

### CO-PO REPORT OF PHYSICS (SF)

| Sl. No. | Course Code                 | Name of Course            | Teacher- in- charge               |
|---------|-----------------------------|---------------------------|-----------------------------------|
| 1       | CC19PPHY2C05                | Quantum Mechanics I       | Johnsy. E. Johnson<br>Aswathi P V |
| 2       | CC19PPHY2C06                | Mathematical Physics II   | V P Anto<br>Anju Sebastian        |
| 3       | CC19PPHY2C07                | Statistical Mechanics     | Jose Sunny<br>Simmy Jose          |
| 4       | CC19PPHY2C08                | Computational Physics     | Anjali Joby                       |
| 5       | CC19PPHY1L01 & CC19PPHY2L03 | General Physics Practical | Dr. V P Joseph<br>Anju Sebastian  |
| 6       | CC19PPHY1L02 & CC19PPHY2L04 | Electronics Practical     | Dr. V P Joseph<br>Anju Sebastian  |



**CHRIST COLLEGE (AUTONOMOUS)**  
**IRINJALAKUDA.Kerala-680125**

|  |   |   |
|--|---|---|
| <b>Program(s) :</b> PG - MSC - M.Sc.<br>Physics (Self Financing) | <b>Department(s) :</b><br>PHYSICS',PHYSICS SF         | <b>Batch(s) :</b> MSC PHY SF 2022 -<br>S2 |
| <b>Course Community :</b><br>CC19PPHY2C05 MSC PHY SF<br>2022 S2  | <b>Faculty(s) :</b> Johnsy.E.<br>Johnson',ASWATHI P V | <b>Course :</b> Quantum Mechanics I       |

**DIRECT ASSESSMENT Report**

Above Target Percentage :  Below Target Percentage:

| #  | Reg No     | Student Name         | CO1   | CO2   | CO3   | CO4  | CO5  |
|----|------------|----------------------|-------|-------|-------|------|------|
| 1  | CCAWMPH016 | ABHIJITH C<br>PREEJ  | 86.63 | 84.65 | 83.2  | 83.2 | 19.2 |
| 2  | CCAWMPH017 | AFNAN                | 48.13 | 81.47 | 90.8  | 66.8 | 66.8 |
| 3  | CCAWMPH018 | ALAN ANTONY<br>K . J | 53.56 | 47.2  | 65.2  | 49.2 | 97.2 |
| 4  | CCAWMPH019 | APARNA K.S           | 48.06 | 69.2  | 74.34 | 81.2 | 17.2 |
| 5  | CCAWMPH020 | ARJUN HARI C         | 55.02 | 49.2  | 42.34 | 17.2 | 33.2 |
| 6  | CCAWMPH021 | ARYA SUNIL           | 49.2  | 65.2  | 30.91 | 81.2 | 63.2 |
| 7  | CCAWMPH022 | FARHAN A F           | 89.6  | 67.73 | 81.6  | 17.6 | 17.6 |
| 8  | CCAWMPH023 | FLOWER MARY          | 0     | 0     | 0     | 0    | 0    |
| 9  | CCAWMPH024 | JERIN P J            | 48    | 95.2  | 99.2  | 67.2 | 35.2 |
| 10 | CCAWMPH025 | LAKSHMI V S          | 78.84 | 90.47 | 99.2  | 83.2 | 99.2 |
| 11 | CCAWMPH026 | ROSHINI<br>JAYARAJ   | 47.6  | 47.75 | 78.91 | 17.2 | 17.2 |

### DIRECT ASSESSMENT Report

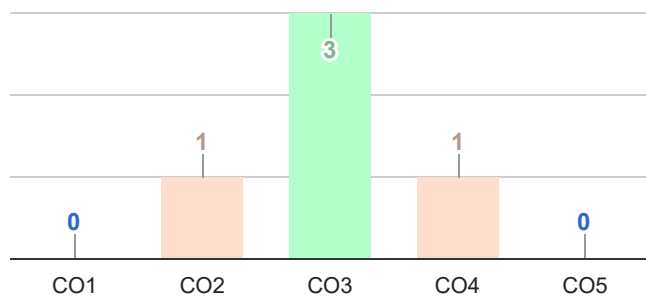
Above Target Percentage :  Below Target Percentage:

| #  | Reg No     | Student Name          | CO1 | CO2  | CO3  | CO4  | CO5  |
|----|------------|-----------------------|-----|------|------|------|------|
| 12 | CCAWMPH027 | SHREYA<br>JAYAPRAKASH | 78  | 49.2 | 65.2 | 97.2 | 51.2 |

|   |       |       |       |       |       |
|---|-------|-------|-------|-------|-------|
| <b>Class Strength</b>   | 15    |       |       |       |       |
| <b>Course Outcomes addressed</b>                                | CO1   | CO2   | CO3   | CO4   | CO5   |
| <b>Target of Course Outcome</b>                                 | 60    | 60    | 60    | 60    | 60    |
| <b>No of students with CO value greater than or equal to 60</b> | 4     | 7     | 9     | 7     | 4     |
| <b>Percentage of students with CO value greater than 60</b>     | 33.33 | 58.33 | 75    | 58.33 | 33.33 |
| <b>Average</b>  | 56.89 | 62.27 | 67.58 | 55.1  | 43.1  |
| <b>Attainment Level</b>   | 0     | 1.00  | 3.00  | 1.00  | 0     |

Attainment :High  Medium  Low

## CO Attainment Levels



Attainment :High █ Medium █ Low █

| CO List |  |
|---------|--|
| CO Code | Description  |
| CO1     | Anlyse the Hilbert Space formalism in Quantum Mechanics.   |
| CO2     | Assess the quantum dynamics and the evolution of a quantum mechanical system using different pictures. |
| CO3     | Deduce the theory of angylar momentum angular momentum.  |
| CO4     | Analyse Schroedinger equation for central potentials   |
| CO5     | Examine invariance principles and conservation laws in quantum mechanics                               |



**CHRIST COLLEGE (AUTONOMOUS)**  
**IRINJALAKUDA.Kerala-680125**

|  |   |   |
|--|---|---|
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| <b>Course Community :</b><br>CC19PPHY2C06 MSC PHY SF<br>2022 S2  | <b>Faculty(s) :</b> V P Anto',Anju<br>Sebastian | <b>Course :</b> Mathematical Physics II   |

**CO PO ATTAINMENT Report**

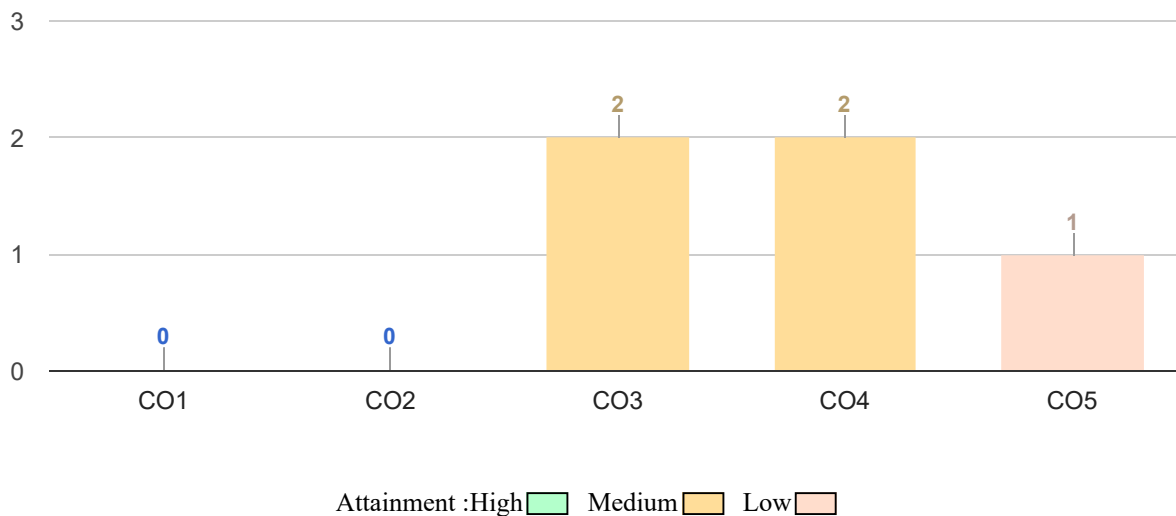
Above Target Percentage :  Below Target Percentage:

| #  | Reg No     | Student Name         | CO1   | CO2   | CO3   | CO4   | CO5   |
|----|------------|----------------------|-------|-------|-------|-------|-------|
| 1  | PGPHSF2    | ANAGHA<br>RAPHY      | 0     | 0     | 0     | 0     | 0     |
| 2  | PGPHSF10   | SREESHMA K S         | 0     | 0     | 0     | 0     | 0     |
| 3  | PGPHSF3    | ARCHANA V S          | 0     | 0     | 0     | 0     | 0     |
| 4  | CCAWMPH016 | ABHIJITH C<br>PREEJ  | 50.4  | 69.95 | 79.84 | 99.04 | 85.97 |
| 5  | CCAWMPH017 | AFNAN                | 84.73 | 44.69 | 86.56 | 99.36 | 97.53 |
| 6  | CCAWMPH018 | ALAN ANTONY<br>K . J | 71.2  | 56.5  | 34.08 | 98.08 | 94.88 |
| 7  | CCAWMPH019 | APARNA K.S           | 69.78 | 69.33 | 76.64 | 81.97 | 79.57 |
| 8  | CCAWMPH020 | ARJUN HARI C         | 60.64 | 35.04 | 79.13 | 88.37 | 82.58 |
| 9  | CCAWMPH021 | ARYA SUNIL           | 65.81 | 55.2  | 69.92 | 55.08 | 44.05 |
| 10 | CCAWMPH022 | FARHAN A F           | 59.02 | 79.2  | 72.8  | 91.29 | 50.4  |
| 11 | CCAWMPH023 | FLOWER MARY          | 0     | 0     | 0     | 0     | 0     |
| 12 | CCAWMPH024 | JERIN P J            | 35.36 | 35.36 | 99.36 | 99.36 | 99.36 |
| 13 | CCAWMPH025 | LAKSHMI V S          | 48.8  | 89.53 | 100   | 100   | 98.17 |
| 14 | CCAWMPH026 | ROSHINI<br>JAYARAJ   | 77.6  | 71.63 | 89.76 | 78.03 | 86.56 |

| CO PO ATTAINMENT Report  |            |                    |       |       |       |       |       |
|--|------------|--------------------|-------|-------|-------|-------|-------|
| Above Target Percentage : <input type="checkbox"/> Below Target Percentage: <input type="checkbox"/> |            |                    |       |       |       |       |       |
| #  | Reg No     | Student Name       | CO1   | CO2   | CO3   | CO4   | CO5   |
| 15   | CCAWMPH027 | SHREYA JAYAPRAKASH | 79.52 | 69.92 | 74.54 | 50.72 | 45.69 |

|   |       |       |       |       |       |
|---|-------|-------|-------|-------|-------|
| <b>Class Strength</b>   | 15    |       |       |       |       |
| <b>Course Outcomes addressed</b>  | CO1   | CO2   | CO3   | CO4   | CO5   |
| <b>Target of Course Outcome</b>   | 60    | 60    | 60    | 60    | 60    |
| <b>No of students with CO value greater than or equal to 60</b>   | 7     | 6     | 10    | 9     | 8     |
| <b>Percentage of students with CO value greater than 60</b>   | 46.67 | 40    | 66.67 | 60    | 53.33 |
| <b>Average</b>  | 46.86 | 45.09 | 57.51 | 62.75 | 57.65 |
| <b>Attainment Level</b>   | 0     | 0     | 2.00  | 2.00  | 1.00  |
| Attainment : High <input type="checkbox"/> Medium <input type="checkbox"/> Low <input type="checkbox"/> |       |       |       |       |       |

### CO Attainment Levels



| <b>CO List</b> |  |
|----------------|--|
| <b>CO Code</b> | <b>Description</b>                                     |
| CO1            | Analyse functions of complex variables                 |
| CO2            | Apply the concepts of group theory                     |
| CO3            | Apply calculus of variation                            |
| CO4            | Analyse integral equations                             |
| CO5            | Apply Greens functions to solve differential equations |



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| <b>Course Community :</b><br>CC19PPHY2C07 MSC PHY SF<br>2022 S2  | <b>Faculty(s) :</b> JOSE<br>SUNNY',Simmy Jose | <b>Course :</b> Statistical Mechanics     |

**CO PO ATTAINMENT Report**

Above Target Percentage :  Below Target Percentage:

| #  | Reg No     | Student Name          | CO1   | CO2   | CO3  | CO4   | CO5   |
|----|------------|-----------------------|-------|-------|------|-------|-------|
| 1  | CCAWMPH016 | ABHIJITH C<br>PREEJ   | 67.78 | 70.36 | 82   | 50    | 66    |
| 2  | CCAWMPH017 | AFNAN                 | 93.47 | 63.37 | 94.8 | 18.8  | 18.8  |
| 3  | CCAWMPH018 | ALAN ANTONY<br>K . J  | 91.47 | 72.8  | 42.4 | 82.58 | 80.8  |
| 4  | CCAWMPH019 | APARNA K.S            | 34    | 51.45 | 84   | 71.33 | 18    |
| 5  | CCAWMPH020 | ARJUN HARI C          | 75.07 | 71.51 | 83.6 | 69.73 | 80.4  |
| 6  | CCAWMPH021 | ARYA SUNIL            | 48.8  | 56.18 | 48.8 | 67.47 | 32.8  |
| 7  | CCAWMPH022 | FARHAN A F            | 57.29 | 51.83 | 19.6 | 64.4  | 48.4  |
| 8  | CCAWMPH023 | FLOWER MARY           | 0     | 0     | 0    | 0     | 0     |
| 9  | CCAWMPH024 | JERIN P J             | 91.47 | 96.8  | 80.8 | 96.8  | 96.8  |
| 10 | CCAWMPH025 | LAKSHMI V S           | 93.47 | 96.51 | 98.8 | 98.8  | 82.8  |
| 11 | CCAWMPH026 | ROSHINI<br>JAYARAJ    | 84.36 | 41.94 | 64.8 | 16.8  | 16.8  |
| 12 | CCAWMPH027 | SHREYA<br>JAYAPRAKASH | 57.29 | 45.73 | 56.4 | 36.4  | 44.84 |

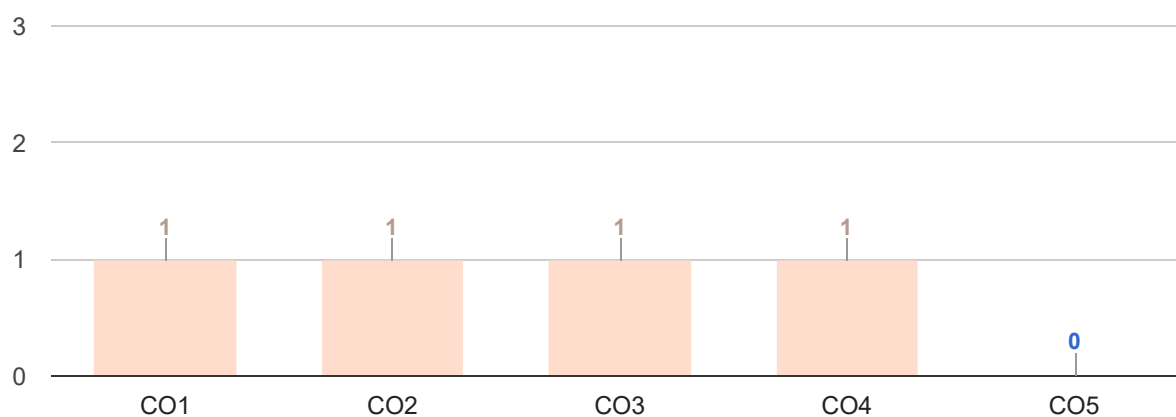
|                       |    |
|-----------------------|----|
| <b>Class Strength</b> | 15 |
|-----------------------|----|



| Course Outcomes addressed                                | CO1   | CO2   | CO3   | CO4   | CO5   |
|--|-------|-------|-------|-------|-------|
| Target of Course Outcome                                 | 60    | 60    | 60    | 60    | 60    |
| No of students with CO value greater than or equal to 60 | 7     | 6     | 7     | 7     | 5     |
| Percentage of students with CO value greater than 60     | 58.33 | 50    | 58.33 | 58.33 | 41.67 |
| Average  | 66.21 | 59.87 | 63    | 56.09 | 48.87 |
| Attainment Level   | 1.00  | 1.00  | 1.00  | 1.00  | 0     |

Attainment :High ■ Medium ■ Low ■

### CO Attainment Levels



Attainment :High ■ Medium ■ Low ■

| CO List |  |
|---------|--|
| CO Code | Description  |
| CO1     | Examine the statistical basis of thermodynamics                  |
| CO2     | Compare microcanonical, canonical and grand canonical ensembles  |
| CO3     | Analyse statistical systems using quantum statistical mechanics. |
| CO4     | Analyse ideal Bose Systems                                       |
| CO5     | Analyse ideal Fermi Systems                                      |



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| <b>Course Community :</b><br>CC19PPHY2C08 MSC PHY SF<br>2022 S2  | <b>Faculty(s) :</b> Anjali Joby               | <b>Course :</b> Computational Physics     |

**CO PO ATTAINMENT Report**

Above Target Percentage :  Below Target Percentage:

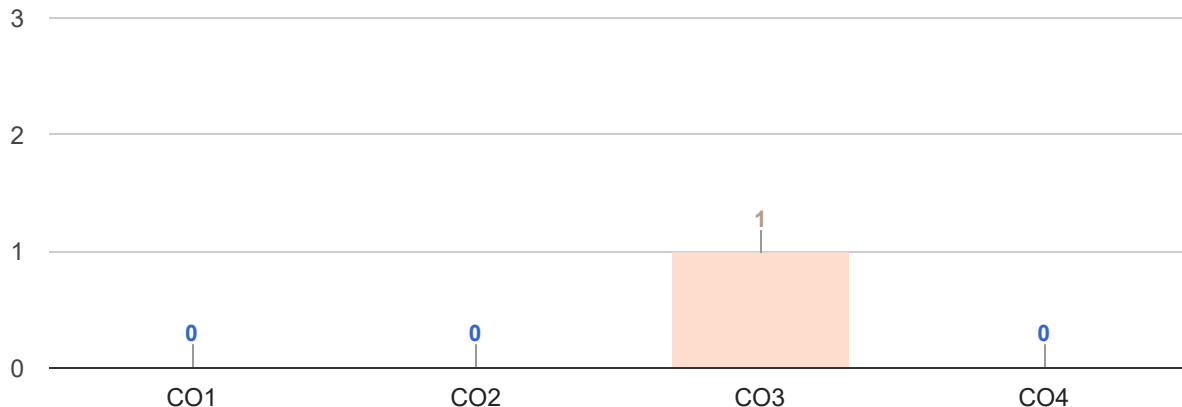
| #  | Reg No     | Student Name      | CO1   | CO2   | CO3   | CO4   |
|----|------------|-------------------|-------|-------|-------|-------|
| 1  | PGPHSF2    | ANAGHA RAPHY      | 0     | 0     | 0     | 0     |
| 2  | PGPHSF10   | SREESHMA K S      | 0     | 0     | 0     | 0     |
| 3  | PGPHSF3    | ARCHANA V S       | 0     | 0     | 0     | 0     |
| 4  | CCAWMPH016 | ABHIJITH C PREEJ  | 65.08 | 79.04 | 68.57 | 27.84 |
| 5  | CCAWMPH017 | AFNAN             | 78.72 | 65.92 | 69.92 | 14.72 |
| 6  | CCAWMPH018 | ALAN ANTONY K . J | 32.8  | 32.8  | 65.6  | 77.33 |
| 7  | CCAWMPH019 | APARNA K.S        | 65.28 | 58.88 | 65.28 | 68.48 |
| 8  | CCAWMPH020 | ARJUN HARI C      | 43.52 | 32.32 | 54.26 | 45.12 |
| 9  | CCAWMPH021 | ARYA SUNIL        | 34.13 | 34.74 | 48.51 | 12.8  |
| 10 | CCAWMPH022 | FARHAN A F        | 71.74 | 60.43 | 37.99 | 14.72 |
| 11 | CCAWMPH023 | FLOWER MARY       | 0     | 0     | 0     | 0     |
| 12 | CCAWMPH024 | JERIN P J         | 39.36 | 77.76 | 74.27 | 73.49 |
| 13 | CCAWMPH025 | LAKSHMI V S       | 79.68 | 79.68 | 73.86 | 60.48 |
| 14 | CCAWMPH026 | ROSHINI JAYARAJ   | 61.97 | 21.44 | 66.91 | 57.71 |

| CO PO ATTAINMENT Report  |            |                    |       |       |       |       |
|--|------------|--------------------|-------|-------|-------|-------|
| Above Target Percentage : <input type="checkbox"/> Below Target Percentage: <input type="checkbox"/> |            |                    |       |       |       |       |
| #  | Reg No     | Student Name       | CO1   | CO2   | CO3   | CO4   |
| 15   | CCAWMPH027 | SHREYA JAYAPRAKASH | 64.32 | 66.45 | 60.83 | 77.12 |

| Class Strength   | 15    |       |       |       |
|--|-------|-------|-------|-------|
| Course Outcomes addressed                                | CO1   | CO2   | CO3   | CO4   |
| Target of Course Outcome                                 | 60    | 60    | 60    | 60    |
| No of students with CO value greater than or equal to 60 | 7     | 6     | 8     | 5     |
| Percentage of students with CO value greater than 60     | 46.67 | 40    | 53.33 | 33.33 |
| Average  | 42.44 | 40.63 | 45.73 | 35.32 |
| Attainment Level   | 0     | 0     | 1.00  | 0     |

Attainment :High  Medium  Low

### CO Attainment Levels



Attainment :High  Medium  Low

| <b>CO List</b> |   |
|----------------|---|
| <b>CO Code</b> | <b>Description</b>  |
| CO1            | Review the basics of python language, data types and modules.                 |
| CO2            | Understand the modules for maths and visualisation like numpy and matplotlib. |
| CO3            | Use arrays and matrices for mathematical analysis and problem solving         |
| CO4            | Create python programs for solving various physical problems.                 |



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| <b>Course Community :</b><br>CC19PPHY1L01 &<br>CC19PPHY2L03 MSC PHY SF<br>2022 S2 | <b>Faculty(s) :</b> Dr. V P Joseph', 'Anju<br>Sebastian | <b>Course :</b> General Physics<br>Practical |

**CO PO ATTAINMENT Report**

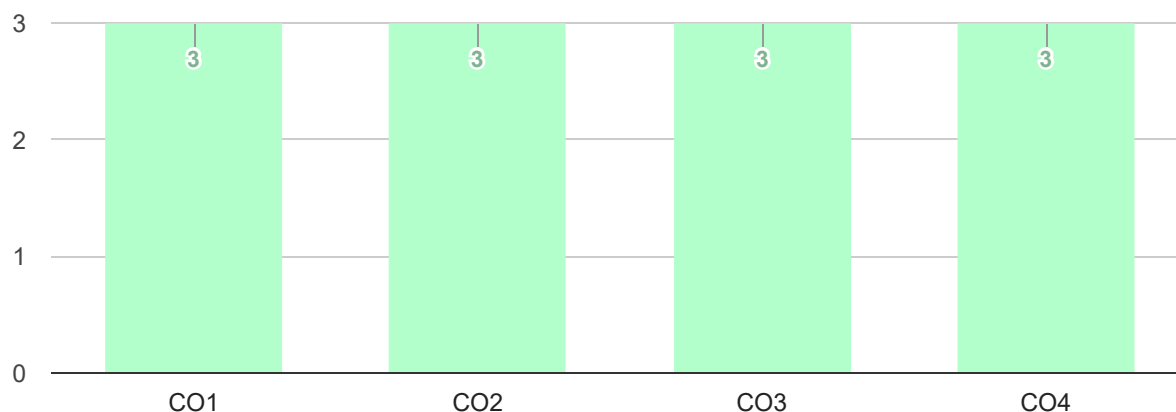
Above Target Percentage :  Below Target Percentage:

| #  | Reg No     | Student Name          | CO1   | CO2   | CO3  | CO4  |
|----|------------|-----------------------|-------|-------|------|------|
| 1  | CCAWMPH016 | ABHIJITH C<br>PREEJ   | 98.4  | 98.4  | 98.4 | 98.4 |
| 2  | CCAWMPH017 | AFNAN                 | 91.73 | 91.73 | 98.4 | 98.4 |
| 3  | CCAWMPH018 | ALAN ANTONY<br>K . J  | 96.8  | 96.8  | 96.8 | 96.8 |
| 4  | CCAWMPH019 | APARNA K.S            | 98.4  | 98.4  | 98.4 | 98.4 |
| 5  | CCAWMPH020 | ARJUN HARI C          | 96.8  | 96.8  | 96.8 | 96.8 |
| 6  | CCAWMPH021 | ARYA SUNIL            | 96.8  | 96.8  | 96.8 | 96.8 |
| 7  | CCAWMPH022 | FARHAN A F            | 93.6  | 93.6  | 93.6 | 93.6 |
| 8  | CCAWMPH024 | JERIN P J             | 98.4  | 98.4  | 98.4 | 98.4 |
| 9  | CCAWMPH025 | LAKSHMI V S           | 98.4  | 98.4  | 98.4 | 98.4 |
| 10 | CCAWMPH026 | ROSHINI<br>JAYARAJ    | 96.8  | 96.8  | 96.8 | 96.8 |
| 11 | CCAWMPH027 | SHREYA<br>JAYAPRAKASH | 98.4  | 98.4  | 98.4 | 98.4 |

|                       |    |
|-----------------------|----|
| <b>Class Strength</b> | 15 |
|-----------------------|----|

|  |       |       |       |       |
|--|-------|-------|-------|-------|
| <b>Course Outcomes addressed</b>   | CO1   | CO2   | CO3   | CO4   |
| <b>Target of Course Outcome</b>  | 60    | 60    | 60    | 60    |
| <b>No of students with CO value greater than or equal to 60</b>  | 11    | 11    | 11    | 11    |
| <b>Percentage of students with CO value greater than 60</b>  | 100   | 100   | 100   | 100   |
| <b>Average</b>   | 96.78 | 96.78 | 97.38 | 97.38 |
| <b>Attainment Level</b>  | 3.00  | 3.00  | 3.00  | 3.00  |
| Attainment :High <span style="color: green;">■</span> Medium <span style="color: orange;">■</span> Low <span style="color: pink;">■</span> |       |       |       |       |

### CO Attainment Levels



Attainment :High ■ Medium ■ Low ■

| <b>CO List</b> |  |
|----------------|--|
| <b>CO Code</b> | <b>Description</b>   |
| CO1            | Apply and illustrate the concepts of properties of matter through experiments      |
| CO2            | Apply and illustrate the concepts of electricity and magnetism through experiments |
| CO3            | Apply and illustrate the concepts of optics through experiments                    |
| CO4            | Apply and illustrate the concepts of spectroscopy through experiments              |



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| <b>Course Community :</b><br>CC19PPHY1L02 &<br>CC19PPHY2L04 MSC PHY SF<br>2022 S2 | <b>Faculty(s) :</b> Dr. V P Joseph', 'Anju<br>Sebastian | <b>Course :</b> Electronics Practical  |

**CO PO ATTAINMENT Report**

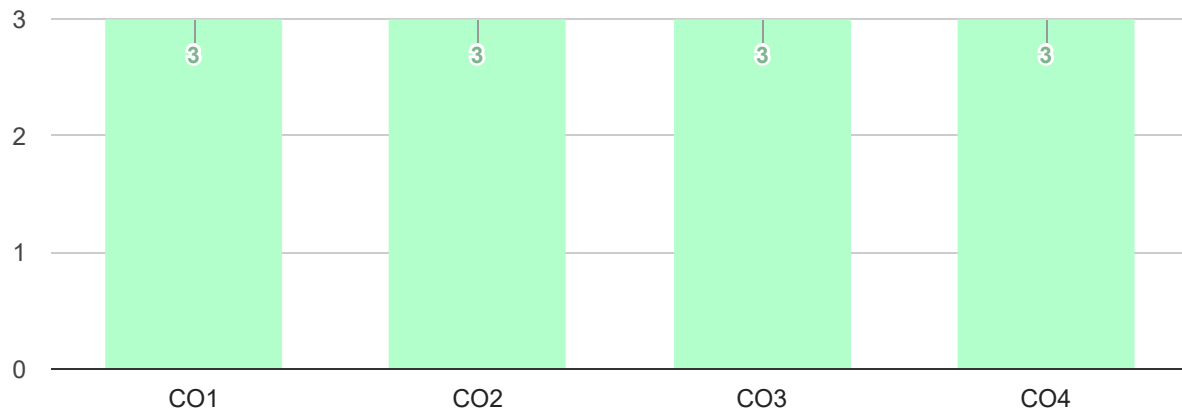
Above Target Percentage :  Below Target Percentage:

| #  | Reg No     | Student Name       | CO1   | CO2   | CO3   | CO4   |
|----|------------|--------------------|-------|-------|-------|-------|
| 1  | CCAWMPH016 | ABHIJITH C PREEJ   | 94.99 | 94.99 | 94.99 | 88.32 |
| 2  | CCAWMPH017 | AFNAN              | 73.92 | 73.92 | 80.59 | 80.59 |
| 3  | CCAWMPH018 | ALAN ANTONY K . J  | 81.97 | 81.97 | 81.97 | 81.97 |
| 4  | CCAWMPH019 | APARNA K.S         | 94.99 | 94.99 | 94.99 | 94.99 |
| 5  | CCAWMPH020 | ARJUN HARI C       | 89.65 | 89.65 | 89.65 | 89.65 |
| 6  | CCAWMPH021 | ARYA SUNIL         | 80.16 | 80.16 | 80.16 | 73.49 |
| 7  | CCAWMPH022 | FARHAN A F         | 61.71 | 61.71 | 61.71 | 61.71 |
| 8  | CCAWMPH024 | JERIN P J          | 92.85 | 92.85 | 92.85 | 92.85 |
| 9  | CCAWMPH025 | LAKSHMI V S        | 90.72 | 90.72 | 90.72 | 90.72 |
| 10 | CCAWMPH026 | ROSHINI JAYARAJ    | 90.83 | 90.83 | 90.83 | 90.83 |
| 11 | CCAWMPH027 | SHREYA JAYAPRAKASH | 83.89 | 83.89 | 83.89 | 83.89 |

|                       |    |
|-----------------------|----|
| <b>Class Strength</b> | 15 |
|-----------------------|----|

|   |       |       |       |       |
|---|-------|-------|-------|-------|
| <b>Course Outcomes addressed</b>  | CO1   | CO2   | CO3   | CO4   |
| <b>Target of Course Outcome</b>   | 60    | 60    | 60    | 60    |
| <b>No of students with CO value greater than or equal to 60</b>   | 11    | 11    | 11    | 11    |
| <b>Percentage of students with CO value greater than 60</b>   | 100   | 100   | 100   | 100   |
| <b>Average</b>  | 85.06 | 85.06 | 85.67 | 84.46 |
| <b>Attainment Level</b>   | 3.00  | 3.00  | 3.00  | 3.00  |
| Attainment :High <span style="color: green;">■</span> Medium <span style="color: orange;">■</span> Low <span style="color: red;">■</span> |       |       |       |       |

### CO Attainment Levels



Attainment :High ■ Medium ■ Low ■

| <b>CO List</b> |   |
|----------------|---|
| <b>CO Code</b> | <b>Description</b>  |
| CO1            | Design and construct electronic circuits using diodes and transistors |
| CO2            | Design and construct electronic circuits using OPAMP                  |
| CO3            | Design and construct electronic circuits using IC -555                |
| CO4            | Design and construct digital electronics circuits                     |