

**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		Nomenclature of Course	Course Code	Credits Distribution			Total Credits	Workload			Total Workload	Marks				Total Marks
	SINGLE MAJOR PROGRAM	MULTIDISCIPLINARY PROGRAM / SINGLE MAJOR PROGRAM AFTER 2nd SEMESTER OF MULTIDISCIPLINARY PROGRAM			L	T	P		L	T	P		Theory		Practical		
													Internal	External	Internal	External	
SEMESTER	SEMESTER																
MIC 1 @ 4 credits	1	1	Physics in Everyday Life	24PHY401MI01	02	02	02	04	02	00	04	06	15	35	15	35	100
MIC 2 @ 4 credits	2	3	Elements of Modern Physics	25PHY403MI01	02	00	02	04	02	00	04	06	15	35	15	35	100
MIC 3 @ 4 credits	3	4	Laser Physics & Applications	25PHY403MI01	02	00	02	04	02	00	04	06	15	35	15	35	100
MIC 4 (VOC) @ 4 credits	4	5	Nanotechnology	26PHY401MI01	02	00	02	04	02	00	04	06	15	35	15	35	100
MIC 5 (VOC) @ 4 credits	5	6	Radiation Safety	26PHY406MI01	03	01	00	04	03	01	00	04	30	70	00	00	100
MIC 6 (VOC) @ 4 credits	6	6	Renewable Energy	26PHY406MI02	03	01	00	04	03	01	00	04	30	70	00	00	100
MIC 7	7	7	Practical:	27PHY407MI	00	00	04	04	00	00	00	08	00	00	30	70	100

Syllabi and S.O.E. for Minor Course(s) for UG Programs w.e.f. 2024-25 session

(VOC) @ 4 credits			Electronics - I	01							8						
MIC 8 (VOC) @ 4 credits	8	8	Practical: Electronics - II	27PHY408M0 1	0	0	4	04	0	0	0 8	08	0	0	30	70	100

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	24PHYS401MI01
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:

1. R. Murugesan, Allied Physics I & II, S. Chand & Co, New Delhi (2006).
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3. R. Murugesan, Properties of matter and acoustics, S. Chand & Co, New Delhi (2012)
4. Brijal & Dr. N. Subramanyan and P.S. Hemne, Heat and Thermodynamics, S. Chand & Co, New Delhi, (2004).
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7. N. Subramaniam, Brijlal and M.N. Avadhanulu, A textbook of Optics S. Chand & Co, New Delhi (2012).
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.