

Unified PLOs for M.Sc. in Physics Program

PLO		Courses	Representative CLOs
Knowledge			
K1	Recognize physics concepts at advanced level	PHYS 612, PHYS 613, PHYS 621, PHYS 624, PHYS 633, PHYS 635, PHYS 636, PHYS 637, PHYS 638, PHYS 639	<ul style="list-style-type: none"> Understand quantum formalism and angular momentum <ul style="list-style-type: none"> Grasp electromagnetic theory Master radiation detector principles Demonstrate semiconductor physics knowledge
K2	Master fundamental knowledge	PHYS 611, PHYS 612, PHYS 613, PHYS 622, PHYS 623, PHYS 625, PHYS 630, PHYS 631, PHYS 632, PHYS 634, PHYS 636, PHYS 639	<ul style="list-style-type: none"> Explain computational methods Describe statistical physics principles Understand radiation protection fundamentals <ul style="list-style-type: none"> Analyze materials properties
K3	Identify key physics factors	PHYS 611, PHYS 613, PHYS 622, PHYS 625, PHYS 630, PHYS 631, PHYS 633, PHYS 635, PHYS 640	<ul style="list-style-type: none"> Discuss algorithmic approaches Describe diagnostic applications <ul style="list-style-type: none"> Evaluate research trends Demonstrate research understanding
K4	Apply fundamental knowledge	PHYS 612, PHYS 621, PHYS 623, PHYS 624, PHYS 632, PHYS 634, PHYS 636, PHYS 637, PHYS 639, PHYS 640	<ul style="list-style-type: none"> Analyze phase transitions Apply detector principles <ul style="list-style-type: none"> Assess radiation risks Formulate research problems
Skills			
S1	Perform experiments and develop research skills.	PHYS 611, PHYS 612, PHYS 621, PHYS 624, PHYS 625, PHYS 631, PHYS 633, PHYS 635, PHYS 637, PHYS 638, PHYS 640	<ul style="list-style-type: none"> Implement computational algorithms <ul style="list-style-type: none"> Develop research programs Apply experimental knowledge <ul style="list-style-type: none"> Design research plans
S2	Apply theories in research contexts	PHYS 611, PHYS 612, PHYS 613, PHYS 622, PHYS 623, PHYS 630, PHYS 633, PHYS 635, PHYS 636, PHYS 638, PHYS 639, PHYS 640	<ul style="list-style-type: none"> Utilize computational libraries <ul style="list-style-type: none"> Calculate quantum models <ul style="list-style-type: none"> Apply ensemble theory Analyze and synthesize data
S3	Use analytical methods effectively	PHYS 612, PHYS 621, PHYS 623, PHYS 630, PHYS 636, PHYS 638, PHYS 640	<ul style="list-style-type: none"> Solve quantum problems Use mathematical equations Perform dose calculations Evaluate research findings
S4	Communicate concepts clearly	PHYS 611, PHYS 613, PHYS 623, PHYS 624, PHYS 631, PHYS 634, PHYS 637, PHYS 639, PHYS 640	<ul style="list-style-type: none"> Derive physical solutions Present numerical solutions Explain complex concepts Evaluate research implications
Values			
V1	Work effectively in groups and individually.	PHYS 612, PHYS 613, PHYS 621, PHYS 624, PHYS 625, PHYS 631, PHYS 634, PHYS 636, PHYS 639, PHYS 640	<ul style="list-style-type: none"> Collaborating in group work <ul style="list-style-type: none"> Manage time effectively Present written and oral reports <ul style="list-style-type: none"> Use information technology <ul style="list-style-type: none"> Adherent safety standards
V2	Take professional and ethical responsibilities.	PHYS 611, PHYS 613, PHYS 622, PHYS 624, PHYS 630, PHYS 632, PHYS 633, PHYS 637, PHYS 638, PHYS 640	<ul style="list-style-type: none"> Demonstrate ethical responsibility Ensure proper citation and academic integrity <ul style="list-style-type: none"> Work independently and collaboratively <ul style="list-style-type: none"> Conduct research ethically

V3	Demonstrate time management	PHYS 611, PHYS 612, PHYS 621, PHYS 622, PHYS 625, PHYS 630, PHYS 636, PHYS 639, PHYS 640	<ul style="list-style-type: none">• Follow best coding practices• Exhibit persistence in problem-solving• Demonstrate initiative in research• Manage long-term projects independently.
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