Maulana Abul Kalam Azad University of Technology, WB
(Formerly known as West Bengal University of Technology)
Syllabus of B.Sc. in Materials Science
Effective from academic session 2023-24 Model curriculum structure for 4-year UG programs
Department of Materials Science and Technology, MAKAUT WB

Sem	Major (Offline)	Minor (Blended Mode) (Computer Chain)	Inter Disciplinary (Offline)	Ability Enhancement (Offline)	Skill Enhancement (Online /Sessional)	Common Value-added Course (SESSIONAL)	Total Credits
I	**Sub 1:** Introduction to Materials (3 cr) & Macroscopic and Microscopic Examination of Materials Lab (2 cr) **Sub 2:** Statistical Methods for Materials Science (3 cr) & Introduction to Programming using C and MATLAB (Lab) (2 cr)	M01: Computer Fundamental (3 credits)	Any one from GE baskets Basket A or D (3 credits) *Classical Physics for Materials Science*	English & Professional Communication (2 credits)	Life Skills & Personality Development (2 credits)	Yoga/ Health & Wellness/ Sports / Physical Fitness and Wellness/Community Services (2 credits)	**22**
II	**Sub 1:** Materials Chemistry (3 cr) & Materials Synthesis Lab (2 cr)	M02: Management Information System (3 credits)	Any one from GE baskets Basket B or E (3 credits) *Quantum Physics for Materials Science*	Modern Indian Languages and Literature (2 credits)	IT Skills / Monetizing Social Media or Design Thinking (2 credits)	Critical Thinking / NSS/ Mental Health/ Environmental Studies (2 credits)	**22**

	Sub 2: Mathematics (3 cr) & Data Analysis, Visualization and Interpretation using MATLAB (Lab) (2 cr)					
III	**Sub 1:** Thermodynamics of Materials (4+1 cr) **Sub 2:** Introduction to Programming using Python (4 cr) & Python Programming Lab (Lab) (2 cr)	M03: Word and PowerPoint & Spreadsheet Application with Excel (4 credits)	Any one from GE baskets Basket C or F (3 credits) *Kinetics of Materials and Transport Phenomena*	The Constitution, Human Rights and Law (2 credits)	Understanding basics of Cyber Security (2 credits)	21
IV	**Sub 1:** Materials Behavior: Mechanical, Electrical & Magnetic (3 cr) & Materials Behavior Lab-I (2 cr) **Sub 2:** Processing of Bulk Materials (4 cr)	M04: Basics of Operating System (4 credits) M05: Graphic Design with Photoshop and Illustrator/ Unix And Shell Programming (4 credits)		Society Culture and Human Behavior/ Universal Human Values (UHV) (2 credits)		23

	Sub 3: Phase Equilibria and Phase Transformation (3+1 cr)						
V	Sub 1: Composite Materials (4+1 cr) Sub 2: Nanotechnology (4+1 cr)	M06: Cloud Computing /Introduction to Computer Network (4 credits) M07: E-commerce and Application (4 credits)			Internship to be started after exam of 4th sem (sem break) and completed within 5th sem (weekends) (4 credits)		22
VI	Sub 1: Energy Materials (4+1 cr) Sub 2: Entrepreneurship (3+1 cr) Sub 3: IoT (Internet of Things) Wireless & Cloud Computing Emerging Technologies (3 cr) Intermediate Programing with Python Lab (2 cr)	M08: Web Development with HTML and CSS (4 credits) M09: Internet and Networking /ERP (4 credits)					22
VII	Sub 1: Thin films and Nano Materials (3 cr) &	M10: Software Project Management					22

	Nano-Materials Lab (2 cr) **Sub 2:** Materials Behavior: Electronic and Optical (3 cr) & Materials Behaviour Lab-II (2 cr) **Sub 3:** Research Methodology (3+1 cr)	/Introduction To Cyber Security and Cyber Laws (4 credits) M11: Digital Marketing/ Data Analysis and Interpretation (4 credits)				
VIII	**Sub 1:** Materials Characterization (3 cr) & Materials Characterization Lab (2 cr) **Sub 2:** Design and Selection of Materials (4+1 cr)				Research project 12 credits	**22**
	19 sub – 91 credits	**11 sub – 42 credits**	**3 sub – 09 credits**	**4 sub – 08 credits**	**3 sub & Int & Proj – 22 credits**	**2 sub – 4 credits**	**176**