

SARDAR PATEL UNIVERSITY
NEP Structure B.Sc. Semester: V
(Under Choice Based Credit Scheme)
Syllabus with Effect from: 2025

Course Type	Course Code	Name of Course	T / P	Credit	Contact Hours Per Week	Exam Duration in hrs	Component of Marks		
							Internal	External	Total
Major Course (Any One Subject)									
Chemistry	US05MACHE01	Organic Chemistry-I	T	4	4	2:30	50	50	100
	US05MACHE02	Analytical Chemistry	T	4	4	2:30	50	50	100
	US05MACHE03	Chemistry Practical	P	4	8	3	50	50	100
Physics	US05MAPHY01	Classical Mechanics	T	4	4	2:30	50	50	100
	US05MAPHY02	Analog and Digital Circuits	T	4	4	2:30	50	50	100
	US05MAPHY03	Physics Practical	P	4	8	3	50	50	100
Zoology	US05MAZOO01	Genetics & Biotechnology	T	4	4	2:30	50	50	100
	US05MAZOO02	Ecology and Animal Behaviour	T	4	4	2:30	50	50	100
	US05MAZOO03	Zoology Practical	P	4	8	3	50	50	100
Bio Chemistry	US05MABIC01	Molecular Biology	T	4	4	2:30	50	50	100
	US05MABIC02	Human Metabolism-I	T	4	4	2:30	50	50	100
	US05MABIC03	Biochemistry Practical	P	4	8	3	50	50	100
Botany	US05MABOT01	Microbiology and Phycology	T	4	4	2:30	50	50	100
	US05MABOT02	Molecular Biology and Bioinformatics	T	4	4	2:30	50	50	100
	US05MABOT03	Botany Practical	P	4	8	3	50	50	100
Biotechnology	US05MABTE01	Enzymology & Metabolism	T	4	4	2:30	50	50	100
	US05MABTE02	Fundamentals of Immunology	T	4	4	2:30	50	50	100
	US05MABTE03	Biotechnology Practical	P	4	8	3	50	50	100



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Microbiology	US05MAMIC01	Bacterial Genetics	T	4	4	2:30	50	50	100
	US05MAMIC02	Microbial Metabolism	T	4	4	2:30	50	50	100
	US05MAMIC03	Microbiology Practical	P	4	8	3	50	50	100
Industrial Chemistry	US05MAICH01	Advance Organic Chemistry	T	4	4	2:30	50	50	100
	US05MAICH02	Fluid Mechanics & Mechanical Operations	T	4	4	2:30	50	50	100
	US05MAICH03	Industrial Chemistry-Practical	P	4	8	3	50	50	100
Industrial Chemistry (Vocational)	US05MAICV01	Unit Processes in Organic Synthesis-I	T	4	4	2:30	50	50	100
	US05MAICV02	Introduction to Organic Chemistry	T	4	4	2:30	50	50	100
	US05MAICV03	Practical	P	4	8	3	50	50	100
Mathematics	US05MAMTH01	Real Analysis-1	T	4	4	2:30	50	50	100
	US05MAMTH02	Abstract Algebra	T	4	4	2:30	50	50	100
	US05MAMTH03	Mathematical Algorithms with Python-1	P	4	8	3	50	50	100
Electronics and Communication	US05MAELC01	Microprocessor Interrupts & Interfacing	T	4	4	2:30	50	50	100
	US05MAELC02	Analog and Linear Integrated Circuit	T	4	4	2:30	50	50	100
	US05MAELC03	Electronics and Communication Practical	P	4	8	3	50	50	100
Computer Science	US05MACSC01	Object Oriented Programming Using Java	T	4	4	2:30	50	50	100
	US05MACSC02	Relational Database Management System	T	4	4	2:30	50	50	100
	US05MACSC03	Practicals	P	4	8	3	50	50	100
Electronics	US05MAELE01	8-Bit Microprocessor Programming & Applications-1	T	4	4	2:30	50	50	100
	US05MAELE02	Linear Integrated Circuits	T	4	4	2:30	50	50	100
	US05MAELE03	Electronics Practical	P	4	8	3	50	50	100

Course Type	Course Code	Name of Course	T/ P	Credit	Contact Hours Per Week	Exam Duration in hrs	Component of Marks		
							Internal	External	Total
Minor Subject (Any One Subject)									
Chemistry	US05MICHE01	Inorganic Chemistry	T	2	2	1:30	25	25	50
	US05MICHE02	Inorganic Quantitative Analysis Practical	P	2	4	2	25	25	50
	US05MICHE03	Physical Chemistry	T	2	2	1:30	25	25	50
	US05MICHE04	Chemistry Practical	P	2	4	2	25	25	50
	US05MICHE05	Petrochemicals	T	2	2	1:30	25	25	50
	US05MICHE06	Petrochemicals– Practical	P	2	4	2	25	25	50
	US05MICHE07	Chemical Process Industries	T	2	2	1:30	25	25	50
	US05MICHE08	Chemical Process Industries – Practical	P	2	4	2	25	25	50
	US05MICHE09	Industrial Management & Economics – I	T	2	2	1:30	25	25	50
	US05MICHE10	Industrial Management & Economics – I – Project Work	P	2	4	2	25	25	50
Physics	US05MIPHY01	Thermodynamics	T	2	2	1:30	25	25	50
	US05MIPHY02	Physics Practical	P	2	4	2	25	25	50
	US05MIPHY03	Renewable Energy Sources	T	2	2	1:30	25	25	50
	US05MIPHY04	Physics Practical	P	2	4	2	25	25	50
Zoology	US05MIZOO01	Environmental Biology	T	2	2	1:30	25	25	50
	US05MIZOO02	Zoology Practical	P	2	4	2	25	25	50
	US05MIZOO03	Physiology	T	2	2	1:30	25	25	50
	US05MIZOO04	Zoology Practical	P	2	4	2	25	25	50
Biochemistry	US05MIBIC01	Enzymology	T	2	2	1:30	25	25	50
	US05MIBIC02	Biochemistry Practical	P	2	4	2	25	25	50
	US05MIBIC03	Fundamentals of clinical Biochemistry	T	2	2	1:30	25	25	50
	US05MIBIC04	Biochemistry Practical	P	2	4	2	25	25	50

Course Type	Course Code	Name of Course	T/ P	Credit	Contact Hours Per Week	Exam Duration in hrs	Component of Marks		
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Botany	US05MIBOT01	Plant Ecology	T	2	2	1:30	25	25	50
	US05MIBOT02	Botany Practical	P	2	4	2	25	25	50
	US05MIBOT03	Biofertilizers	T	2	2	1:30	25	25	50
	US05MIBOT04	Botany Practical	P	2	4	2	25	25	50
Biotechnology	US05MIBTE01	Clinical Diagnosis	T	2	2	1:30	25	25	50
	US05MIBTE02	Biotechnology Practical	P	2	4	2	25	25	50
	US05MIBTE03	Food and Dairy Biotechnology	T	2	2	1:30	25	25	50
	US05MIBTE04	Food and Dairy Biotechnology Practical	P	2	4	2	25	25	50
Microbiology	US05MIMIC01	Methods in Food and Dairy Microbiology	T	2	2	1:30	25	25	50
	US05MIMIC02	Practical for Methods in Food and Dairy Microbiology	P	2	4	2	25	25	50
	US05MIMIC03	Introduction to Industrial Microbiology	T	2	2	1:30	25	25	50
	US05MIMIC04	Practical for Introduction to Industrial Microbiology	P	2	4	2	25	25	50
Industrial Chemistry	US05MIICH01	Petroleum and Petroleum Products	T	2	2	1:30	25	25	50
	US05MIICH02	Petroleum and Petroleum Products – Practical	P	2	4	2	25	25	50
	US05MIICH03	Chemical Process Technology	T	2	2	1:30	25	25	50
	US05MIICH04	Chemical Process Technology – Practical	P	2	4	2	25	25	50
	US05MIICH05	Business Organization & Management – I	T	2	2	1:30	25	25	50
	US05MIICH06	Business Organization & Management – I – Project work	P	2	4	2	25	25	50
	US05MIICH07	Fundamentals of Physical Chemistry	T	2	2	1:30	25	25	50
	US05MIICH08	Fundamentals of Physical Chemistry Practical	P	2	4	2	25	25	50
	US05MIICH09	Fundamentals of Inorganic Chemistry	T	2	2	1:30	25	25	50
	US05MIICH10	Fundamentals of Inorganic Chemistry Practical	P	2	4	2	25	25	50
Industrial Chemistry (Voc.)	US05MIICV01	Unit Processes	T	2	2	1:30	25	25	50
	US05MIICV02	Practical	P	2	4	2	25	25	50

Course Type	Course Code	Name of Course	T/ P	Credit	Contact Hours Per Week	Exam Duration in hrs	Component of Marks		
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Mathematics	US05MIMTH01	Numerical Analysis-1	T	2	2	1:30	25	25	50
	US05MIMTH02	Problems and Exercises in Numerical Analysis-1	P	2	4	2	25	25	50
	US05MIMTH03	Ordinary Differential Equations-1	T	2	2	1:30	25	25	50
	US05MIMTH04	Problems and Exercises in Ordinary Differential Equations-1	P	2	4	2	25	25	50
	US05MIMTH05	Partial Differential Equations-1	T	2	2	1:30	25	25	50
	US05MIMTH06	Problems and Exercises in Partial Differential Equation-1	P	2	4	2	25	25	50
Statistics	US05MISTA01	Elements of Probability Theory	T	2	2	1:30	25	25	50
	US05MISTA02	Statistics Practical	P	2	4	2	25	25	50
	US05MISTA03	Time Series Analysis and Statistical Quality Control	T	2	2	1:30	25	25	50
	US05MISTA04	Statistics Practical	P	2	4	2	25	25	50
Electronics & Communication	US05MIELC01	Computer Network	T	2	2	1:30	25	25	50
	US05MIELC02	Electronics and Communication Practical	P	2	4	2	25	25	50
	US05MIELC03	Optical Fiber Communication	T	2	2	1:30	25	25	50
	US05MIELC04	Electronics and Communication Practical	P	2	4	2	25	25	50
Computer Science	US05MICSC01	Object Oriented Programming Using C++	T	2	2	1:30	25	25	50
	US05MICSC02	Practicals	P	2	4	2	25	25	50
	US05MICSC03	Computer Networks	T	2	2	1:30	25	25	50
	US05MICSC04	Practicals	P	2	4	2	25	25	50

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Electronics	US05MIELE01	Digital Electronics – 1	T	2	2	1:30	25	25	50
	US05MIELE02	Electronics Practical	P	2	4	2	25	25	50
	US05MIELE03	Transistor Amplifiers	T	2	2	1:30	25	25	50
	US05MIELE04	Electronics Practical	P	2	4	2	25	25	50
	US05MIELE05	8085 Microprocessor & Programming -1	T	2	2	1:30	25	25	50
	US05MIELE06	Electronics Practical	P	2	4	2	25	25	50
Statistics	US05MISTA01	Index Numbers and Vital Statistics	T	2	2	1:30	25	25	50
	US05MISTA02	Problem Solving in Index Numbers and Vital Statistics	P	2	4	2	25	25	50
Skill Enhancement Course (Any One Subject)									
Chemistry	US05SECHE01	Analytical and Physical Chemistry Practical	P	2	4	2	25	25	50
Physics	US05SEPHY01	Hands-on Experimental Skills in Physics	P	2	4	2	25	25	50
Biochemistry	US05SEBIC01	Tools and Techniques in Biochemistry-V	T	2	2	1:30	25	25	50
	US05SEBIC02	Biochemistry Practical	P	2	4	2	25	25	50
Botany	US05SEBOT01	Applied Botany	T	2	2	1:30	25	25	50
	US05SEBOT02	Basic Plant Anatomy and Tissue Studies (Practical) (Effect from June, 2026)	P	2	4	2	25	25	50
Statistics	US05SESTA01	Elements of Probability in Biostatistics	T	2	2	1:30	25	25	50
Computer Science	US05SECSC01	Software Engineering	T	2	2	1:30	25	25	50
Electronics	US05SEELE01	Optical Fibers	T	2	2	1:30	25	25	50
Mathematics	US05SEMTH01	Numerical Methods (Practical)	P	2	4	2	25	25	50
	US05SEMTH02	Basics of Cryptography	T	2	2	1:30	25	25	50
	US05SEMTH03	Numerical Methods-2 (Practical) (Effect from June, 2026)	P	2	4	2	25	25	50
	US05SEMTH04	Mechanics-1 (Effect from June, 2026)	T	2	2	1:30	25	25	50
Microbiology	US05SEMIC01	Tools and techniques of r-DNA Technology	T	2	2	1:30	25	25	50
	US05SEMIC02	Cultivation of economically important Fungi (Practical)	P	2	4	2	25	25	50
	US05SEMIC03	Microbes in Agriculture Microbial Fertilizers and Microbial Insecticides	T	2	2	1:30	25	25	50
Zoology	US05SEZOO01	Animal Rescue, care and Rehabilitation	T	2	2	1:30	25	25	50
	US05SEZOO02	Basic Zoology & Human Health Studies (Practical) (Effect from June, 2026)	P	2	4	2	25	25	50
Industrial Chemistry	US05SEICH01	Industrial Safety & Hygiene	T	2	2	1:30	25	25	50
	US05SEICH02	Industrial Hazards & Management	T	2	2	1:30	25	25	50
	US05SEICH03	Chemical Engineering Drawing	T	2	2	1:30	25	25	50
Biotechnology	US05SEBTE01	Molecular Techniques	T	2	2	1:30	25	25	50

