"Education for Knowledge, Science, and Culture"
- Shikshanmaharshi Dr. Bapuji Salunkhe

Shri Swami Vivekanand Shikshan Sanstha's

Vivekanand College, Kolhapur
(Autonomous)

KOLHAPUR (AUTONOMOUS)

B.Sc. Physics CO-PO attainment 2020-21

CO attainment

Course Code	Course Name	CO Target	CO attainment	Full Attained or Not	Action Taken
C1(DSE-1001E1)	Classical Mechanics and Quantum Mechanics	3	2.8	Not Attained	Need to focus on CIE
C2 (DSE-1001E2)	Nuclear and Particle Physics and Mathematical Physics	3	2.8	Not Attained	Need to focus on CII
C3 (DSE-1001F1)	Semiconductor Devices and Instrumentation and Elements of Modern Physics	3	1.2	Not Attained	Need focus on ESE and CIE both
C4 (DSE-1001F2)	Solid State Physics	3	2.6	Not Attained	Need to focus on CIE

PO attainment

POs	PO attainment	Level
PO1	2.350	Excellent
PO2	2.340	Excellent
PO3	2.309	Excellent
PO4	2.222	Excellent
PO5	2.200	Excellent

PSO attainment

PSOs	PSO attainment	Level
PSO1	2.350	Excellent
PSO2	2.350	Excellent
PSO3	2.309	Excellent
PSO4	2.332	Excellent

PO's of B.Sc. programme

1. Acquire the knowledge with facts.
2. Acquire the skills in handling scientific instruments.
3. Develop scientific outlook with respect to science subjects.
4. Analyse the given scientific data critically and systematically.
5. Realize ethical moral and social values in personal and social life.

PSO's of B.Sc. (Physics) programme:

1. Understand basic mechanics and properties of matter.
2. Students should understand mathematical concepts needed for understanding Physics.
3. Students should understand fundamental basic theories of General Physics, Classical Mechanics, Quantum mechnics, Electricity and magnetism, Modern Physics, Space Science. Semiconductor Physics and able to apply this knowledge to analyze the variety of physics phenomenon.
4. Students should learn laboratory skills, students should take measurements in Physics laboratory and analyze the measurements to draw valid conclusions.

B. Sc. Part – I Semester -I PHYSICS (Syllabus w.e.f. 2018-19)

Course Code: DSC1001A

Mechanics

Course Outcomes: After the completion of the course the student will be able to -

CO1: Demonstrate and understand the basic primary knowledge of Mechanics theories in Physics and develop the critical skill in students to understand mechanics.

CO2: get a proficiency in solving problems in Vectors, Ordinary Differential Equations, basic concepts of dot product, cross product, Ordinary Differential Equations, laws of motion, rotational motion, momentum, and energy etc.

CO3: get a proficiency in solving problems in Elasticity, gravitation, oscillation, Differential equation of Simple harmonic motion, special theory of relativity etc.

CO4: Understand the basic concepts of elastic constants, gravitation and Kepler's laws, Simple harmonic motion, etc.

B. Sc. Part – I Semester -II Physics

Course Code: DSC1001

Electricity and Magnetism

Course Outcomes: After the completion of the course the student will be able to -

CO1: Demonstrate and understand the basic primary knowledge of Electricity, Magnetism and Electromagnetic Theory and will demonstrate a proficiency in solving problems in Thevenin's theorem, and Norton's theorem, magnetism, electrostatics etc.

CO2: Understand the basic concepts of Ballistic galvanometer, networks theorem, magnetostatics and electrostatics, electricity, and magnetism etc.

CO3: get a proficiency in solving problems in gradient, divergence, Curl and their significance. Vector Integration, Line, surface and volume integrals of Vector fields, Maxwell's equations, and Electromagnetic wave propagation.

CO4: Understand the basic concepts of gradient, divergence, Curl and their significance, Gauss-divergence theorem and Stoke's theorem of vectors, Electromagnetic Induction. Maxwell's equations, and Electromagnetic wave propagation etc.

B. Sc. Part – II Semester -III PHYSICS (Syllabus w.e.f. 2019-20)

Course Code: DSC1001C

Thermal Physics, Statistical Mechanics, Waves and Optics Part I

Course Outcomes: After the completion of the course the student will be able to -

CO1: Demonstrate and understand the basic primary knowledge of Thermal Physics, Statistical Mechanics, waves, and Optics.

CO2: get a proficiency in solving problems in Thermal Physics, Statistical Mechanics, waves, and optics

CO3: Understand the basic concepts of kinetic theory of gases, transport phenomena, the first thermodynamic laws, thermodynamic process, isothermal and adiabatic process, entropy, etc.

oscillations, oscillations of different frequencies, Lissajous figures, coupled oscillations, ultrasonic waves their applications, acoustic of building and reverberations

CO4: Develop the critical skill in students to understand Thermal Physics, Statistical Mechanics, waves and Optics.

B. Sc. Part – II Semester -IV PHYSICS

Course Code: DSC1001D

Thermal Physics, Statistical Mechanics, waves and Optics Part II

Course Outcomes: After the completion of the course the student will be able to -

CO1: Demonstrate and understand the basic primary knowledge of Electricity, Magnetism and Electromagnetic Theory and will demonstrate a proficiency in solving problems in Thevenin's theorem. and Norton's theorem, magnetism, electrostatics etc.

CO2: Understand the basic concepts of Ballistic galvanometer, networks theorem, magnetostatics and electrostatics, electricity, and magnetism etc.

CO3: get a proficiency in solving problems in gradient, divergence, Curl and their significance, Vector Integration, Line, surface and volume integrals of Vector fields, Maxwell's equations, and Electromagnetic wave propagation.

CO4: Understand the basic concepts of gradient, divergence, Curl and their significance, Gauss-divergence theorem and Stoke's theorem of vectors, Electromagnetic Induction, Maxwell's equations, and Electromagnetic wave propagation etc.

B. Sc. Part – III Semester -V PHYSICS

Course Code: DSC1001E1

Classical Mechanics and Quantum Mechanics

CO's: After completion, students are able to

CO1: demonstrate and understand the knowledge of classical and quantum mechanics.

CO2: get a proficiency in solving problems in classical and quantum mechanics.

CO3: understand the basic concepts like Virtual work, D'Alembert's Principle, Lagrangian and Hamiltonian Principle, Euler's Theorem, Elastic and inelastic scattering, De-Broglie's Hypothesis, Schrodinger Equations, Operators, Hydrogen Problems, Eigen's values and functions.

CO4: develop the critical skill in students to understand classical and quantum mechanics.

B. Sc. Part – III Semester -V PHYSICS

Course Code: DSC1001E2

Nuclear and Particle Physics and Mathematical Physics

CO's: After completion, students are able to

CO1: demonstrate and understand the knowledge of Nuclear and Particle Physics and Mathematical Physics

CO2: get a proficiency in solving problems in Nuclear and Particle Physics and Mathematical Physics

CO$_3$: understand the basic concepts like properties of nucleus, nuclear forces, nuclear models, nuclear reactions, accelerators and detectors and various co-ordinate systems, Differential equations, complex numbers, Fourier series and integrals etc.

CO$_4$: develop the critical skill in students to understand Nuclear and Particle Physics and Mathematical Physics.

B. Sc. Part – III Semester -VI PHYSICS

Course Code: DSC1001F1

Semiconductor devices and instrumentation and elements of modern physics

CO's: After completion, students are able to

CO$_1$: demonstrate and understand the knowledge of Semiconductor devices and modern physics

CO$_2$: demonstrate a proficiency in solving problems in Semiconductor devices and modern physics

CO$_3$: understand the basic concepts like transistor, diodes, SCR, Solar cell, Photocell, LRD, etc. and vector atom model, Zeeman effect, laser technology, etc.

CO$_4$: develop the critical skill in students to understand Semiconductor devices and modern physics.

B. Sc. Part – III Semester -VI PHYSICS

Course Code: DSC1001F2

Solid State Physics I and Solid-State Physics II

CO's: After completion, students are able to

CO$_1$: demonstrate and understand the knowledge of crystal structure, lattice theory, magnetic properties and band theory, dielectric properties, X-ray diffraction, etc.

CO$_2$: demonstrate a proficiency in solving problems in solid state physics.

CO$_3$: understand the basic concepts like crystal structure, types of crystal, miller indices, defects, lattice constants, etc. and superconductivity, Types of superconductors, etc.

CO$_4$: develop the critical skill in students to understand the basic theory of solid state physics which is used for further higher studies.

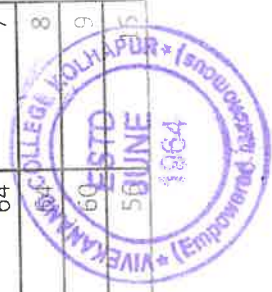# Articulation matrix for all courses taught in B.Sc. Physics programme

B.Sc.III Physics

CO-PO, CO-PSO Mapping Articulation Matrix

Course I (DSE1001E1)

Outcome	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4
CO1	3	2	1	1	2	3	3	2	2
CO2	3	3	2	1	3	3	3	2	2
CO3	3	3	2	1	2	3	3	2	2
CO4	3	3	3	1	3	3	3	2	2
Average	3	2.75	2	1	2	3	3	2	2

Course II (DSE1001E2)

Outcome	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4
CO1	3	3	3	3	1	3	3	3	2
CO2	3	3	3	2	1	3	3	3	2
CO3	3	3	3	2	1	3	3	3	2
CO4	3	3	3	3	1	3	3	3	2
Average	3	3	3	2.5	1	3	3	3	2

Course III (DSE1001F1)

Outcome	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4
CO1	3	3	3	3	1	3	3	3	2
CO2	3	3	3	3	1	3	3	3	2
CO3	3	3	3	2	1	3	3	3	1
CO4	3	3	3	3	1	3	3	3	2
Average	3	3	3	2.75	1	3	3	3	1.75

Course IV (DSE1001F2)

Outcome	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4
CO1	3	3	3	3	1	3	3	3	2
CO2	3	3	3	3	1	3	3	3	2
CO3	3	3	3	2	1	3	3	3	1
CO4	3	3	3	3	1	3	3	3	2
Average	3	3	3	2.75	1	3	3	3	1.75

Students Marks Chart:

Ext/Int marks for CO attainment Direct Method (Physics B.Sc. III)

Sr. No	Name of the student	Roll No.	Course I (DSE1001E1) External (Out of 80)	Internal (Out of 20)	Course II (DSE1001E2) External (Out of 80)	Internal (Out of 20)	Course III (DSE1001F1) External (Out of 80)	Internal (Out of 20)	Course IV (DSE1001F2) External (Out of 80)	Internal (Out of 20)
1	Ramchandra Ashok Chavan	8001	72	18	80	18	56	15	72	18
2	Abishek Ashok Dayma	8002	80	19	80	18	48	16	68	15
3	Santosh Vasudev Gavali	8003	60	12	80	19	52	16	64	15
4	Dattatray Vishnu Ghorpade	8004	80	18	76	15	36	15	64	13
5	Rutuja Ravindra Gurav	8005	64	17	80	19	52	9	60	15
6	Nikhil Sandeep Jadhav	8006	60	18	80	18	48	15	60	17
7	Priyanka S. Kanade	8007	64	17	80	18	76	18	72	15
8	Pooja Sanjay Khandekar	8008	60	18	80	16	48	14	60	11
9	Sayli Santosh Koli	8009	72	19	80	19	60	13	68	15
10	Sammed Rajendra Latthe	8010	68	18	80	18	56	14	44	14
11	Gaurav Gaotam Mane	8011	68	16	80	18	40	17	64	16
12	mayuresh Laxman More	8012	68	16	80	18	64	17	64	15
13	Akansha Bhimrao Patil	8013	64	16	80	18	76	17	68	16
14	Anuja D. Patil	8014	80	18	80	19	60	17	72	18
15	Mandar Dyandev Patil	8015	76	18	80	19	52	17	64	14
16	Onkar Dhanaji Patil	8016	72	18	80	20	68	15	72	17
17	Onmkar J. Patil	8017	68	20	80	18	60	15	76	19
18	Prajakta K. Patil	8018	68	18	80	19	64	15	64	15
19	Prakash A. Patil	8019	64	18	80	19	72	18	44	12
20	Rajat J. patil	8020	80	16	80	19	76	18	60	17
21	Saiyogeeta S. Patil	8021	80	18	80	19	76	14	60	13
22	Vijayraj M. Patil	8022	70	15	65	9	40	16	64	7
23	Shivanand S. Sathbigge	8023	65	17	55	10	36	8		8
24	Pranav S. Sharbedire	8024	72	18	80	19	50	17		9
25	Avinash S. Shelai	8025	68	18	80	19	72	18		18

No.	Name	ID								
26	Rhohan R. Sonkamble	8026	72	16	80	19	64	13	64	14
27	Rathika V. Thorat	8027	76	14	80	9	40	15	48	13
28	Kiran B. Waghmode	8028	12	8	24	19	36	17	64	15
29	Jyoti V. Kore	8371	68	16	80	17	44	17	68	14
30	Alsaba J/ Sayyad	8372	64	16	80	17	56	17	64	14

Feedback for CO attainment Indirect Method (Physics B.Sc. III)

Total Strength of Students = 30

Course I (DSE1001E1) Total no. of students given feedback=18

Question	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10
Exllent	4	3	2	3	-	2	-	2	-	3
Very Good	11	5	5	10	8	4	8	4	4	3
Good	3	9	9	3	7	10	6	8	13	12
Average	-	1	2	2	3	2	4	4	1	-
Poor	-	-	-	-	-	-	-	-	-	-

Total Strength of Students = 30

Course II (DSE1001E2) Total no. of students given feedback=18

Question	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10
Excellent	10	2	2	-	-	-	2	2	-	-
Very Good	4	16	4	6	4	10	6	4	6	8
Good	4	-	12	10	12	4	10	8	8	6
Average	-	-	-	2	2	4	-	4	4	4
Poor	-	-	-	-	-	-	-	-	-	-

Total Strength of Students = 30

Course III (DSE1001F1) Total no. of students given feedback=18

Question	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10
Excellent	4	4	2	-	2	2	2	-	2	-
Very Good	12	8	6	6	2	8	4	6	4	6
Good	2	6	10	10	11	6	2	4	8	10
Average	-	-	-	-	2	3	2	10	8	4	2
Poor	-	-	-	-	-	-	-	-	-	-

Total Strength of Students = 30

Course IV (DSE1001F2) Total no. of students given feedback=18

Question	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10
Excellent	8	1	2	-	-	-	2	2	-	-
Very Good	6	10	6	8	4	6	6	8	10	
Good	4	4	4	10	6	8	2	4		
Average	-	3	6	-	4	4	4	4		
Poor	-	-	-	-	4	-	4	-		