the graduate's overall expertise in information science & engineering, his/her communication skills, personal attributes and interpersonal skills.	After employment

The CO- PO and CO-PSO matrix for course C212 of SE i.e., Digital Electronic and Logic Design are given below. The tools used for assessment are divided into two categories. Direct assessment and indirect assessment. Direct assessment for the course C212 consists of Internal and external attainment. Indirect assessment consists of Course Exit Survey, Program Exit Survey and Employer survey. Each CO of course C212 is mapped with PO1-PO12 and the CO-PO mapping for C212 is shown below table 13.

Table 13 CO-PO matrix for CO212

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	P10	P11	P12
C212.1	2	1	2	1	0	0	0	0	1	1	0	0
C212.2	2	2	2	1	0	0	0	0	1	1	0	0
C212.3	2	2	2	1	0	0	0	0	1	1	0	0
C212.4	2	1	2	1	0	0	0	0	1	1	0	0
C212.5	2	2	1	1	0	0	0	0	1	1	0	0
C212.6	2	1	1	1	0	0	0	0	1	1	0	0

For calculation of PO1 attainment, here the average of all Cos i.e., C212.1 to C212.6 is taken and i.e., 3 here. Similarly, for all POs average is taken. After that for calculating PO attainment for the course C212 the following formula is applied.

PO1 attainment = (average of all Cos i.e., C212.1 to C212.6 for PO1 / 3) * Course attainment.

= (2/3) * 3.

= 2

Therefore, the PO1 attainment for the course C212 is 2. Similarly, all PO attainments are shown

JSPM's

Imperial College of Engineering and Research, Wagholi, Pune.

(Approved by AICTE, Delhi & Govt. of Maharashtra, affiliated to Savitribai Phule Pune University)

Gat.No.720,Pune-Nagar road,Wagholi,Pune,412207

Phone No. 020-67335102   **website**: www.icoer.in   **Email**- principal.imperial2016@gmail.com

PROF. DR.T.J.SAWANT   **DR.R.S. DESHPANDE**
FOUNDER SECRETARY   **PRINCIPAL**

below.

Table 14 CO-PO attainment for CO212

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	P10	P11	P12
C212	2.00	1.5	1.67	1	-	-	-	-	1.00	1.00	-	-

The PSO attainment is done in a similar manner

Table 15 CO-PSO attainment for CO212

CO	PSO1	PSO2	PSO3
C212	2.00	1.50	-

Results of evaluation of PO&PSO

PO Attainment:

Course	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
C111	1.75	1.75	-	-	-	-	-	-	-	-	-	-
C112	1.75	0.87	-	-	-	-	-	-	-	-	-	-
C113	1.81	0.90	-	-	-	-	-	-	-	-	-	-
C114	1.56	1.68	-	0.94	-	0.94	0.94	-	-	-	-	-
C115	1.42	-	-	-	-	-	-	-	-	-	-	-
C116	1.50	1.50	-	-	-	-	-	-	-	-	-	-
C121	1.56	1.56	-	-	-	-	-	-	-	-	-	-
C122	2.00	1.00	-	-	-	-	-	-	-	-	-	-
C123	1.49	1.49		0.89	-	-	-	-	-	-	-	-
C124	1.50	1.25	0.75		-	-	-	-	-	-	-	-
C125	1.59	1.59	-	-	-	-	-	-	-	-	-	-
C126	1.25	-	-	-	-	-	-	-	-	-	-	-
C211	0.88	0.70	-	-	-	-	-	-	-	-	-	-
C212	2.00	1.50	1.67	1.00	-	-	-	-	1.00	1.00	-	-
C213	1.68	1.12	-	-	-	-	-	-	-	-	-	-
C214	1.87	1.49	0.93	1.87	-	-	-	-	-	-	-	-
C215	1.56	0.93	-	-	-	-	-	-	-	-	-	-
C216	1.00	-	-	-	-	1.00	-	1.00	1.17	2.00	-	1.00
C221	1.14	0.86	-	-	-	-	-	-	-	-	-	-
C222	1.22	1.02	0.76	0.61	-	-	-	-	-	-	-	-

JSPM's
Imperial College of Engineering and Research, Wagholi, Pune.
(Approved by AICTE, Delhi & Govt. of Maharashtra, affiliated to Savitribai Phule Pune University)
Gat.No.720,Pune-Nagar road,Wagholi,Pune,412207
Phone No. 020-67335102   **website**: www.icoer.in   **Email**- principal.imperial2016@gmail.com

PROF. DR.T.J.SAWANT   **DR.R.S. DESHPANDE**
FOUNDER SECRETARY   **PRINCIPAL**

C223	1.45	1.30	-	-	-	-	-	-	-	-	-	-
C224	1.32	1.17	1.46	1.46	0.88	-	-	-	0.88	0.88	-	-
C225	2.216	1.33	1.41	-	0.88	-	-	-	-	-	-	-
C311	0.77	0.71	0.76	-	-	-	-	-	-	-	-	-
C312	2.36	1.42	1.58	-	0.94	-	-	-	-	-	-	-
C313	1.73	1.51	-	0.94	-	-	-	-	-	-	-	-
C314	1.60	1.20	-	-	-	-	-	-	-	-	-	-
C315	0.92	0.92	0.92	-	-	-	-	-	-	-	-	-
C321	1.36	1.25	0.83	-	-	-	-	-	-	-	-	-
C322	0.74	0.84	0.84	-	-	-	-	-	-	-	-	-
C323	0.95	1.08	1.08	-	-	-	-	-	-	-	-	-
C324	1.89	1.73	1.89	-	-	-	-	-	-	-	-	-
C325	1.90	1.22	1.36	-	0.81	-	-	-	-	-	-	-
C326	0.91	-	-	-	-	1.21	0.91	1.51	1.51	1.81	-	0.91
C411	2.13	2.13	2.45	1.96	0.98	1.96	1.96	0.98	1.96	1.96	1.96	0.98
C412	1.85	1.15	1.08	1.23	0.92	1.85	1.85	0.92	1.85	1.85	1.85	0.92
C413	0.90	0.90	1.20	-	0.90							0.90
C414	1.65	0.90	-	-	0.90	1.81	1.81	0.90	1.81	1.81	1.81	0.90
C415	1.62	1.62	1.60	1.06	0.89	1.77	1.77	0.89	1.77	1.77	1.77	0.89
C416	2.22	2.66	2.07	2.07	1.77	1.77	1.77	0.89	2.66	2.66	1.77	1.77
C421	1.65	1.26	1.81	1.08	0.90	1.81	1.81	0.90	1.81	1.81	1.81	0.90
C422	1.65	1.26	1.8	-	0.9	1.8	1.8	0.9	1.8	1.8	1.8	0.9
C423	1.64	1.64	1.30	-	-	1.96	1.96	0.98	1.64	2.13	2.13	0.98
C424	1.77	0.89	-	-	0.89	1.77	1.77	0.89	1.77	1.77	1.77	0.89
C425	2.54	2.31	1.85	1.85	1.54	1.85	1.85	1.85	2.77	2.77	1.85	1.85

PO Attainment Level

Course	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
Direct Attainment	1.8	1.57	1.64	1.69	1.11	1.81	1.82	1.13	1.88	1.99	1.95	1.16
InDirect Attainment	2.5	2.3	2.8	2.7	2.9	2.6	2.5	2.7	2.9	2.6	2.1	2.6
Overall Attainment (80% of Direct attainment+20% Indirect Attainment)	1.94	1.71	1.88	1.89	1.47	1.97	1.96	1.44	2.08	2.11	1.98	1.44

PSO Attainment:

JSPM's
Imperial College of Engineering and Research, Wagholi, Pune.
(Approved by AICTE, Delhi & Govt. of Maharashtra, affiliated to Savitribai Phule Pune University)
Gat.No.720,Pune-Nagar road,Wagholi,Pune,412207
Phone No. 020-67335102   **website**: www.icoer.in   **Email**- principal.imperial2016@gmail.com

PROF. DR.T.J.SAWANT   **DR.R.S. DESHPANDE**
FOUNDER SECRETARY   **PRINCIPAL**

Course	PSO1	PSO2	PSO3
C111	1.66	1	-
C112	-	-	1
C113	3	2	-
C114	-	-	1
C115	2.33	2	-
C116	-	-	-
C117	-	-	-
C121	0.87	-	-
C122	-	-	-
C123	-	-	-
C124	0.86	-	-
C125	-	-	-
C126	1	-	-
C211	0.88	0.53	-
C212	-	-	1.00
C213	1.12	1.69	1.12
C214	-		0.93
C215	2.33	2.00	-
C216	1.00	1.00	-
C221	0.61	-	-
C222	0.62	-	-
C223	1.74	-	-
C224	-	-	0.88
C225	0.89	0.89	-
C311	0.42	0.42	-
C312	2.67	0.94	-
C313	0.94	-	-
C314	1.93	-	-
C315	0.92	-	-
C316	1.64	1.87	1.64
C321	0.63	-	
C322	1.17	1.17	1.49
C323	0.81	-	-
C324	0.94	0.94	-
C325	1.08	-	0.81
C326	0.91	-	0.91
C411	1.30	-	0.98
C412	0.93	2.78	0.93
C413	-	2.94	0.49
C414	1.36	1.51	1.50
C415	1.77	-	-
C416	0.89	-	1.18
C421	1.51	1.66	0.91

JSPM's

Imperial College of Engineering and Research, Wagholi, Pune.

(Approved by AICTE, Delhi & Govt. of Maharashtra, affiliated to Savitribai Phule Pune University)

Gat.No.720,Pune-Nagar road,Wagholi,Pune,412207

Phone No. 020-67335102   **website**: www.icoer.in   **Email**- principal.imperial2016@gmail.com

PROF. DR.T.J.SAWANT   **DR.R.S. DESHPANDE**
FOUNDER SECRETARY   **PRINCIPAL**

C422	-	-	1.93
C423	1.47	2.94	-
C424	1.77	1.77	-
C425	1.85	1.23	-

PSO Attainment Level:

Course	PSO1	PSO2	PSO3
Direct Attainment	1.46	1.54	1.29
In Direct Attainment	2.7	2	2.5
Overall Attainment	1.71	1.63	1.53