SYLLABI AND SCHEME OF EXAMINATIONS FOR MINOR COURSES FOR UNDER GRADUATE PROGRAMS B.Sc. PHYSICAL SCIENCES (SINGLE MAJOR / MULTIDISCIPLINARY PROGRAMS)

(Based on Curriculum and Credit Framework for UG Programs under NEP)

WITH EFFECT FROM THE SESSION 2024-25

MAHARSHI DAYANAND UNIVERSITY ROHTAK (HARYANA)

SYLLABI AND SCHEME OF EXAMINATIONS FOR MINOR COURSES FOR

UNDER GRADUATE SINGLE MAJOR/MULTIDISCIPLINARY PROGRAMS/ SINGLE MAJOR PROGRAM AFTER 2nd SEMESTER OF MULTIDISCIPLINARY PROGRAM

Minor Courses (MIC)/ Minor (Vocational) Course MIC(VOC)	TYPE OF PROGRAM			Credits Distribution			Total Credits	Workload			Total Workload	Marks				
	MULTIDISCIPLINARY PROGRAM / SINGLE MAJOR PROGRAM AFTER 2nd SEMESTER OF MULTIDISCIPLINARY PROGRAM	Nomenclature of Course	Course Code	L	T	P		L	T	P		Theory		Practical		Total Marks
	SEMESTER											Internal	External	Internal	External	
MIC 1 @ 4 credits	1	Physics in Everyday Life	24PHY401MI01	02	0	02	04	02	0	04	06	15	35	15	35	100
MIC 2 @ 4 credits	3	Elements of Modern Physics	25PHY403MI01	02	0	02	04	02	0	04	06	15	35	15	35	100
MIC 3 @ 4 credits	4	Laser Physics & Applications	25PHY403MV01	02	0	02	04	02	0	04	06	15	35	15	35	100
MIC 4 (VOC) @ 4 credits	5	Nanotechnology	26PHY405MV01	02	0	02	04	02	0	04	06	15	35	15	35	100
MIC 5 (VOC) @ 4 credits	6	Radiation Safety	26PHY406MV01	03	1	0	04	03	01	0	04	30	70	0	0	100
MIC 6 (VOC) @ 4 credits	6	Renewable Energy	24PHYS402MI01	03	1	0	04	03	01	0	04	30	70	0	0	100
MIC 7 (VOC) @ 4 credits		-	--	-	-	-	-	-	--	-	-	-	-	-	-	-
MIC 8 (VOC) @ 4 credits		-	-	-	--	-	-	-	-	-	--	-	-	-	-	-

L: Lecture; T: Tutorial; P: Practical

Note:

1. The Syllabi and Scheme of Examinations (SOE) for Minor (Vocational) Courses for UG Semester 7 and Semester 8 will be same as applicable for Vocational Course in Post Graduate semester 1 and semester 2 respectively.
2. Course coding of Minor courses for Single Major Programs will be applicable for Multidisciplinary Programs/ Multidisciplinary Programs after 2nd semester irrespective of their offering in any semester.
3. The student who select any Minor Course (MIC) of any discipline in first semester should study the Minor courses (MIC) in the same discipline in the subsequent semesters. However, while exercising the option for choosing Minor Vocational Course MIC (VOC), the student may opt the discipline either related to the discipline of Minor Course or the discipline of Major Course or any other discipline as per his/her choice.

Syllabi for Physics in Everyday Life

Semester-I

Session: 2024-25

Name of Program	Not to be filled	**Program Code**	Not to be filled
Name of the Course	Physics in Everyday Life	**Course Code**	24PHY401MI01
Hours per Week	06(2+4)	**Credits**	04
Maximum Marks	Theory : 15+35 Practical: 15+35 Total : 100	**Time of Examinations**	Theory: 03 Practicals: 03

Note:

Examiner will set nine questions of seven marks each and the candidates will be required to attempt five questions in all. Question number one will be compulsory containing short answer type questions from all units. Further, examiner will set two questions from each unit and the candidates will be required to attempt one question from each Unit. All questions will carry equal marks.

Course Learning Outcomes (CLO):

CLO1. Understand Newton's laws of motion and the role they play in predicting motion and apply them to solve quantitative problems in mechanics.

CLO2. Understand and apply the wave nature and behaviour of sound and light to solve conceptual and quantitative problems.

CLO3. Explain and apply gas laws, thermal energy, mechanical waves, and pressure through an understanding of the concept of atoms.

CLO4. Understand and apply basic concepts of electricity and apply the knowledge of electricity to simple circuits

Unit 1:

MECHANICS: Every day activities related to Force, weight, work, energy, power and centrifuge; washing machine.

Unit 2:

HEAT: Variation of boiling point with pressure, pressure cooker, cooling by expansion, refrigerator, air conditioner, Bernoulli principle Bunsen burner, aero-plane

Unit 3:

SOUND AND OPTICS: Sound waves, Doppler Effect, power of lens, long sight and short sight, microscope, telescope, binocular camera, video camera.

Unit 4:

ELECTRICAL AND ELECTRONIC APPLIANCES: Working of the tube light and fan, kilowatt hour, fuse and heating elements, microwave oven, electric heater, photoelectric effect

Practicals:

1 To measure the diameter of a small spherical / cylindrical body.

2 To measure the length, width and height of the given rectangular block.
3 To measure the internal diameter and depth of a given beaker/calorimeter and hence find its volume.
4 Use of screw gauge:(i) to measure diameter of a given wire and (ii) to measure thickness of a given sheet
5 To determine radius of curvature of a given spherical surface by a spherometer.
6 To study the random error in observations.
7 To determine the height of a building using a Sextant.
8 Use of Multi-meter for measuring Resistance, A.C. and D.C. Voltage and Current, checking of electrical fuses.
9 To determine an unknown Low Resistance using Potentiometer.
10 To determine Frequency of A.C. mains using an electromagnet.
11 To determine Frequency of A.C. mains Electrical vibrator.
12 Verification of Inverse square law by photo-cell.

Note: A student has to perform atleast eight (08) experiments from the above list.

References:

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8. B.Sc. Practical Physics, C. L. Arora, R Chand & Co. New Delhi.
9. 2. B.Sc. Practical Physics, Harnam Singh and Dr. P.S. Hemne, S Chand & Company Ltd.