



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

Course Code	IS01CMTS51	Title of the Course	Materials Science-I
Total Credits of the Course	2	Hours per Week	2 hrs

Course Objectives:	<ol style="list-style-type: none">1. To get familiar with different types of materials.2. To get knowledge about modern material needs.3. To understand the structure, property and processing relationship.
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Course Content		
Unit	Description	Weightage* (%)
1.	Historical perspective, Introduction to materials science and engineering, Classification of materials: Metals and alloys, ceramics, glasses and ceramics, polymers, semiconductors and composite materials, Level of structures, Processing-structure-properties-performance relationship, Functional classification of materials, Advanced materials, Modern material needs, Materials selection and design, Environment and materials	50
2.	Systems of units, Constants and conversion factors, Structure of atom, electronic structure, quantum numbers, electronic configurations, the periodic table Atomic bonding in solids, Bonding forces and energies, Primary and secondary interatomic bonds, Dipole bonds, Molecules	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 basics of materials science and engineering |
| 2. | Learn about different types of engineering materials and their applications |
| 3. | Understand the structure, properties and performance relationship |

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.

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

On-line Resources:

- https://nptel.ac.in/content/storage2/courses/112108150/pdf/PPTs/MTS_01_m.pdf
<https://nptel.ac.in/courses/112/104/112104122/>
<https://material-properties.org/classification-of-materials/>

