



Integrated Bachelors & Masters Programmes
B.Sc. Materials Science, Semester II

Course Code	IS02CMTS51	Title of the Course	Materials Science-II
Total Credits of the Course	2	Hours per Week	2 hrs

Course Objectives:	<ol style="list-style-type: none">1. To get insight of states and properties of matter.2. To get familiar with different laws of gaseous state.3. To understand electrical and magnetic behaviour of materials
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Course Content		
Unit	Description	Weightage* (%)
1.	States of matter: solid, liquid, gas, plasma, Observed properties of matter: density, shape, compressibility, thermal expansion, Kinetic-molecular theory of matter, Laws related to gaseous state of matter, Pressure, Volume and temperature relationship, Changes in states, Evaporation and vapour pressure, Sublimation and melting of materials	50
2.	Electrical and magnetic properties of materials: Classification of materials based on electrical conductivity, Ohms law and electrical conductivity of materials, Drift velocity, current density and mobility Band structures in solids: metal, semiconductors and insulators Magnetic dipole and magnetic moment, Magnetization, Permeability, Magnetic field and susceptibility, Classification of magnetic materials, Ceramic magnetic materials	50

Teaching-Learning Methodologies	Blended approach of the class room teaching (conventional as well as ICT based) along with question-answer and problem solving approach
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Evaluation Pattern		
Sr. No.	Details of the Evaluation	Weightage
1.	Internal Written / Practical Examination (As per CBCS R.6.8.3)	15%
2.	Internal Continuous Assessment in the form of Practical, Viva-voce, Quizzes, Seminars, Assignments, Attendance (As per CBCS R.6.8.3)	15%
3.	University Examination	70%





Course Outcomes: Having completed this course, the student will be able to

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| 1. | Understand the fundamental principles related to states of matter |
| 2. | Learn about different theories of gaseous state |
| 3. | Understand the electrical and magnetic behaviour of materials |

Suggested References:

Sr. No.	References
1.	Callister, W. D., & Rethwisch, D. G. (2018). Materials science and engineering: an introduction (Vol. 9). New York: Wiley.
2.	Askeland, D.R., Fulay P. R. & Wright W. J. (2010). The Science and Engineering of Materials. Cengage Learning, Stamford, CT, USA.
3.	Raghavan V. (2015) Materials Science and Engineering: A First Course, PHI Learning Private Limited, Delhi.
4.	Chanda Manas (1981). Science of Engineering Materials. Macmillan International Higher Education

On-line resources to be used if available as reference material

On-line Resources:

https://www.chem.uwec.edu/chem101_s01/pages/Lecturenotes/C101_notes06.pdf
<https://swayam.gov.in/>

