Policy for Attainment Calculation

1. Objective

To systematically measure the extent to which **Course Outcomes (COs)**, **Program Outcomes (POs)**, and **Program Specific Outcomes (PSOs)** are achieved by students, and to use the results for continuous improvement in teaching–learning and assessment processes.

2. Scope

This policy applies to all **undergraduate programs** of the institute seeking NBA accreditation and is to be followed by all faculty members involved in curriculum delivery and assessment.

3. Attainment Targets

- **CO Level:** Target attainment level is fixed (e.g., ≥ 2) at the start of each academic year based on previous years' performance and stakeholder expectations.
- **PO/PSO Level:** Target attainment is set at ≥ 2 aggregate score from direct and indirect methods.

4. Methodology

A. Course Outcomes (CO) Attainment

For Theory Courses

1. Direct Attainment

Assessment process is divided into two parts

a. Internal Assessment (IA)

b. End Semester Examination (ESE)

- **Internal Assessment:** The course outcomes are assessed by the performance of students in the internal exams. The internal exams are divided into **Continuous Assessment** (Two Sessional Exams & One Pre University Test of descriptive questions) and **Teaching Assessment** (Assignments marks).
- **End Semester Examination:** This examination consists of descriptive type questions and is conducted by the Dr. A.P.J. Abdul Kalam Technical University Uttar Pradesh, Lucknow.

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For theory courses, attainment level (AL) is derived from attainment values (AV) as follows:

Not attained	L1 (Low)	L2 (Medium)	L3 (High)
When marks of student are between Minimum and 60% of Average	When marks of student are between 60% of average and 90% of Average	When marks of student are between 90% of average and 110% of Average	When marks of student are between 110% of average and maximum.

1. If marks obtained in a Particular CO is Greater than 110% of average then Attainment level is THREE (level 3), which is considered as **HIGH** level.
2. If marks obtained in a Particular CO is Greater than 90% of average and less than 110% of Average, then Attainment level is TWO (level 2), which is considered as **MEDIUM** level.
3. If marks obtained in a Particular CO is Greater than 60% of average and less than 90% of Average, then Attainment level is ONE (level 1), which is considered as **LOW** level.
4. If marks obtained in a Particular CO is less than 60% of average, then Attainment level is ZERO (level 0), which is considered as **Not Attained** at all.

For Laboratory/Practical Courses:

- As per university guidelines all practical's courses are to be continuously assessed for a maximum Marks.
- In every practical session, the faculty evaluates the students on 10 marks scale in their Practical Attendance and Assessment Record on the following parameters and each parameter amounts to 2.5 marks each

1. Practical Performance
2. Practical Completion/Reading
3. File checking
4. Viva

For Laboratory/Practical Courses, Attainment Level (AL) is derived from Attainment Values (AV) as follows:

Attainment COs for practical

This is **automatically generated** in the matrix as required formula is already put in, total marks of student is found out. After these 4 levels have been decided -

Not attained	L1 (Low)	L2 (Medium)	L3 (High)
When marks of student are below 30%	When marks of student are between 30% and 50%	When marks of student are between 50% and 75%	When marks of student are above 75%.

1. If marks obtained in a particular CO is Greater than 75% of total marks then attainment level is THREE (level 3), which is considered as **HIGH** level.
2. If marks obtained in a particular CO is Greater than 50% and less than 75% of total marks, then attainment level is TWO (level 2), which is considered as **MEDIUM** level.

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3. If marks obtained in a Particular CO is less than 50% and greater than 30% of total marks, then attainment level is ONE (level 1), which is considered as **LOW** level.
4. If marks obtained in a Particular CO is less than 30% of total marks, then Attainment level is ZERO (level 0), which is considered as **NOT ATTAINED** at all.

2. Indirect Attainment

- Measured through:
  - Student feedback on course learning

3. Weightage for CO Attainment Calculation:

- Direct: **80%**
- Indirect: **20%**
- **Final CO Attainment: (Direct×0.8)+(Indirect×0.2)**

5.1 Course Outcome (CO)

- Here **course** means **subject**.
- Course outcomes are narrower statements of what a student expects to know, understand or be able to demonstrate after completion of the course.
- These are the statements as decided by University experts or the member of the faculty of institute in accordance with the University syllabus & its various units for any theoretical subject of programme.
- For lab activities there are no units hence course outcomes are decided on the basis of experiments decided by university.
- Normally number of course outcomes should not be more than six. In our theoretical subjects we decide courses outcomes on the basis of unit wise so normally 5 COs.
- The [I] & [II] mentioned in the below COs relate to levels of Bloom's Taxonomy.

For Example -

For Theory Course **"Basic Electrical Engineering"**

At the end of this course students will demonstrate the ability to:

CO	Statements
C106.1	Apply the concepts of KVL/KCL and network theorems in solving DC circuits [III]
C106.2	Analyze the steady state behavior of single phase and three phase AC electrical circuit. [III]
C106.3	Identify the application areas of a single phase two winding transformer as well as an auto transformer and calculate their efficiency. Also identify the connections of a three phase transformer. [III]
C106.4	Illustrate the working principles of induction motor, synchronous machine as well as DC machine and employ them in different area of applications. [II]
C106.5	Describe the components of low voltage electrical installations and perform elementary calculations for energy consumption.[II]

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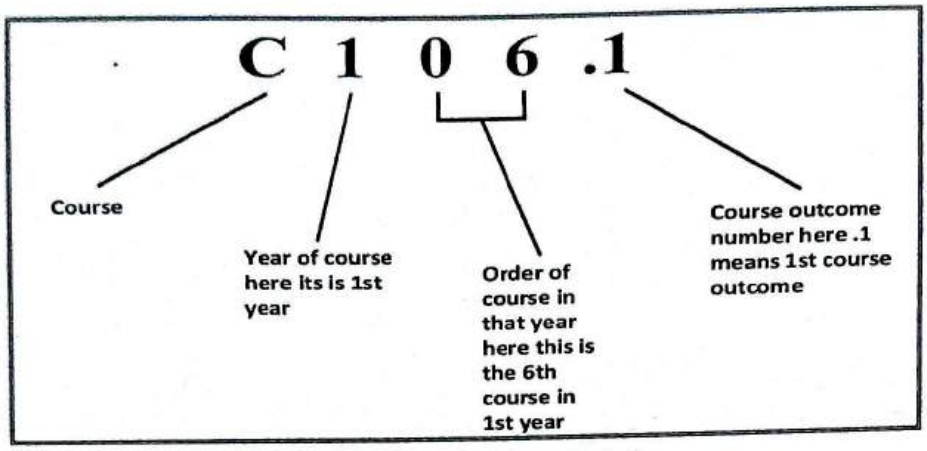
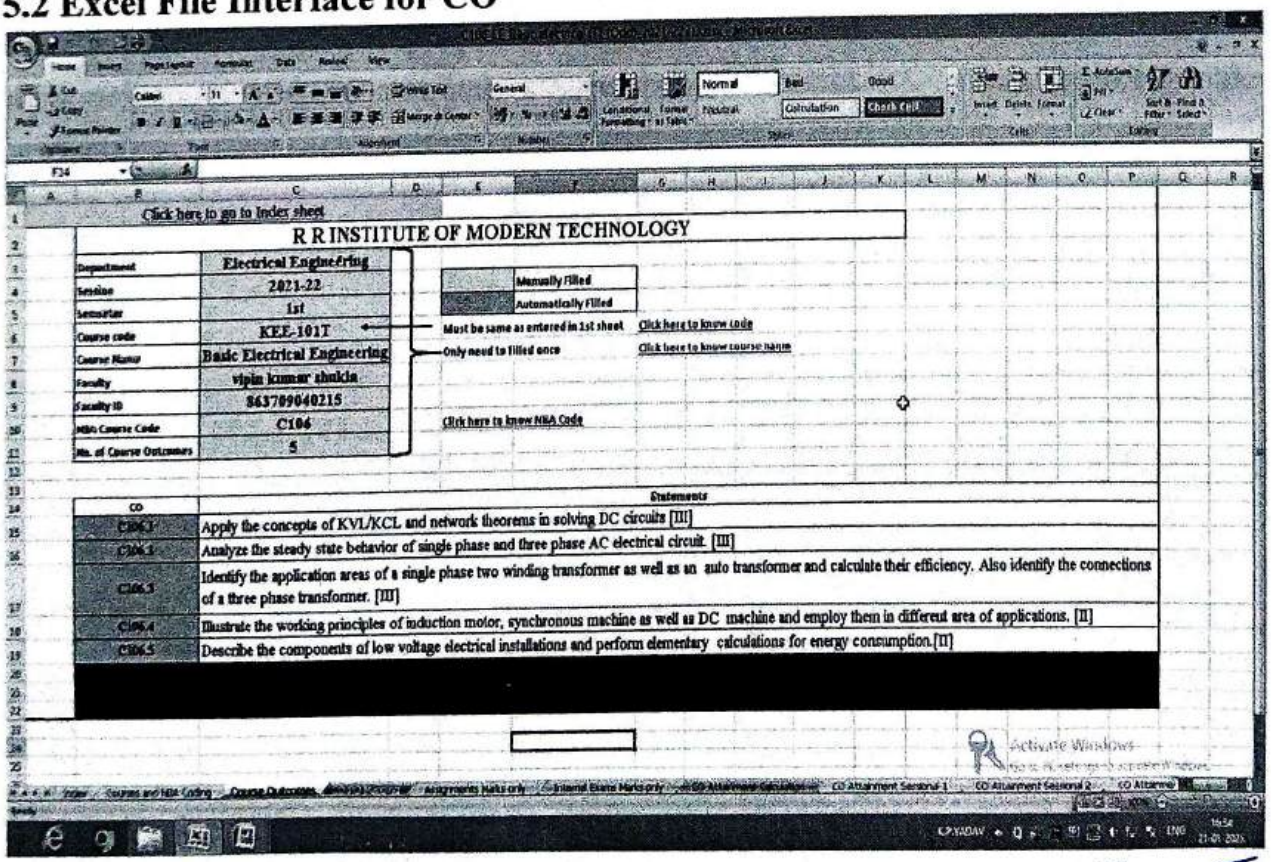


For Laboratory course "**Basic Electrical Engineering Lab**"

At the end of this course students will demonstrate the ability to

CO	Statements
C107.1	Conduct experiments illustrating the application of KVL/KCL and network theorems to DC electrical circuits. [III]
C107.2	Demonstrate the behavior of AC circuits connected to single phase AC supply and measure power in single phase as well as three phase electrical circuits.[IV]
C107.3	Perform experiment illustrating BH curve of magnetic materials. [III]
C107.4	Calculate efficiency of a single phase transformer and DC machine. [II]
C107.5	Perform experiments on speed measurement and reversal of direction of three phase induction motor and Identify the type of DC and AC machines based on their construction. [II]

5.2 Excel File Interface for CO



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Following is the grading criterion to be applied uniformly to all direct assessment processes in theory courses and practical courses.

Table 1 Grading Criterion	
Category	**Percentage Marks**
Excellent	90% ≤ & ≤100
Very Good	70% ≤ & <90%
Good	50% ≤ & <70%
Average	30% ≤ & <50%
Poor	<30%

5.3 Mapping of CO – PO

A matrix is prepared by writing POs in one row and COs in column and each CO is mapped with each PO. This provides strength of correlation between COs and POs and is done by mentioning levels. Following are the levels that are being utilized

1. **Introductory Level** (Level 1) written as 1 or
   The courses outcome which covers the topics that are of introductory in nature and do not explore much beyond the basic definition and fundamentals are usually come under this level.
2. **Reinforce Level** (Level 2) written as 2 or
   When a particular course outcome directly utilizes the concept learned previously in some other course and now in the present course outcome concepts are being reinforced by introducing additional content.
3. **Mastery Level** (Level 3) written as 3.
   These are usually found in courses with advanced topics.
4. If it not mapped at all then put hyphen "-''.

5.4 Mapping of Entire Course

For finding how the entire course is mapped with the POs average is calculated for the COs w.r.t each PO e.g. for PO1 (3+2+2+2+2)/5=2.2

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
C106.1	3	2	-	-	-	-	-	-	-	-	-	1	1	-
C106.2	2	2	1	1	-	-	-	-	-	-	-	1	2	-
C106.3	2	2	2	1	-	-	-	-	-	-	-	2	2	-
C106.4	2	2	2	2	-	-	-	-	-	-	-	2	3	-
C106.5	2	1	2	1	-	-	-	-	-	-	-	2	3	-
C106	2.2	1.8	1.8	1.3	-	-	-	-	-	-	-	1.6	2.2	-

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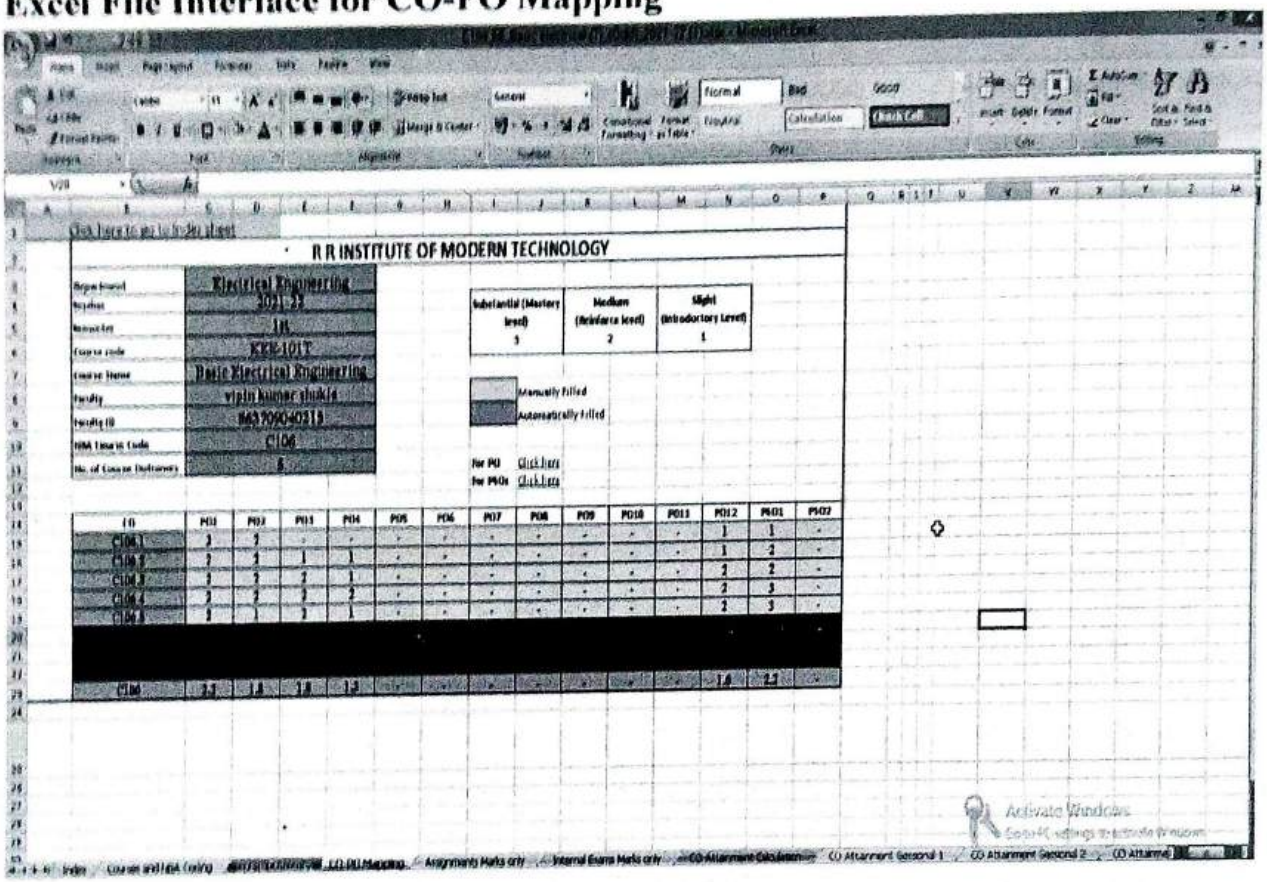
- *Average only includes numerical value if there is "-" then that is not included in calculating the average i.e. if C106.1 vs PO3 was a "-" then average will be (1+2+2+2)/4=1.8*

5.5 Excel File Interface for CO-PO Mapping



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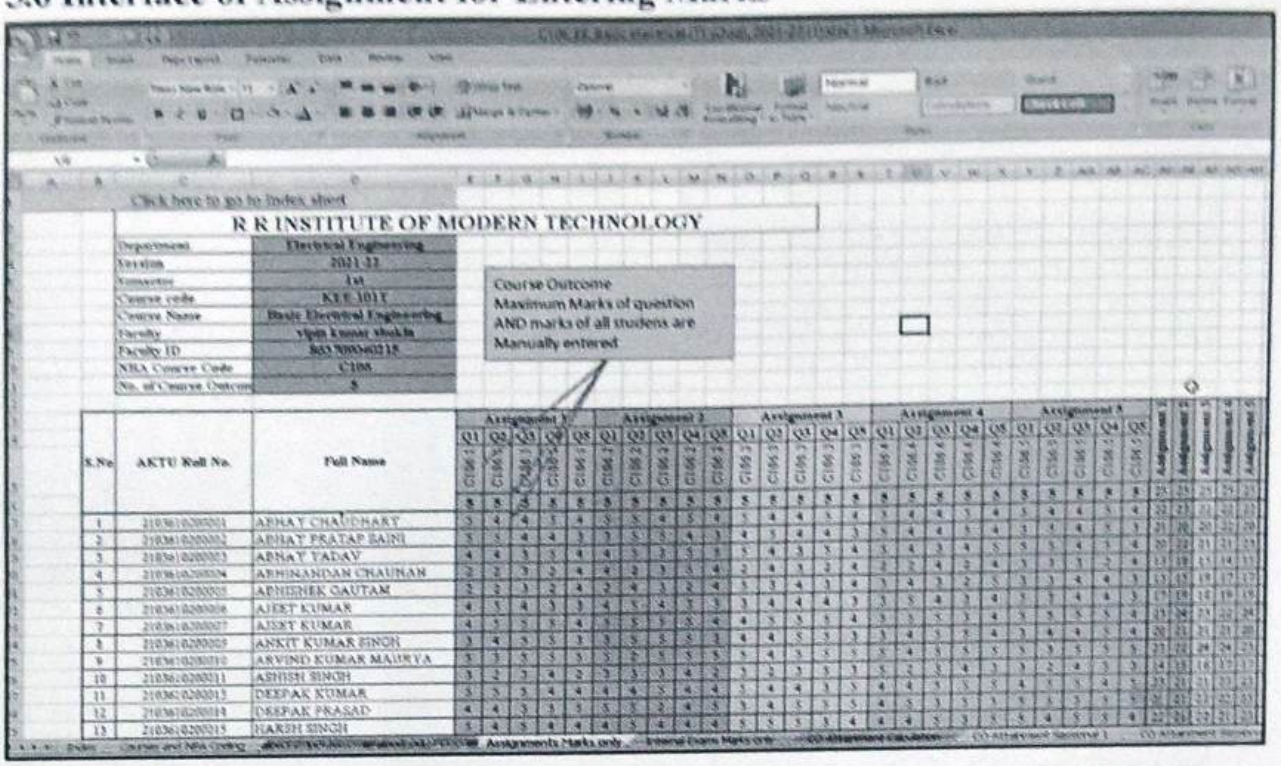
5.6 Interface of Assignment for Entering Marks



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R R INSTITUTE OF MODERN TECHNOLOGY

Department	Electrical Engineering
Session	2021-22
Semester	1st
Course code	KEE-101T
Course Name	Basic Electrical Engineering
Faculty	vipin kumar shukla
Faculty ID	865700040215
NBA Course Code	C108
No. of Course Outcom	5

Course Outcome
Maximum Marks of question
AND marks of all students are
Manually entered

S.No	AKTU Roll No.	Full Name	Assignment 1 Q1 CO1	Q2 CO1	Q3 CO2	Q4 CO3	Q5 CO3	Assignment 2 Q1 CO1	Q2 CO2	Q3 CO2	Q4 CO3	Q5 CO3	Assignment 3 Q1 CO1	Q2 CO2	Q3 CO2	Q4 CO3	Q5 CO3	Assignment 4 Q1 CO1	Q2 CO2	Q3 CO2	Q4 CO3	Q5 CO3	Assignment 5 Q1 CO1	Q2 CO2	Q3 CO2	Q4 CO3	Q5 CO3	Assignment 1	Assignment 2	Assignment 3	Assignment 4	Assignment 5
			5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	25	25	25	25	25
1	2103610200001	ABHAY CHAUDHARY	5	4	4	5	4	5	5	4	5	4	5	4	4	5	4	5	4	4	5	4	5	4	4	5	4	22	23	22	22	22
2	2103610200002	ABHAY PRATAP BAINI	5	5	4	4	3	3	5	5	4	3	4	5	4	4	3	5	4	4	5	4	3	4	4	5	3	21	20	22	20	20
3	2103610200003	ABHAY YADAV	4	4	5	5	4	4	5	5	5	5	5	4	5	5	4	5	5	4	5	4	5	5	5	4	5	23	23	24	24	24
4	2103610200004	ABHINANDAN CHAUHAN	2	2	3	2	4	4	2	3	5	4	2	4	3	2	4	3	2	4	2	4	3	3	3	2	4	13	15	14	15	15
5	2103610200005	ABHISHEK GAUTAM	2	2	3	2	4	2	4	3	2	4	3	3	4	3	4	3	3	4	3	4	3	3	3	4	3	15	15	17	16	16
6	2103610200006	AJEET KUMAR	4	3	4	3	3	4	5	4	3	5	4	4	4	4	3	3	5	4	3	4	5	5	5	5	4	17	19	19	19	24
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8	2103610200009	ANKIT KUMAR SINGH	3	4	3	3	3	3	3	5	5	5	4	4	5	3	3	3	4	3	3	4	3	4	3	3	3	21	22	20	20	20
9	2103610200010	ARVIND KUMAR MAURYA	5	5	5	5	5	5	5	5	5	5	5	4	5	5	5	5	4	5	5	5	5	5	5	5	5	25	25	25	25	25
10	2103610200011	ASHISH SINGH	3	2	3	4	2	3	3	3	4	2	3	2	3	3	3	3	2	3	4	3	3	3	3	3	4	15	15	17	16	16
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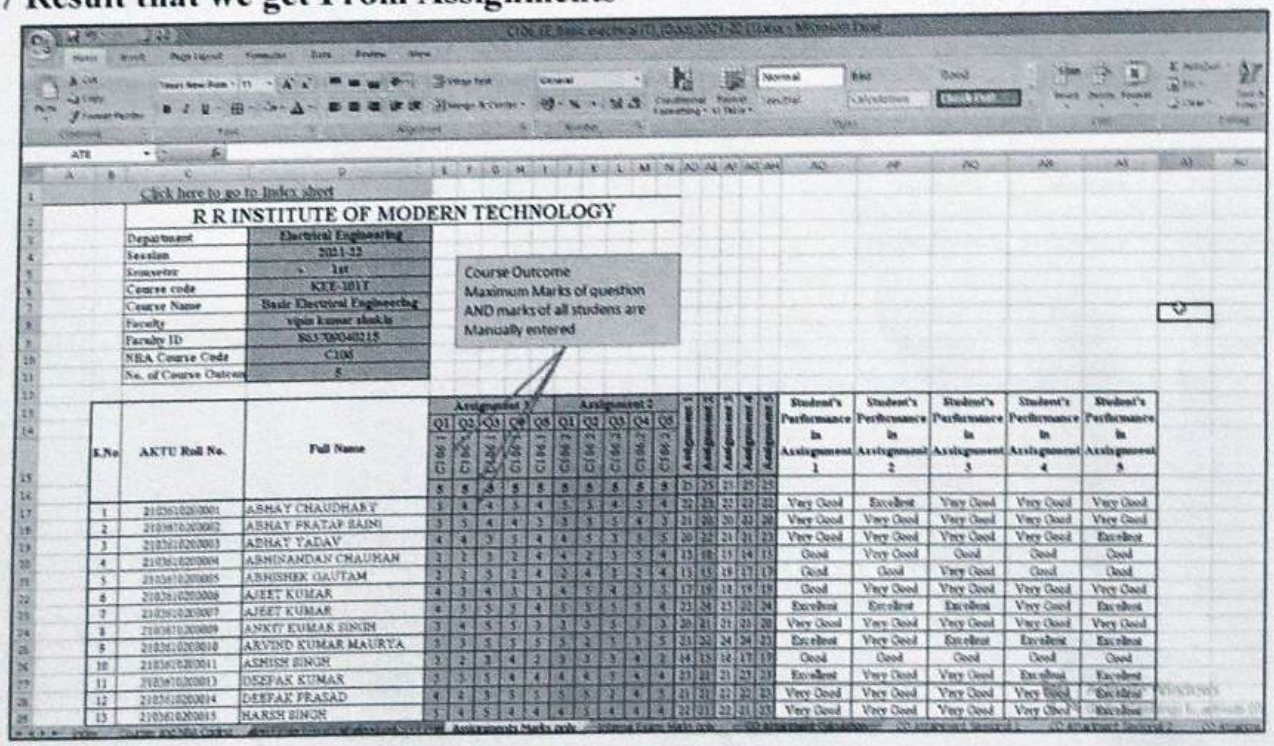
13	2103610200015	HARSH SINGH	5	4	5	4	4	4	5	4	4	4	4	5	5	5	4	4	4	5	5	5	5	5	5	5	5	22	21	23	23	25

5.7 Result that we get From Assignments



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R R INSTITUTE OF MODERN TECHNOLOGY

Department	Electrical Engineering
Session	2021-22
Semester	1st
Course code	KEE-101T
Course Name	Basic Electrical Engineering
Faculty	vipin kumar shukla
Faculty ID	865700040215
NBA Course Code	C108
No. of Course Outcom	5

Course Outcome
Maximum Marks of question
AND marks of all students are
Manually entered

S.No	AKTU Roll No.	Full Name	Assignment 1 Q1 CO1	Q2 CO1	Q3 CO2	Q4 CO3	Q5 CO3	Assignment 2 Q1 CO1	Q2 CO2	Q3 CO2	Q4 CO3	Q5 CO3	Assignment 1	Assignment 2	Assignment 3	Assignment 4	Assignment 5	Student's Performance in Assignment 1	Student's Performance in Assignment 2	Student's Performance in Assignment 3	Student's Performance in Assignment 4	Student's Performance in Assignment 5
			5	5	5	5	5	5	5	5	5	5	25	25	25	25						
1	2103610200001	ABHAY CHAUDHARY	5	4	4	5	4	5	5	4	5	4	22	23	22	22	22	Very Good	Excellent	Very Good	Very Good	Very Good
2	2103610200002	ABHAY PRATAP BAINI	5	5	4	4	3	3	5	5	4	3	21	20	22	20	20	Very Good	Very Good	Very Good	Very Good	Very Good
3	2103610200003	ABHAY YADAV	4	4	5	5	4	4	5	5	5	5	23	23	24	24	24	Very Good	Very Good	Very Good	Very Good	Excellent
4	2103610200004	ABHINANDAN CHAUHAN	2	2	3	2	4	4	2	3	5	4	13	15	14	15	15	Good	Very Good	Good	Good	Good
5	2103610200005	ABHISHEK GAUTAM	2	2	3	2	4	2	4	3	2	4	15	15	17	16	16	Good	Good	Very Good	Good	Good
6	2103610200006	AJEET KUMAR	4	3	4	3	3	4	5	4	3	5	17	19	19	19	19	Good	Very Good	Very Good	Very Good	Very Good
7	2103610200007	AJEET KUMAR	4	5	5	5	4	5	5	5	5	5	23	24	24	24	24	Excellent	Excellent	Excellent	Very Good	Excellent
8	2103610200009	ANKIT KUMAR SINGH	3	4	3	3	3	3	3	5	5	5	21	22	20	20	20	Very Good	Very Good	Very Good	Very Good	Very Good
9	2103610200010	ARVIND KUMAR MAURYA	5	5	5	5	5	5	5	5	5	5	25	25	25	25	25	Excellent	Very Good	Excellent	Excellent	Excellent
10	2103610200011	ASHISH SINGH	3	2	3	4	2	3	3	3	4	2	15	15	17	16	16	Good	Good	Good	Good	Good
11	2103610200013	DEEPAK KUMAR	5	5	5	4	4	4	4	5	4	4	22	21	21	20	19	Excellent	Very Good	Very Good	Excellent	Excellent
12	2103610200014	DEEPAK PRASAD	4	4	5	5	5	5	5	5	2	4	23	22	25	25	24	Very Good	Very Good	Very Good	Very Good	Excellent
13	2103610200015	HARSH SINGH	5	4	5	4	4	4	5	4	4	4	22	21	23	23	25	Very Good	Very Good	Very Good	Very Good	Excellent

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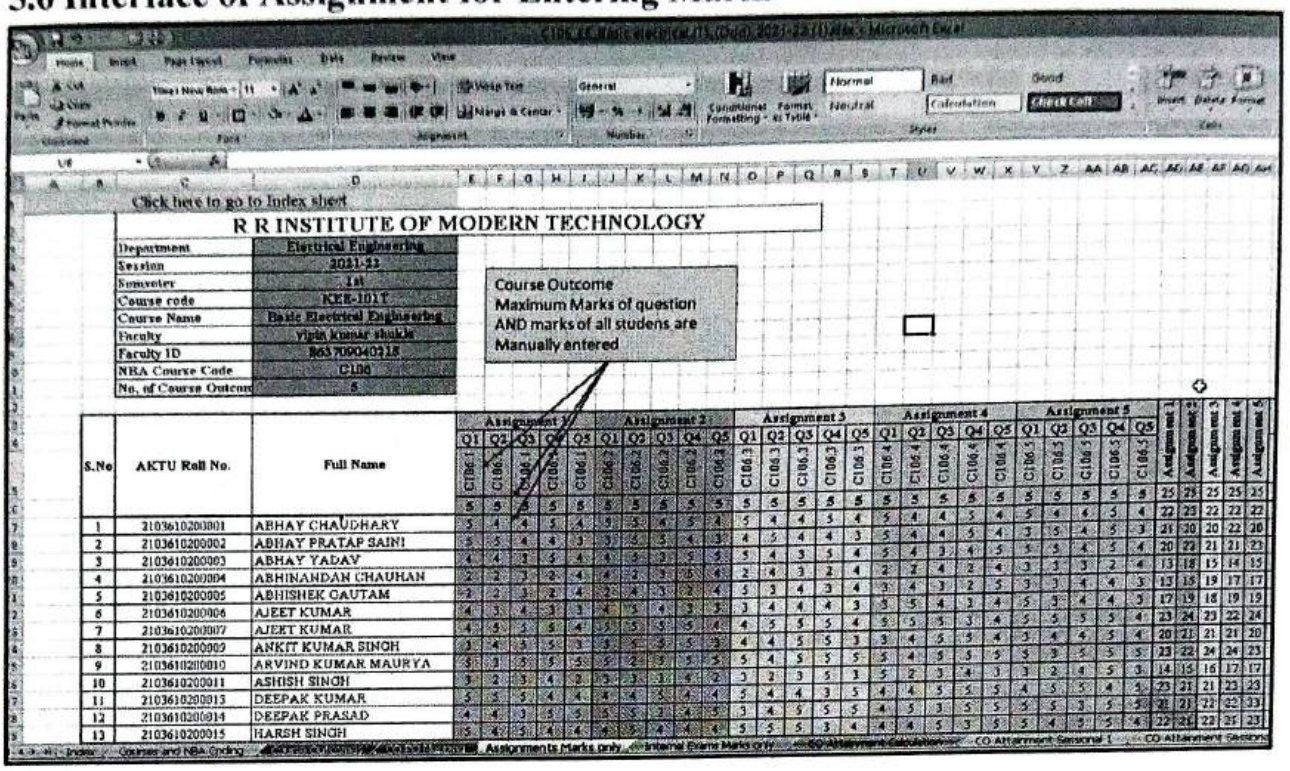
5.6 Interface of Assignment for Entering Marks



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R R INSTITUTE OF MODERN TECHNOLOGY

Department	Electrical Engineering
Session	2021-22
Semester	1st
Course code	KEE-101T
Course Name	Basic Electrical Engineering
Faculty	vipin kumar shukla
Faculty ID	863709040715
NBA Course Code	CL06
No. of Course Outcome	5

Course Outcome
Maximum Marks of question
AND marks of all studens are
Manually entered

S.No	AKTU Roll No.	Full Name	Assignment 1 Q1	Q2	Q3	Q4	Q5	Assignment 2 Q1	Q2	Q3	Q4	Q5	Assignment 3 Q1	Q2	Q3	Q4	Q5	Assignment 4 Q1	Q2	Q3	Q4	Q5	Assignment 5 Q1	Q2	Q3	Q4	Q5	Assignment 1	Assignment 2	Assignment 3	Assignment 4	Assignment 5
			CO106.1	CO106.1	CO106.1	CO106.1	CO106.1	CO106.2	CO106.2	CO106.2	CO106.2	CO106.2	CO106.3	CO106.3	CO106.3	CO106.3	CO106.3	CO106.4	CO106.4	CO106.4	CO106.4	CO106.4	CO106.5	CO106.5	CO106.5	CO106.5	CO106.5					
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4	2103610200004	ABHINANDAN CHAUHAN	2	2	3	2	4	4	2	3	3	4	2	4	3	2	4	2	2	4	2	4	3	3	3	2	4	13	18	15	14	15
5	2103610200005	ABHISHEK GAUTAM	2	2	3	2	4	2	4	3	2	4	5	3	4	3	4	3	4	3	2	5	3	3	4	4	3	13	15	19	17	17
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7	2103610200007	AJEET KUMAR	4	5	5	5	4	5	5	5	5	4	4	5	5	5	4	5	5	5	3	4	5	5	5	5	4	23	24	23	22	24
8	2103610200009	ANKIT KUMAR SINGH	3	4	5	5	3	3	5	5	5	5	4	4	5	5	3	3	4	5	5	4	5	4	4	5	4	20	21	21	21	20
9	2103610200010	ARVIND KUMAR MAURYA	5	3	3	5	5	5	2	3	5	5	5	4	5	5	5	5	4	5	5	5	5	3	5	5	5	14	15	16	17	17
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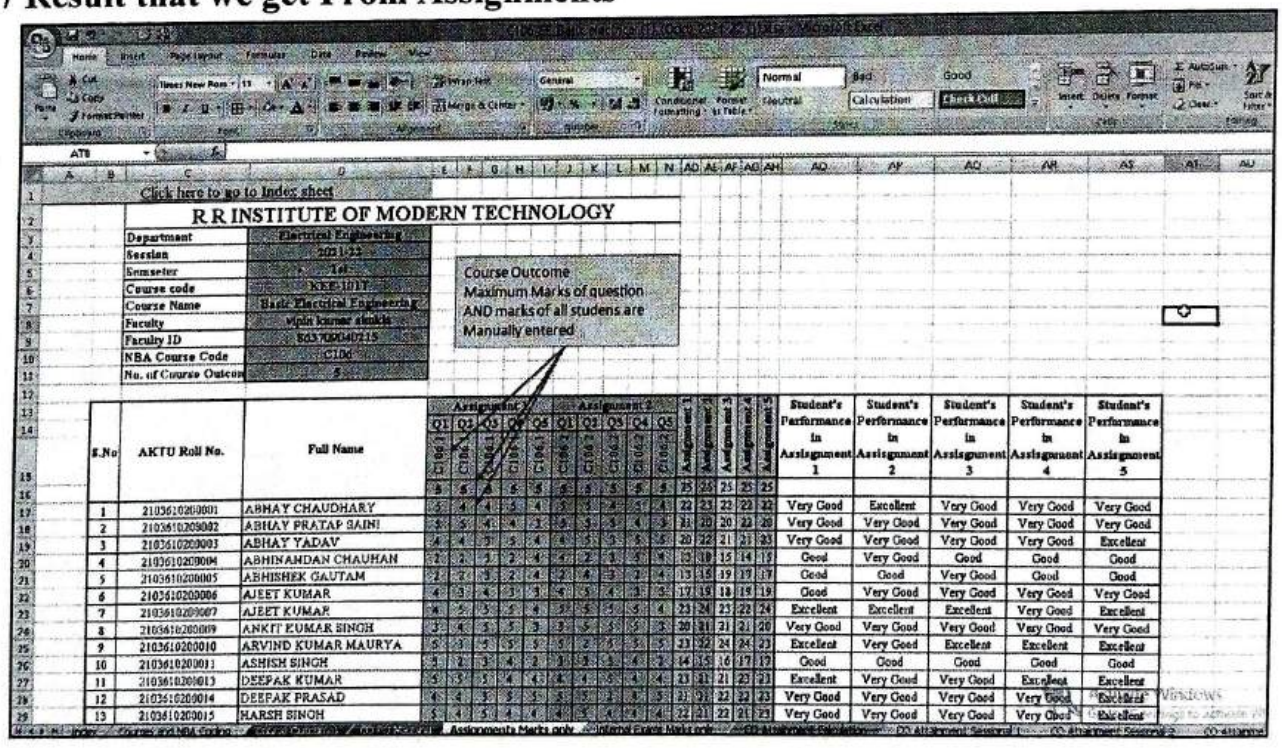
11	2103610200013	DEEPAK KUMAR	5	5	5	4	4	4	4	5	4	4	5	4	4	3	5	4	4	5	5	5	4	5	5	4	5	23	21	21	23	23
12	2103610200014	DEEPAK PRASAD	4	4	5	5	5	5	5	5	4	5	3	4	5	5	5	4	5	5	3	5	5	5	5	3	5	23	22	24	24	23
13	2103610200015	HARSH SINGH	5	4	5	4	4	4	5	4	4	4	5	5	5	3	4	4	4	5	3	5	5	4	5	5	4	22	21	22	21	23

5.7 Result that we get From Assignments



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R R INSTITUTE OF MODERN TECHNOLOGY

Department	Electrical Engineering
Session	2021-22
Semester	1st
Course code	KEE-101T
Course Name	Basic Electrical Engineering
Faculty	vipin kumar shukla
Faculty ID	863709040715
NBA Course Code	CL06
No. of Course Outcome	5

Course Outcome
Maximum Marks of question
AND marks of all studens are
Manually entered

S.No	AKTU Roll No.	Full Name	Assignment 1 Q1	Q2	Q3	Q4	Q5	Assignment 2 Q1	Q2	Q3	Q4	Q5	Assignment 1	Assignment 2	Assignment 3	Assignment 4	Assignment 5	Student's Performance in Assignment 1	Student's Performance in Assignment 2	Student's Performance in Assignment 3	Student's Performance in Assignment 4	Student's Performance in Assignment 5
			CO106.1	CO106.1	CO106.1	CO106.1	CO106.1	CO106.2	CO106.2	CO106.2	CO106.2	CO106.2										
			5	5	5	5	5	5	5	5	5	5	25	25	25	25	25					
1	2103610200001	ABHAY CHAUDHARY	5	4	4	5	4	5	5	4	5	4	22	23	22	22	22	Very Good	Excellent	Very Good	Very Good	Very Good
2	2103610200002	ABHAY PRATAP SAINI	5	5	4	5	5	5	5	5	4	5	24	30	20	22	20	Very Good	Very Good	Very Good	Very Good	Very Good
3	2103610200003	ABHAY YADAV	4	4	5	5	4	4	5	5	5	5	20	22	21	21	23	Very Good	Very Good	Very Good	Very Good	Excellent
4	2103610200004	ABHINANDAN CHAUHAN	2	2	3	2	4	4	2	3	3	4	13	18	15	14	15	Good	Very Good	Good	Good	Good
5	2103610200005	ABHISHEK GAUTAM	2	2	3	2	4	2	4	3	2	4	13	15	19	17	17	Good	Good	Very Good	Good	Good
6	2103610200006	AJEET KUMAR	4	3	4	3	3	4	5	4	3	5	17	19	18	19	19	Good	Very Good	Very Good	Very Good	Very Good
7	2103610200007	AJEET KUMAR	4	5	5	5	4	5	5	5	5	4	23	24	23	22	24	Excellent	Excellent	Excellent	Very Good	Excellent
8	2103610200009	ANKIT KUMAR SINGH	3	4	5	5	3	3	5	5	5	5	20	21	21	21	20	Very Good	Very Good	Very Good	Very Good	Very Good
9	2103610200010	ARVIND KUMAR MAURYA	5	3	3	5	5	5	2	3	5	5	23	24	24	23	23	Excellent	Very Good	Excellent	Excellent	Excellent
10	2103610200011	ASHISH SINGH	3	2	3	4	2	3	3	4	2	3	14	15	16	17	17	Good	Good	Good	Good	Good
11	2103610200013	DEEPAK KUMAR	5	5	5	4	4	4	4	5	4	4	23	21	21	23	23	Excellent	Very Good	Very Good	Excellent	Excellent
12	2103610200014	DEEPAK PRASAD	4	4	5	5	5	5	5	5	4	5	23	23	22	22	23	Very Good	Very Good	Very Good	Very Good	Excellent
13	2103610200015	HARSH SINGH	5	4	5	4	4	4	5	4	4	4	22	21	22	21	23	Very Good	Very Good	Very Good	Very Good	Excellent

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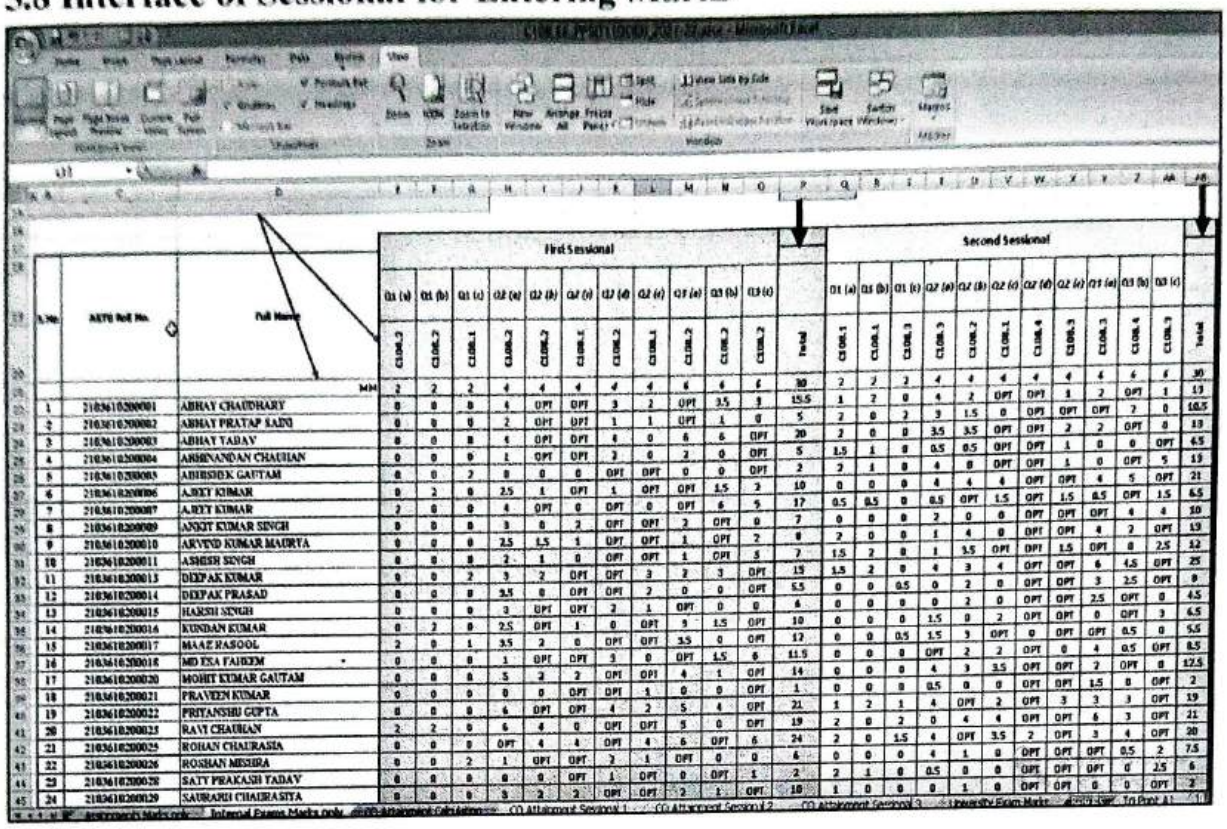
5.8 Interface of Sessional for Entering Marks



5.9 Result from Sessional

S.No	AKTU Roll No.	Full Name	Total	Student's Performance in Sessional 1	Student's Performance in Sessional 2	Student's Performance in Sessional 3
24	2103610200029	SAURABH CHAURASIYA	45	Good	Average	Average
25	2103610200030	SHIVANSHU GUPTA	45	Average	Good	Average
26	2103610200031	SHUBHAM PAL	22	Poor	Average	Poor
27	2103610200032	SUBHAM KUMAR	40	Average	Average	Average
28	2103610200033	SUJEET KUMAR	42	Poor	Poor	Average
29	2103610200034	SUJEET MAURYA	61	Good	Average	Good
30	2103610200035	SUMIT KUMAR SHARMA	34	Average	Poor	Average
31	2103610200036	SURAJ CHAURASIYA	85	Poor	Very Good	Very Good
32	2103610200037	SURAJ VISHWAKARMA	49	Average	Average	Average
33	2103610200038	SURYA BHAN	19	Average	Poor	Poor
34	2103610200039	TEJ PRATAP PANDEY	42	Poor	Poor	Average
35	2103610200040	UTKARSH RAJPUT	66	Average	Average	Good
36	2103610200041	VIRENDRA KUMAR	33	Poor	Poor	Average
37	2103610200042	VISHAL TIWARI	7	Poor	Poor	Poor

Excellent	0%	0%	0%
Very Good	0%	5%	5%
Good	14%	11%	22%
Average	41%	32%	43%
Poor	46%	51%	30%

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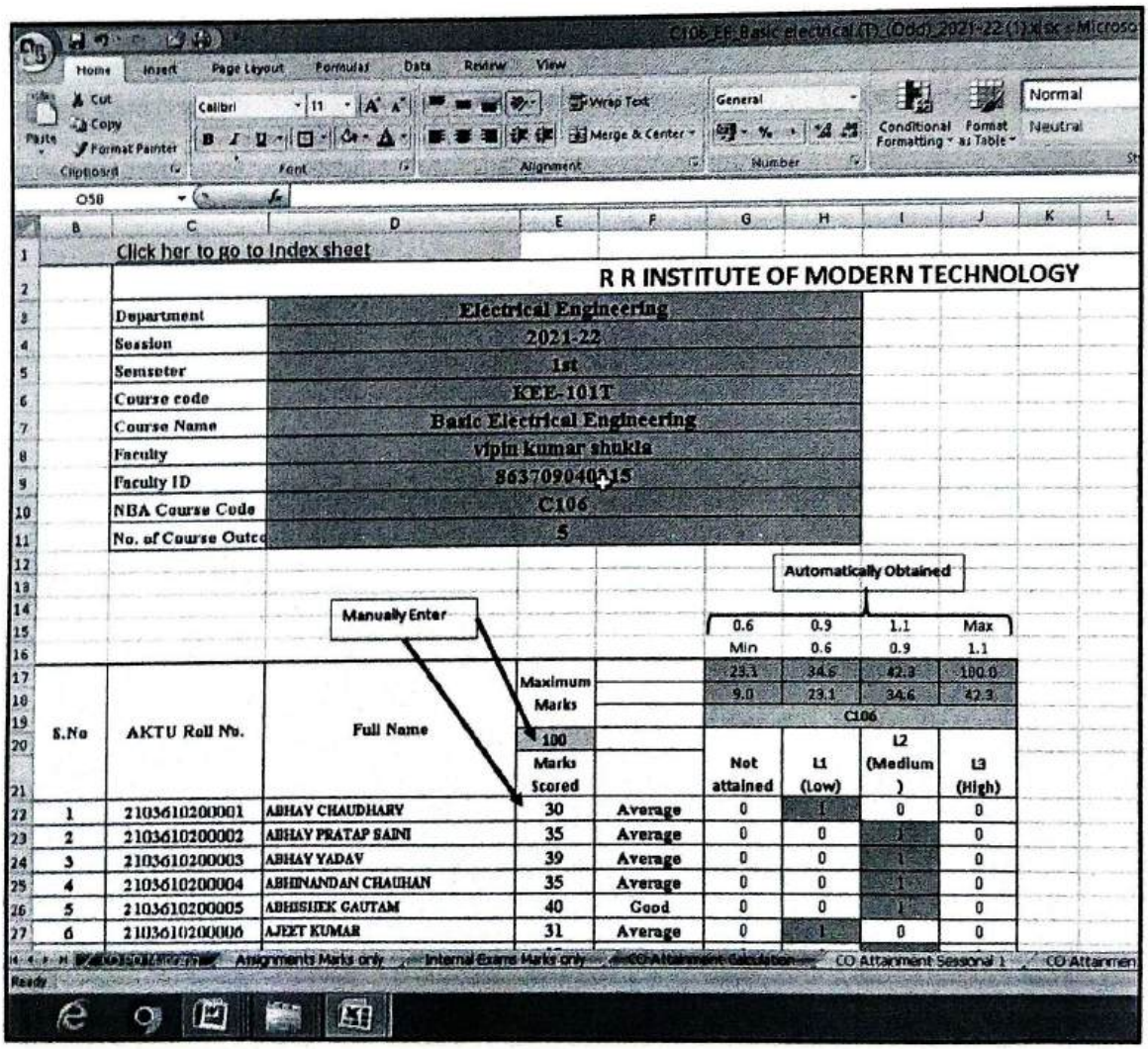
5.10 Attainment COs in University

This is **automatically generated** in the matrix as required formula is already put in, total marks of student are found out. Then average of marks obtained by all students is found out. After these 4 levels have been decided -

Not attained	L1 (Low)	L2 (Medium)	L3 (High)
When marks of student are between Minimum and 60% of Average	When marks of student are between 60% of average and 90% of Average	When marks of student are between 90% of average and 110% of Average	When marks of student are between 110% of average and maximum.

Remedial measure at this stage are not called for rather we go in for the next semester and decide the improvement in teaching-learning process so that required attainment are achieved.

5.10.1 Interface of University Exam for Entering Marks



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5.11 Final Result Compilation of Direct Attainment of COs

Following is the explanation of calculation done to calculate the course outcome attainment levels

Sheet where CO attainment calculation is taking place (automatically generated)

								0.6	0.9	1.1	Max	0.6	0.9	1.1	Max	0.6	0.9	1.1	Max	0.6	0.9	1.1	Max	0.6	0.9
								Min	0.6	0.9	1.1	Min	0.6	0.9	1.1	Min	0.6	0.9	1.1	Min	0.6	0.9	1.1	Min	0.6
			Final Marks score in each Course Outcome					Upper	0.9	0.5	0.8	0.8	0.2	0.8	0.4	0.7	0.3	0.4	0.5	0.7	0.3	0.5			
								Lower	0.2	0.3	0.5	0.6	0.2	0.7	0.3	0.4	0.3	0.3	0.4	0.5	0.3	0.3			
S.No	AKTU Roll No.	Full Name	C106.1	C106.2	C106.3	C106.4	C106.5		C106.1	C106.1	C106.1	C106.1	C106.2	C106.2	C106.2	C106.2	C106.3	C106.3	C106.3	C106.3	C106.4	C106.4			
			0	0	0	0	0		Not attained	L1 (Low)	L2 (Medium)	L3 (High)	Not attained	L1 (Low)	L2 (Medium)	L3 (High)	Not attained	L1 (Low)	L2 (Medium)	L3 (High)	Not attained	L1 (Low)			
32	2103631200037	SURAJ VISHWAKARMA	0.7	0.4	0.5	0.6	0.4		0	0	0	1	0	0	1	0	0	0	0	1	0	0			
33	2103631200038	SURYA BHAN	0.5	0.9	0.4	0.4	0.4		0	0	1	0	0	1	0	0	0	1	0	0	0	0			
34	2103631200039	TEJ PRATAP PANDEY	0.3	0.2	0.3	0.4	0.5		0	1	0	0	0	1	0	0	0	1	0	0	0	0			
35	2103631200040	UTKARSH RAJPUT	0.6	0.5	0.7	0.6	0.9		0	0	0	1	0	0	0	1	0	0	0	1	0	0			
36	2103631200041	VIKENDRA KUMAR	0.6	0.5	0.5	0.5	0.5		0	0	0	1	0	0	0	1	0	0	1	0	0	0			
37	2103631200042	VISHAL TIWARI	0.4	0.3	0.4	0.5	0.6		0	1	0	0	0	1	0	0	0	1	0	0	0	0			
		Average	0.5	0.4	0.5	0.5	0.6																		
		Standard deviation	0.1	0.1	0.1	0.1	0.2																		
		Maximum	0.8	0.7	0.7	0.7	0.9																		
		Minimum	0.2	0.2	0.3	0.3	0.3																		

	C106.1				C106.2				C106.3				C
	Not attained	L1 (Low)	L2 (Medium)	L3 (High)	Not attained	L1 (Low)	L2 (Medium)	L3 (High)	Not attained	L1 (Low)	L2 (Medium)	L3 (High)	Not attained	L1 (Low)
Percentage students in the given category	5.41%	35.14%	16.22%	43.24%	2.70%	32.43%	35.14%	29.73%	0.00%	43.24%	18.92%	37.84%	0.00%	32.43%

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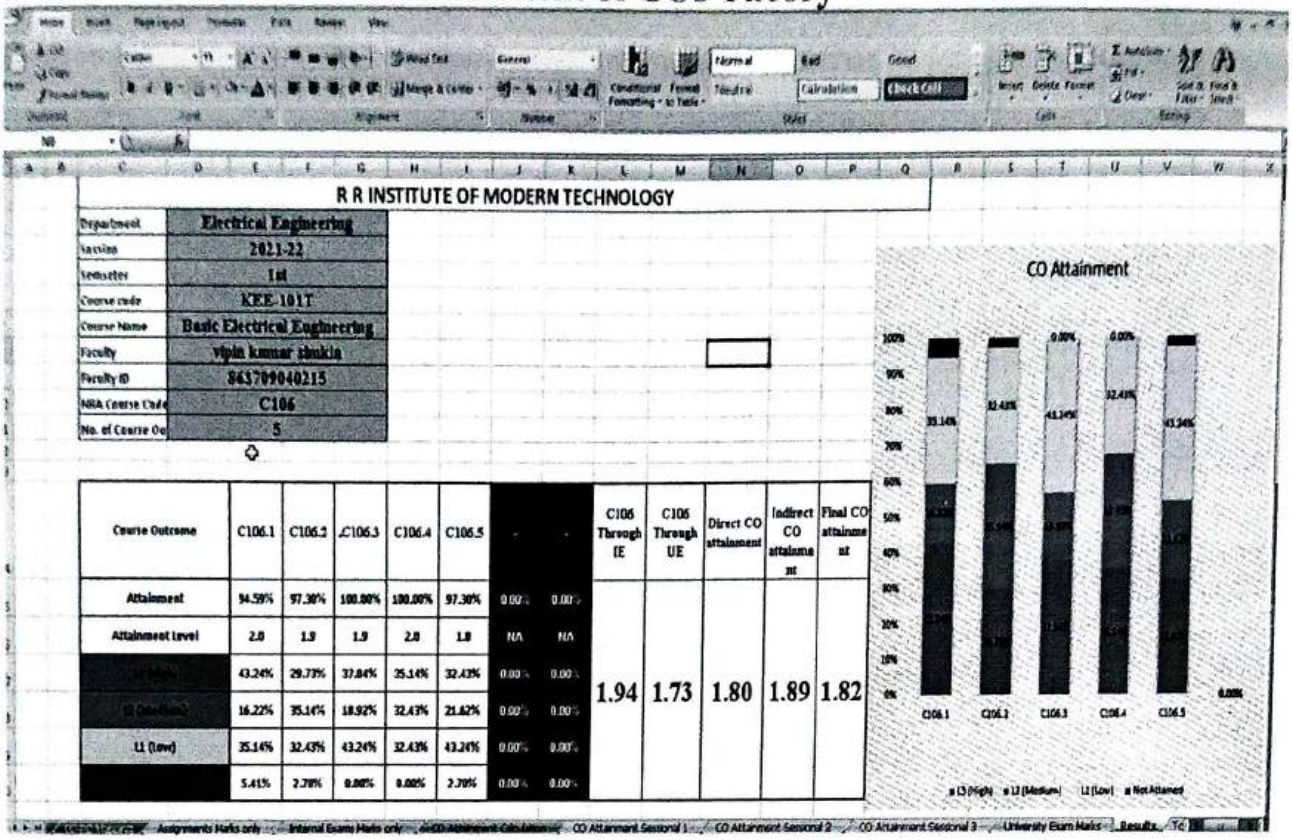
5.12 Result Sheet Direct Attainment of COs Theory



R R INSTITUTE OF MODERN TECHNOLOGY

Department	Electrical Engineering
Session	2021-22
Semester	1st
Course code	KEE-101T
Course Name	Basic Electrical Engineering
Faculty	vipin kumar sinkia
Faculty ID	8437709040215
NBA Course Code	C106
No. of Course Outcomes	5

Course Outcome	C106.1	C106.2	C106.3	C106.4	C106.5	-	-	C106 Through IE	C106 Through UE	Direct CO attainment	Indirect CO attainment	Final CO attainment
Attainment	94.59%	97.30%	100.00%	100.00%	97.30%	0.00%	0.00%					
Attainment Level	2.0	1.9	1.9	2.0	1.8	NA	NA					
[illegible]	43.24%	29.73%	37.84%	35.14%	32.43%	0.00%	0.00%	1.94	1.73	1.80	1.89	1.82
[illegible]	16.22%	35.14%	18.92%	32.43%	21.62%	0.00%	0.00%					
L1 (Low)	35.14%	32.43%	43.24%	32.43%	43.24%	0.00%	0.00%					
[illegible]	5.41%	2.70%	0.00%	0.00%	2.70%	0.00%	0.00%					

Course Outcome	C106.1	C106.2	C106.3	C106.4	C106.5	-	-	C106 Through IE	C106 Through UE	Direct CO attainment	Indirect CO attainment	Final CO attainment
Attainment	94.59%	97.30%	100.00%	100.00%	97.30%	0.00%	0.00%					
Attainment Level	1.97	1.92	1.95	2.03	1.84	NA	NA					
[illegible]	43.24%	29.73%	37.84%	35.14%	32.43%	0.00%	0.00%	1.94	1.73	1.80	1.89	1.82
[illegible]	16.22%	35.14%	18.92%	32.43%	21.62%	0.00%	0.00%					
L1 (Low)	35.14%	32.43%	43.24%	32.43%	43.24%	0.00%	0.00%					
[illegible]	5.41%	2.70%	0.00%	0.00%	2.70%	0.00%	0.00%					

Common for all types of courses

Course Outcome	C106.1	
Attainment	94.59	(43.59+16.22+35.14)
Attainment Level	1.97	(43.24*3+16.22*2+35.14*1)/ (43.59+16.22+35.14+5.41)
[illegible]	43.24%	
[illegible]	16.22%	
L1 (Low)	35.14%	
[illegible]	5.41%	

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Attainment Calculation in Table

Course Outcome	C106.1	C106.2	C106.3	C106.4	C106.5	C106 Through IE	C106 Through UE	Direct CO attainment
Attainment	94.59%	97.30%	100.0%	100.0%	97.30%	(1.97+1.92 +1.95+2.0 3+1.84)/5 =1.94	1.73	0.33*1.94 +0.67*1.7 3 =1.80
Attainment Level	1.97	1.92	1.95	2.03	1.84			
L3 (High)	43.24%	29.73%	37.84%	35.14%	32.43%			
L2 (Medium)	16.22%	35.14%	18.92%	32.43%	21.62%			
L1 (Low)	35.14%	32.43%	43.24%	32.43%	43.24%	Average of attainment level of all COs	From universit y exam	
	5.41%	2.70%	0.00%	0.00%	2.70%			

Indirect CO attainment	Final CO attainment
1.89	1.80*0.80+ 1.89*0.20= 1.82
(course exit survey by students)	80% of Direct attainment +20% of Indirect attainment

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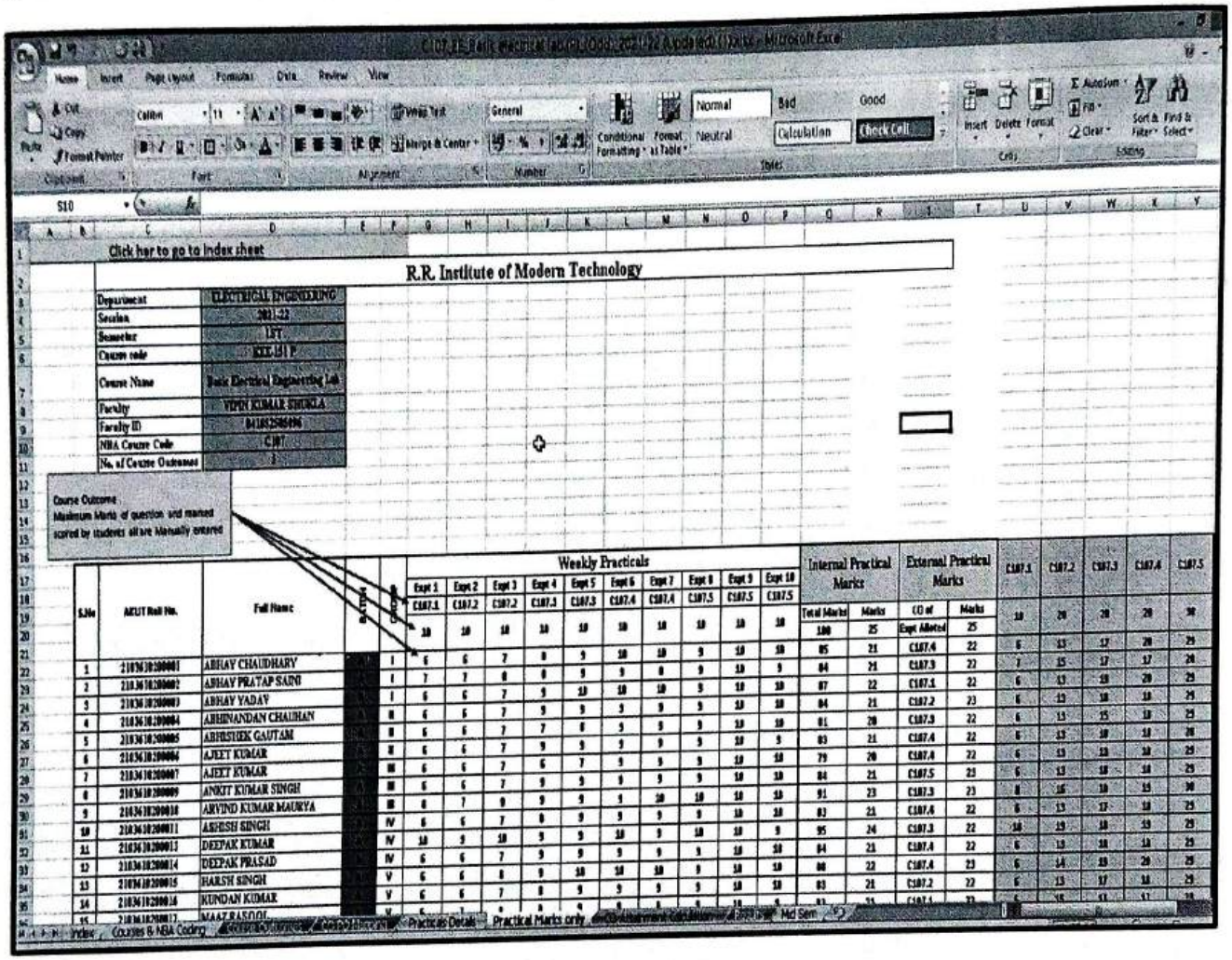
5.13 Entry of Experiment wise Internal Practical Marks and External Practical Marks



- *Before feeding the marks in the excel file faculty also need to enter the* ***course outcome*** *each experiment. This is very important otherwise CO PO attainment cannot be found out. For Internal & External Exam experiment of the student along with its CO is to be feed in the excel file*
- *In external practical examination since one student can perform only one experiment hence we will get information about the marks he obtained any one CO this is again address by obtaining* ***extrapolated*** *percentage during the calculation of CO attainment.*

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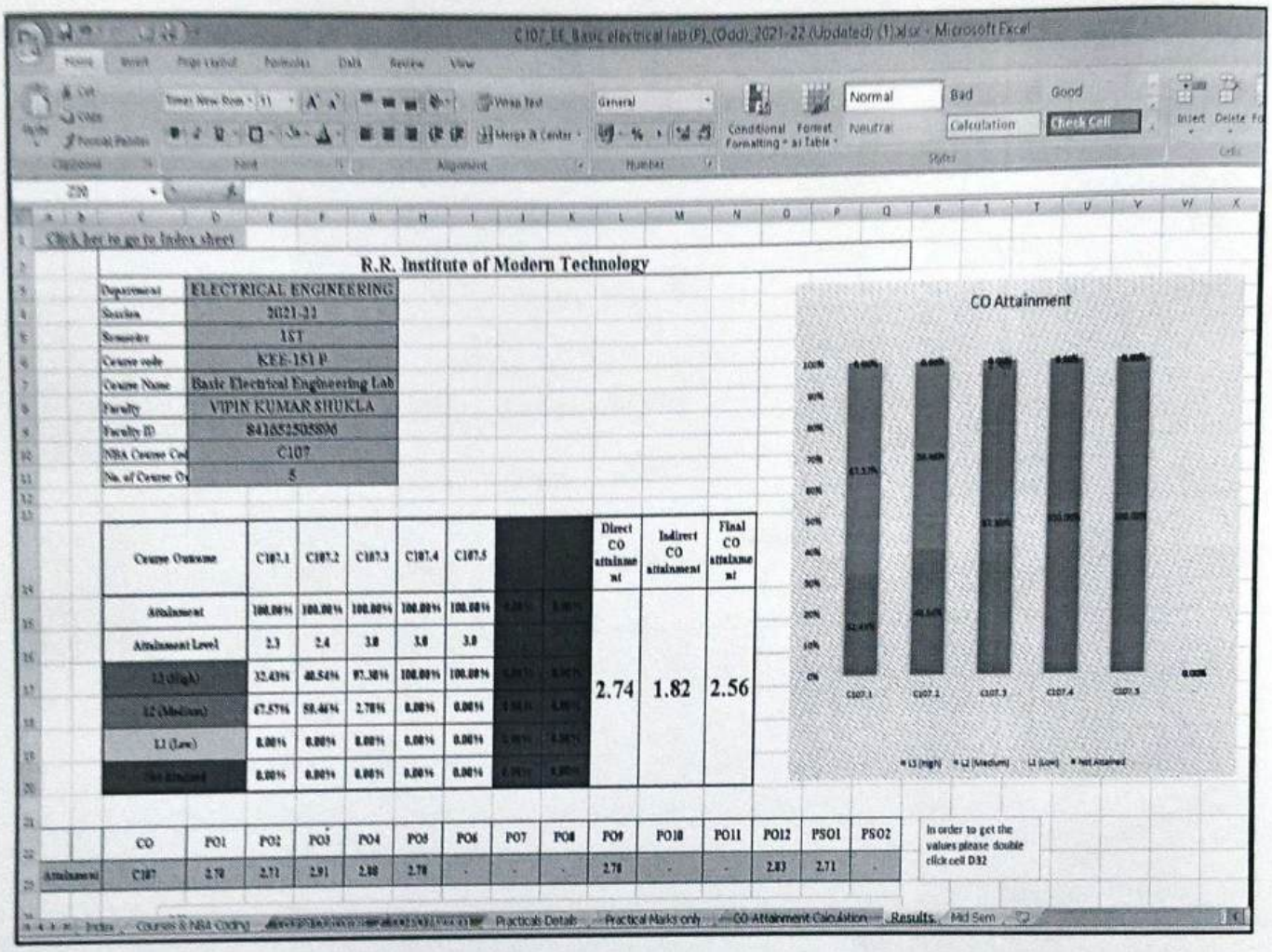
5.14 Result Sheet Direct Attainment of COs for Practical



C107_EE_Basic electrical lab (P)_(Odd)_2021-22 (Updated) (1).xlsx - Microsoft Excel

Click here to go to Index sheet

R.R. Institute of Modern Technology

Department	ELECTRICAL ENGINEERING
Session	2021-22
Semester	1ST
Course code	KEE-151 P
Course Name	Basic Electrical Engineering Lab
Faculty	VIPIN KUMAR SHUKLA
Faculty ID	841652505806
NBA Course Cod	C107
No. of Course Ou	5

Course Outcome	C107.1	C107.2	C107.3	C107.4	C107.5			Direct CO attainment	Indirect CO attainment	Final CO attainment
Attainment	100.00%	100.00%	100.00%	100.00%	100.00%			2.74	1.82	2.56
Attainment Level	2.3	2.4	3.0	3.0	3.0					
L3 (High)	32.43%	40.54%	97.30%	100.00%	100.00%					
L2 (Medium)	67.57%	59.46%	2.70%	0.00%	0.00%					
L1 (Low)	0.00%	0.00%	0.00%	0.00%	0.00%					
Not Attained	0.00%	0.00%	0.00%	0.00%	0.00%					

	CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
Attainment	C107	2.70	2.71	2.91	2.80	2.70	-	-	-	2.70	-	-	2.83	2.71	-

In order to get the values please double click cell D32

CO Attainment

Index | Courses & NBA Coding | Practicals Details | Practical Marks only | CO Attainment Calculation | Results | Mid Sem

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Attainment Calculation in Table

Course Outcome	C107.1	C107.2	C107.3	C107.4	C107.5	Direct CO attainment	Indirect CO attainment	Final CO attainment
Attainment	100.00 %	100.00 %	100.00 %	100.00 %	100.00 %	(2.3+2.4+3.0+3.0+3.0)/5 =2.74	1.82	(2.74*0.80+1.82*0.20) =2.56
Attainment Level	2.3	2.4	3.0	3.0	3.0			
L3 (High)	32.43 %	40.54 %	97.30 %	100.00 %	100.00 %			
L2 (Medium)	67.57 %	59.46 %	2.70%	0.00%	0.00%			
L1 (Low)	0.00%	0.00%	0.00%	0.00%	0.00%	Average of attainment level of all COs	(course exit survey by students)	80% of Direct attainment+20% of Indirect attainment
[redacted]	0.00%	0.00%	0.00%	0.00%	0.00%			

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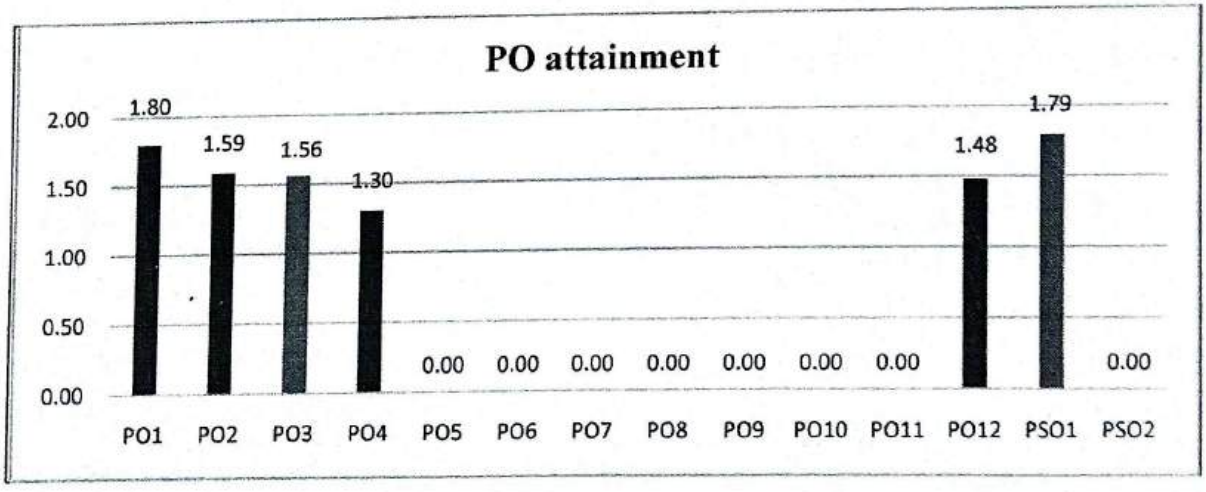
B. Program Outcomes (PO) & Program Specific Outcomes (PSO) Attainment

1. **Mapping:** COs are mapped to POs/PSOs with correlation levels (1–Low, 2–Medium, 3–High).
2. **Calculation:**
   - **PO Attainment:** Weighted average of all COs mapped to that PO.
   - **PSO Attainment:** Weighted average of all COs mapped to that PSO.
3. **Weightage for PO/PSO Attainment Calculation:**
   - Direct: **80%** (aggregate from CO attainment)
   - Indirect: **20%** (Program Exit Survey, Alumni survey & Employer survey)
   - **PO/PSO Attainment: (Direct×0.8)+(Indirect×0.2)**

Direct Final POs attainment

		CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
Direct	IE	C106	1.94	1.95	1.93	1.95	-	-	-	-	-	-	-	1.94	1.94	-
	UE	C106	1.72	1.41	1.37	0.98	-	-	-	-	-	-	-	1.25	1.72	-
	Final	C106	1.80	1.59	1.56	1.30	-	-	-	-	-	-	-	1.48	1.79	-



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Sample calculation of (same for all POs)

	CO	PO1 mapping		Attainment level	(PO1 mapping) x (Attainment level)
Assignments, Sessional (IE)	C106.1	3	X	1.97	5.91
	C106.2	2	X	1.92	3.84
	C106.3	2	X	1.95	3.90
	C106.4	2	X	2.03	4.06
	C106.5	2	X	1.84	3.68
	SUM = 11				21.39/(3+2+2+2+2)=1.94
University exams (UE)	C106	2.2	X	78.38% (Attainment Percentage of UE)	1.72
Direct Final POs Attainment	33% of IE + 67% of UE				(1.94*0.33+1.72*0.67)= 1.80

Final Result Compilation of Attainment of POs		Sample calculation
Direct POs Attainment	According to above calculation of all POs	1.80
Indirect POs Attainment	According to feedback (Alumni survey+ Program exit survey+ Employer Survey)	2
Final Attainment	80% of Direct POs attainment +20% Indirect POs Attainment	(1.80*0.80+2*0.20)=1.84

6. Continuous Improvement

- If attainment < target:
  - Change in content delivery.
  - Change in assessment method.
  - Implement the necessary change in next academic year

7. Review & Approval

- Result to be reviewed of every **academic year** by the DAC.
- Updates based on changes in NBA guidelines and stakeholder feedback.

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