

<b>NAME OF THE DEPARTMENT: PHYSICS</b>		
<b>Methods/Strategies of measuring the attainment level of:</b>		
<b>Programme Outcomes</b>	<b>Programme Specific Outcomes</b>	<b>Course Outcomes</b>
1. Top positions in University examinations 2. Overall Pass Percentage 3. Placement 4. Awards and recognitions	1. Standard of review and projects 2. Presentations in conferences 3. Performance in Viva-voce 4. Better employability 5. Qualifying JRF/NET/SET/GATE/JEST/other examinations	1. Internal assessment/marks 2. Seminars and assignments 3. University exam results

The Course outcomes (COs) are evaluated by considering performance of students in internal examinations, seminars and assignments and, university examination results. Internal assessment is carried out by conducting tests on each unit of theory papers and understanding and skill of performing experiments laboratory sessions. Results of university examinations have been taken in to account to decide COs.

The Programme Specific Outcomes (PSOs) are estimated by considering standard of literature review during 3<sup>rd</sup> semester, projects during 4<sup>th</sup> semester, and the research papers presented and published based on the project work. It can also be measured from experiential learning that reflects in performance in Viva-voce and exhibiting experimental skill. The PSOs is reflected in number of students attempting and qualifying various national level examinations such as JRF/ NET/ SET/ GATE/ JEST and many other similar examinations of national repute. Employability of course has also been considered.

The Programme outcomes (POs) rely on understanding basic to advance concepts in Physics by the students. It is measured by the achievement of the students in university examinations, overall pass percentage and rate of enrolment in higher education. Placement obtained based on degree as qualification can also be taken for measuring POs. It was also measured using the awards and recognitions gained by them in various intra and inter collegiate competitions.

## COs Attainment

CO attainment is defined at three levels. It is based on internal and university examinations assessment, and seminar assignments. CO attainment is defined at three levels in ascending order.

Level-1: 30% students scored more than class average

Level-2: 40% students score more than class average;

Level-3: 50% students score more than class average.

Level-4: 75% students score more than class average.

**The target level is set at Level-3.** It indicates that, the current target is level-3; 50% students score more than class average. The CO attainment is measured and the results are obtained. Based on the results of attainment, the corrective measures/remedial action will be taken.

Course Attainment value has been calculated by using formula as given below-

**Course Attainment value=70% (University exam) x 20% (Internal marks) x 10% (Seminar assignments)**

## CO attainment results

COURSE CODE	Course Name	Attainment value	Attainment level set	Attained/not attained
2841	Mathematical Physics	2.4	3	Not attained*
2843	Quantum Mechanics - I	1.9	3	Not attained*
2844	Computational Methods & Programming	3.1	3	Fully attained
3001	Lab-I	3.3	3	Fully attained
3002	Lab-II	3.3	3	Fully attained
2851	Electrodynamics - I	3.1	3	Fully attained
2852	Quantum Mechanics - II	2.4	3	Not attained*
2853	Solid State Physics	3.3	3	Fully attained
2854	Physics Of Lasers & Laser Applications	2.4	3	Not attained*
2855	Lasers & Laser Applications	3.3	3	Fully attained
3003	Lab-III	3.3	3	Fully attained
3004	Lab-IV	3.3	3	Fully attained
2861	Electrodynamics - II(Radiation & Plasma Physics)	3.1	3	Fully attained
2862	Statistical Mechanics	3.1	3	Fully attained
2863	Atomic & Molecular Physics	3.3	3	Fully attained
2864	Digital Techniques	3.1	3	Fully attained
2865	Condensed Matter Physics - I	3.1	3	Fully attained
2867	Photonics-I	3.3	3	Fully attained
3052	Lab-V-Photonics-I	3.3	3	Fully attained
3046	Lab-V-Digital Techniques	3.3	3	Fully attained
3047	Lab-V-Condensed Matter Physics	3.3	3	Fully attained
3006	Lab-VI	3.3	3	Fully attained
2871	Nuclear & Particle Physics	3.8	3	Fully attained
2872	OPAMP Theory & Applications	4	3	Fully attained
2873	Micro Processor Programming & Interfacing	4	3	Fully attained
2874	Condensed Matter Physics-II	4	3	Fully attained
2877	Nano-Science & Nanotechnology	4	3	Fully attained
2878	Photonics-II	4	3	Fully attained
3049	Lab-VII-OPAMP & Microprocessors	4	3	Fully attained
3050	Lab-VII-OPAMP & Condensed Matter Physics-II	3.3	3	Fully attained
3053	Lab-VII-Photonics-II	3.3	3	Fully attained
3008	Project	3.3	3	Fully attained

**Remedies:** Invited lectures of experienced teachers will be arranged. Assignments and tutorials will be given.

## PSO attainment

PSO attainment is decided by taking in account the *direct method*, which include PSO-SET/NET/JEST/GATE other examinations qualifications (Average of 5 years data), and *indirect method*, that includes PSOs- Standard of review and projects, Presentations in conferences, Performance in Viva-voce, Better employability.

*The PSO attainment target level is set at Level-4*, indicates that, the department is aiming at minimum level-4 (very good) in the performance of abilities of student's. Based upon the results of attainment, the remedial measures are being taken.

PSO Attainment value is estimated as below-

**PSO Attainment value = 80% (direct method) + 20% (Average attainment level by indirect method).**

PSOs	Level structure
Standard of review and projects	<ol style="list-style-type: none"> <li>1. Level-1:0 - Poor</li> <li>2. Level-2:&lt;1 -Average</li> <li>3. Level-3: &gt;1 -Good</li> <li>4. Level-4:&gt;2 -Very Good</li> <li>5. Level-5: &gt;3 –Excellent</li> </ol>
Presentations in conferences	<ol style="list-style-type: none"> <li>1. Level-1:0 - Poor</li> <li>2. Level-2:&lt;1 -Average</li> <li>3. Level-3: &gt;1 -Good</li> <li>4. Level-4:&gt;2 -Very Good</li> <li>5. Level-5: &gt;3 –Excellent</li> </ol>
Performance in Viva-voce	<ol style="list-style-type: none"> <li>1. Level-1:&lt;30% - Poor</li> <li>2. Level-2:&lt;40% -Average</li> <li>3. Level-3:&gt;40% -Good</li> <li>4. Level-4:&gt;50% -Very Good</li> <li>5. Level-5:&gt;75 –Excellent</li> </ol>
Better employability	<ol style="list-style-type: none"> <li>1. Level-1:0 - Poor</li> <li>2. Level-2:&lt;1 -Average</li> <li>3. Level-3: &gt;1 -Good</li> <li>4. Level-4:&gt;2 -Very Good</li> <li>5. Level-5: &gt;3 –Excellent</li> </ol>
SET/NET/JEST/GATE other examinations qualifications (Average of 5 years data)	<ol style="list-style-type: none"> <li>1. Level-1:0 - Poor</li> <li>2. Level-2:&lt;1 -Average</li> <li>3. Level-3: &gt;1 -Good</li> <li>4. Level-4:&gt;2 -Very Good</li> <li>5. Level-5: &gt;3 –Excellent</li> </ol>

## PSO attainment results

PSOs	Value	Attainment level	Attainment level Set	Attained/not attained	Reasons and Remedies
Standard of review and projects		5	4	Fully attained	
Presentations in conferences		3	4	Not attained	Students will be motivated to participate in conferences and present papers.
Performance in Viva-voce		5	4	Fully attained	
Better employability		4	4	Fully attained	
SET/NET/JEST/GATE other examinations qualifications (5 yrs- 24)	4.8	5	4	Fully attained	

**PSO attainment value is 4.68 so that overall PSOs fully attained at level-4.**

## POs attainment

PO attainment is defined at five levels in ascending order.

The PO attainment levels are defined as stated below:

1. Level-1: Greater than 0.5 and less than 1.0- Poor
2. Level-2: >1.0-Average
3. Level-3: >2.0-Good
4. Level-4: >2.0-Very Good
5. Level-5: >2.5 –Excellent

**PO attainment target level set at Level-4.** It indicates that the department is aiming at minimum level-4 (very good) in the performance of abilities of student's. Based upon the results of attainment, the remedial measures are being taken.

**PO attainment value is calculated by taking average of attainment level of POs.**

POs	Level structure
Top positions in University exams 05 yrs	<ol style="list-style-type: none"> <li>1. Level-1:0 - Poor</li> <li>2. Level-2:&lt;1-Average</li> <li>3. Level-3: &gt;1 -Good</li> <li>4. Level-4: 2 -Very Good</li> <li>5. Level-5: &gt;2 –Excellent</li> </ol>
Overall Pass Percentage (Last Batch Sem IV 2019-2020)	<ol style="list-style-type: none"> <li>6. Level-1:&lt;30% - Poor</li> <li>7. Level-2:&lt;40% -Average</li> <li>8. Level-3:&gt;40% -Good</li> <li>9. Level-4:&gt;50% -Very Good</li> <li>10. Level-5:&gt;75 –Excellent</li> </ol>
Placement (Average of last 5 Yrs)	<ol style="list-style-type: none"> <li>6. Level-1:0 - Poor</li> <li>7. Level-2:&lt;1-Average</li> <li>8. Level-3: &gt;1 -Good</li> <li>9. Level-4:&gt;2 -Very Good</li> <li>10. Level-5: &gt;3 –Excellent</li> </ol>
Awards and recognitions (Average of last 5 Yrs) (5yrs PhD-20)	<ol style="list-style-type: none"> <li>6. Level-1:0 - Poor</li> <li>7. Level-2:&lt;1-Average</li> <li>8. Level-3: &gt;1 -Good</li> <li>9. Level-4:&gt;2 -Very Good</li> <li>10. Level-5: &gt;3 –Excellent</li> </ol>

## PO attainment result

Program Outcomes	Value	Attainment level	Attainment level Set	Attained/not attained	Reasons and Remedies
Top positions in University exams (Average for 05 yrs)	2.6	5	4	Fully attained	
Overall Pass Percentage (Last Batch Sem IV 2019-2020)	Results 100%	5	4	Fully attained	
Placement (Average of last 5 Yrs)	2	3	4	Not attained	It may be because of government not filling vacant posts and pass out students are also not reporting about their placements. Attempts will be made to motivate students to seek placement in private sector and report about their placements.
Awards and recognitions (Average of last 5 Yrs)	4	5	4	Fully attained	

**PO attainment value is 4.5 so that PO is fully attained at level-4.**