Bachelor of Science (B.Sc.) – Neurosciences

[3 Years Regular/4 Years (Honours/Honours with Research)]

Faculty of Medicine

Parul University

Teaching and Examination Scheme for Batch 2023-24

(**NOTE:** A credit is a unit by which the coursework is measured. It determines the number of hours of instruction required per week over the duration of a semester (Minimum 15 weeks/90 days)

1. 1 Theory Credit = 15 hours of academic activity engagement in a semester
2. 1 Credit of (Practical/Internship/workshop-based activity/ Self-Learning-Online/Offline) = 30 Hours of engagement in a semester
3. 1 Credit of Experiential learning (Field Visit/ Industry Visit)/ Assignments = 40-45 hours of engagement in a semester.
4. Research Project/Dissertation: Entire Seventh & Eighth Semesters (12 Credits)

T = Theory , P = Practical , CE = Continuous Evaluation

Bachelor of Science in Neurosciences with Minor in

1. Anesthesia and Critical Care
2. Operation Theatre Technology
3. AIML in Health Care
4. Nanotechnology in Health Care

Semester 1

				Teaching Scheme (Hours / Week)			Internal Marks			External Marks		Passing Marks (Theory + CE)	Passing Marks (Practical)	Total Marks
NCrF Credit Level	**Code**	**Subject**	**Credit**	**Lect**	**Lab**	**Tut**	**T**	**P**	**CE**	**T**	**P**	**Int.+Ext.**	**Int.+Ext.**	
4.5		**Major (Discipline Specific Course)**												
	19010801DS05	Introduction Of Neuro Science (T)	3	3	-	-	20	-	20	60	-	40	-	100
	19010801DS06	Introduction Of Neuro Science (P)	1	-	2	-	-	20	-	-	30	-	20	50
	19010001DS01	Anatomy & Physiology – I (T)	4	4	-	-	20	-	20	60	-	40	-	100
	19010001DS02	Anatomy & Physiology – I (P)	2	-	4	-	-	20	-	-	30	-	20	50
		Minor -1 / Interdisciplinary Course (Select any one)												
	19011301AC01	**Anesthesia and Critical Care:** Introduction of Anaesthesia and Critical Care Technology (T)	3	3	-	-	20	-	20	60	-	40	-	100
	19011301AC02	**Anesthesia and Critical Care:** Introduction of Anaesthesia and Critical Care Technology (P)	1	-	2	-	-	20	-	-	30	-	20	50
	19010901OT01	**Operation Theatre Technology:** Introduction To Operation Theatre Technology (T)	3	3	-	-	20	-	20	60	-	40	-	100
	19010901OT02	**Operation Theatre Technology:** Introduction To Operation Theatre Technology (P)	1	-	2	-	-	20	-	-	30	-	20	50
	03010501AM01	**AIML in Health Care:** Programming in Python (T)	3	3	-	-	20	-	20	60	-	40	-	100
	03010501AM02	**AIML in Health Care:** Programming in Python (P)	1	-	2	-	-	20	-	-	30	-	20	50
	03011301NT01	**Nanotechnology in Health Care:** Introduction to Nanotechnology and its Applications in Healthcare	4	3	-	1	20	-	20	60	-	40	-	100
		University Electives -1 (Multidisciplinary course) (Select any one)												
	19010201UE01	Health Informatics	4	3	2	-	20	20	20	60	30	40	20	150
	06010101UE03	Health care management		4	-	-	20		20	60	-	40	-	100
	17010101UE01	Medical Law		4	-	-	20		20	60	-	40	-	100
	09010101UE01	First aid & life support		4	-	-	20		20	60	-	40	-	100
		Skill Enhancement Course -1												
	19010001SE01	Management of Lifestyle Disorders	2	2	-	-	20	-	20	60	-	40	-	100
		Value Added Course-1												
	11011401VA01	Climate Change & Sustainable Environment	2	2	-	-	20	-	20	60	-	40	-	100

		Ability Enhancement Course -1 /Modern Indian Language-1(Select any one)												
	00019301AE01	Basic English-I	2	2	-	-	-	-	100	-	-	40	-	100
	00019301AE02	Basic Hindi-I		2	-	-	-	-	100	-	-	40	-	100
	00019301AE03	Basic Gujarati-I		2	-	-	-	-	100	-	-	40	-	100
		Total	**24**											

Semester 2

				Teaching Scheme (Hours / Week)			Internal Marks			External Marks		Passing Marks (Theory + CE)	Passing Marks (Practical)	Total Marks
NCrF Credit Level	**Code**	**Subject**	**Credit**	**Lect**	**Lab**	**Tut**	**T**	**P**	**CE**	**T**	**P**	**Int.+Ext.**	**Int.+Ext.**	
4.5		**Major (Discipline Specific Course)**												
	19010802DS01	Neurotoxicology and Infection Control (T)	3	3	-	-	20	-	20	60	-	40	-	100
	19010802DS02	Neurotoxicology and Infection Control (P)	1	-	2	-	-	20	-	-	30	-	20	50
	19010002DS01	Anatomy & Physiology-II (T)	4	4	-	-	20	-	20	60	-	40	-	100
	19010002DS02	Anatomy & Physiology -II (P)	2	-	4	-	-	20	-	-	30	-	20	50
		Minor -2 / Interdisciplinary Course (Select any one)												
	19011302AC01	**Anesthesia and Critical Care:** Basic Techniques of Anaesthesia (T)	3	3	-	-	20	-	20	60	-	40	-	100
	19011302AC02	**Anesthesia and Critical Care:** Basic Techniques of Anaesthesia (P)	1	-	2	-	-	20	-	-	30	-	20	50
	19010902OT01	**Operation Theatre Technology:** Basics of Surgical Procedures (T)	3	3	-	-	20	-	20	60	-	40	-	100
	19010902OT02	**Operation Theatre Technology:** Basics of Surgical Procedures (P)	1	-	2	-	-	20	-	-	30	-	20	50
	03010502AM01	**AIML in Health Care:** Artificial Intelligence (T)	3	3	-	-	20	-	20	60	-	40	-	100
	03010502AM02	**AIML in Health Care:** Artificial Intelligence (P)	1	-	2	-	-	20	-	-	30	-	20	50
	03011302NT01	**Nanotechnology in Health Care:** Nanomaterials in Biomedical Applications	4	3	-	1	20	-	20	60	-	40	-	100
		University Electives -2 (Multidisciplinary course) (Select any one)												
	10010102UE01	Introduction to Gender, Health, and Rights	4	4	-	-	20	-	20	60	-	40	-	100
	19010202UE01	Public Health Nutrition		3	2	-	20	20	20	60	30	40	20	150
	15010402UE01	Human Psychology		4	-	-	20	-	20	60	-	40	-	100
		Skill Enhancement Course -2												
	00019101SE01	Mathematical Aptitude	2	2	-	-	20	-	20	60	-	40	-	100
		Value Added Course-2												
	00019302VA01	IPDC-including-History-and-Culture-of-India-and-IKS-I	2	2	-	-	-	-	100	-	-	40	-	100

		Ability Enhancement Course -2 /Modern Indian Language-2(Select any one)												
	00019302AE04	Basic English-II	2	2	-	-	-	-	100	-	-	40	-	100
	00019302AE05	Basic Hindi-II		2	-	-	-	-	100	-	-	40	-	100
	00019302AE06	Basic Gujarati-II		2	-	-	-	-	100	-	-	40	-	100
		Total	**24**											

Semester 3

				Teaching Scheme (Hours / Week)			Internal Marks			External Marks		Passing Marks (Theory + CE)	Passing Marks (Practical)	Total Marks
NCrF-Credit-Level	**Code**	**Subject**	**Credit**	**Lect**	**Lab**	**Tut**	**T-**	**P**	**CE**	**T**	**P**	**Int.+Ext.**	**Int.+Ext.**	
5.0		**Major (Discipline Specific Course)**												
	19010003DS01	Microbiology & Pathology – I (T)	3	3	-	-	20	-	20	60	-	40	-	100
	19010003DS02	Microbiology & Pathology – I (P)	1	-	2	-	-	20	-	-	30	-	20	50
	19010803DS01	Pathology Of Neuroscience and Spine Disorder (T)	3	3	-	-	20	-	20	60	-	40	-	100
	19010803DS02	Pathology Of Neuroscience and Spine Disorder (P)	1	-	2	-	-	20	-	-	30	-	20	50
	19010803DS03	Neurological Disease (T)	3	3	-	-	20	-	20	60	-	40	-	100
	19010803DS04	Neurological Disease (P)	1	-	2	-	-	20	-	-	30	-	20	50
		University Electives -3 (Select any one)												
	19010203UE01	Health Research Fundamentals	4	3	2	-	20	20	20	60	30	40	20	150
	17010103UE01	Intellectual Property		4	-	-	20	-	20	60	-	40	-	100
	07010103UE01	Occupational Health & Ergonomics		4	-	-	20	-	20	60	-	40	-	100
	02010103UE01	Yoga and Positive Psychology for Managing Carrier and Life		4	-	-	20	-	20	60	-	40	-	100
		Skill Enhancement Course -3												
	03010503SE01	Artificial-Intelligence—AI	2	2	-	-	-	-	40	60	-	40	-	100
		Value Added Course-3												
	00019303VA01	IPDC including History and Culture of India and IKS-2	2	2	-	-	-	-	100	-	-	40	-	100
		Ability Enhancement Course -3/ Modern European Language-1 (Select any one)												
	00019303AE01	Advanced English - I	2	2	-	-	-	-	100	-	-	40	-	100
	00019303AE02	Basic German - I		2	-	-	-	-	100	-	-	40	-	100
	00019303AE03	Basic French - I		2	-	-	-	-	100	-	-	40	-	100
		Total	**22**											

Semester 4

				Teaching Scheme (Hours / Week)			Internal Marks			External Marks		Passing Marks (Theory + CE)	Passing Marks (Practical)	Total Marks
NCrF-Credit-Level	**Code**	**Subject**	**Credit**	**Lect**	**Lab**	**Tut**	**T-**	**P**	**CE**	**T**	**P**	**Int.+Ext.**	**Int.+Ext.**	
5.0		**Major (Discipline Specific Course)**												
	19010804DS01	Biomedical Engineering and Hospital Management (T)	3	3	-	-	20	-	20	60	-	40	-	100
	19010804DS02	Biomedical Engineering and Hospital Management (P)	1	-	2	-	-	20	-	-	30	-	20	50
	19010004DS01	Microbiology & Pathology-II(T)	3	3	-	-	20	-	20	60	-	40	-	100
	19010004DS02	Microbiology & Pathology-II(P)	1	-	2	-	-	20	-	-	30	-	20	50
	19010004DS03	Applied Medicine & Pharmacology-I(T)	4	4	-	-	20	-	20	60	-	40	-	100
	19010004DS04	Applied Medicine & Pharmacology-I(P)	2	-	4	-	-	20	-	-	30	-	20	50
		Minor -3 / Interdisciplinary Course (Select any one)												
	19011304AC01	**Anesthesia and Critical Care:** Essentials of Anesthesia – I (T)	3	3	-	-	20	-	20	60	-	40	-	100
	19011304AC02	**Anesthesia and Critical Care:** Essentials of Anesthesia – I(P)	1	-	2	-	-	20	-	-	30	-	20	50
	19010904OT01	**Operation Theatre Technology:** Patient, Staff Safety and Quality Care (T)	3	3	-	-	20	-	20	60	-	40	-	100
	19010904OT02	**Operation Theatre Technology:** Patient, Staff Safety and Quality Care (P)	1	-	2	-	-	20	-	-	30	-	20	50
	03010504AM01	**AIML in Health Care:** Data Science for AI (T)	3	3	-	-	20	-	20	60	-	40	-	100
	03010504AM02	**AIML in Health Care:** Data Science for AI (P)	1	-	2	-	-	20	-	-	30	-	20	50
	03011304NT01	**Nanotechnology in Health Care:** Nanofabrication Techniques	4	3	-	1	20	-	20	60	-	40	-	100
		Skill Enhancement Course -4												
	19010004SE01	Health Informatics & Personalised Medicine	2	2	-	-	20	-	20	60	-	40	-	100
		Value Added Course-4/ Physical Education (Select anyone)												

	19010204VA01	Positive Mental Health	2	2	-	-	20	-	20	60	-	40	-	100
	00019404VA01	**Physical Education:** Yoga		1	2	-	20	20	20	60	30	40	20	150
	00019404VA02	**Physical Education:** Sports		1	2	-	20	20	20	60	30	40	20	150
	00019404VA03	**Physical Education:** NCC		1	2	-	20	20	20	60	30	40	20	150
		Ability Enhancement Course -4 / Modern European Language-2 (Select anyone)												
	00019304AE01	Advanced English – II	2	2	-	-	-	-	100	-	-	40	-	100
	00019304AE02	Basic German - II		2	-	-	-	-	100	-	-	40	-	100
	00019304AE03	Basic French - II		2	-	-	-	-	100	-	-	40	-	100
		Total	**24**											

Semester 5

				Teaching Scheme (Hours / Week)			Internal Marks			External Marks		Passing Marks (Theory + CE)	Passing Marks (Practical)	Total Marks
NCrF-Credit-Level	**Code**	**Subject**	**Credit**	**Lect**	**Lab**	**Tut**	**T-**	**P**	**CE**	**T**	**P**	**Int.+Ext.**	**Int.+Ext.**	
5.5		**Major (Discipline Specific Course)**												
	19010805DS01	Patient Assessment and Disease of CNS (T)	3	3	-	-	20	-	20	60	-	40	-	100
	19010805DS02	Patient Assessment and Disease of CNS (P)	1	-	2	-	-	20	-	-	30	-	20	50
	19010005DS01	Applied Medicine & Pharmacology-II (T)	4	4	-	-	20	-	20	60	-	40	-	100
	19010005DS02	Applied Medicine & Pharmacology-II(P)	2	-	4	-	-	20	-	-	30	-	20	50
	19010805DS03	Nerve Disorder, Patient Care and Rehabilitation (T)	3	3	-	-	20	-	20	60	-	40	-	100
	19010805DS04	Nerve Disorder, Patient Care and Rehabilitation (P)	1	-	2	-	-	20	-	-	30	-	20	50
		Minor -4 / Interdisciplinary Course (Select any one)												
	19011305AC01	**Anesthesia and Critical Care:** Advanced Anaesthesia Technology (T)	3	3	-	-	20	-	20	60	-	40	-	100
	19011305AC02	**Anesthesia and Critical Care:** Advanced Anaesthesia Technology (P)	1	-	2	-	-	20	-	-	30	-	20	50
	19010905OT01	**Operation Theatre Technology:** Principles Of Operation Theatre Management (T)	3	3	-	-	20	-	20	60	-	40	-	100
	19010905OT02	**Operation Theatre Technology:** Principles Of Operation Theatre Management (P)	1	-	2	-	-	20	-	-	30	-	20	50
	03010505AM01	**AIML in Health Care:** Machine Learning (T)	3	3	-	-	20	-	20	60	-	40	-	100
	03010505AM02	**AIML in Health Care:** Machine Learning (P)	1	-	2	-	-	20	-	-	30	-	20	50
	03011305NT01	**Nanotechnology in Health Care:** Nanofabrication Techniques (T)	4	3	-	1	20	-	20	60	-	40	-	100
		Minor -5 / Interdisciplinary Course (Select any one)												

	19011305AC03	**Anesthesia and Critical Care:** Advanced Critical Care Technology (T)	3	3	-	-	20	-	20	60	-	40	-	100
	19011305AC04	**Anesthesia and Critical Care:** Advanced Critical Care Technology (P)	1	-	2	-	-	20	-	-	30	-	20	50
	19010905OT03	**Operation Theatre Technology:** Operation Theatre Technology -I (T)	3	3	-	-	20	-	20	60	-	40	-	100
	19010905OT04	**Operation Theatre Technology:** Operation Theatre Technology -I (P)	1	-	2	-	-	20	-	-	30	-	20	50
	03010505AM03	**AIML in Health Care:** Deep Learning (T)	3	3	-	-	20	-	20	60	-	40	-	100
	03010505AM04	**AIML in Health Care:** Deep Learning (P)	1	-	2	-	-	20	-	-	30	-	20	50
	03011305NT03	**Nanotechnology in Health Care:** Nanotoxicology and Safety Assessment (T)	4	3	-	1	20	-	20	60	-	40	-	100
		Skill Enhancement Course -5(Select anyone)												
	06010105SE01	Digital Literacy	2	2	-	-	20	-	20	60	-	40	-	100
	06010105SE02	Finance for everyone		2	-	-	20	-	20	60	-	40	-	100
		Total	**24**											

Semester 6

				Teaching Scheme (Hours / Week)			Internal Marks			External Marks		Passing Marks (Theory + CE)	Passing Marks (Practical)	Total Marks
NCrF-Credit-Level	**Code**	**Subject**	**Credit**	**Lect**	**Lab**	**Tut**	**T-**	**P**	**CE**	**T**	**P**	**Int.+Ext.**	**Int.+Ext.**	
		Major (Discipline Specific Course)												
5.5	19010806DS01	Modern Advancement in Neuroscience (T)	3	3	-	-	20	-	20	60	-	40	-	100
	19010806DS02	Modern Advancement in Neuroscience (P)	1	-	2	-	-	20	-	-	30	-	20	50
	19010806DS03	Pediatric Neurology and Neuroscience (T)	3	3	-	-	20	-	20	60	-	40	-	100
	19010806DS04	Pediatric Neurology and Neuroscience (P)	1	-	2	-	-	20	-	-	30	-	20	50
	19010806DS05	Electroencephalogram (P)	4	-	8	-	-	40	-	-	60	-	40	100
		Minor -6 / Interdisciplinary Course (Select any one)												
	19011306AC01	**Anesthesia and Critical Care:** Basic and Advanced Anaesthesia and Critical Care	4	-	8	-	-	40	-	-	60	-	40	100
	19010906OT01	**Operation Theatre Technology:** Operation Theatre Technology-II	4	-	8	-	-	40	-	-	60	-	40	100
	03010506AM01	**AIML in Health Care:** Natural Language Processing (T)	3	3	-	-	20	-	20	60	-	40	-	100
	03010506AM02	**AIML in Health Care:** Natural Language Processing (P)	1	-	2	-	-	20	-	-	30	-	20	50
	03011306NT01	**Nanotechnology in Health Care:** Nanocomposites	4	3	-	1	20	-	20	60	-	40	-	100
		Ability Enhancement Course -5												
	00019306AE01	Professional Ethics and Communication	2	2	-	-	-	-	100	-	-	40	-	100
	19010906IN01	**Internship/Mini Project-1** (in Major Specific Course)	4	-	8	-	-	40	-	-	60	-	40	100
		Total	**22**											

Internship Guidelines: 30 days (120 Hrs.)

Semester-7

				Teaching Scheme (Hours / Week)			Internal Marks			External Marks		Passing Marks (Theory + CE)	Passing Marks (Practical)	Total Marks
NCrF-Credit-Level	**Code**	**Subject**	**Credit**	**Lect**	**Lab**	**Tut**	**T-**	**P**	**CE**	**T**	**P**	**Int.+Ext.**	**Int.+Ext.**	
6.0		**Major (Discipline Specific Course)**												
	19010807DS01	NCV (P)	4	-	8	-	-	40	-	-	60	-	40	100
	19010807DS02	Electromyography (P)	4	-	8	-	-	40	-	-	60	-	40	100
	19010807DS03	Medical Instrumentation and Imaging (P)	4	-	8	-	-	40	-	-	60	-	40	100
		Minor -7 / Interdisciplinary Course (Select any one)												
	19011307AC01	**Anesthesia and Critical Care:** Advanced Physical Assessment & Critical Care Technology – I	4	-	8	-	-	40	-	-	60	-	40	100
	19010907OT01	**Operation Theatre Technology:** Clinics General and Advanced Operation Theatre	4	-	8	-	-	40	-	-	60	-	40	100
	03010507AM01	**AIML in Health Care:** AI and Machine Learning in Healthcare (T)	3	3	-	-	20	-	20	60	-	40	-	100
	03010507AM02	**AIML in Health Care:** AI and Machine Learning in Healthcare (P)	1	-	2	-	-	20	-	-	30	-	20	50
	03011307NT01	**Nanotechnology in Health Care:** Nano sensors	4	3	-	1	20	-	20	60	-	40	-	100
	19010807IN01	**On Job Training (OJT)- in Major Specific** (for Honours Degree)	6	-	12	-	-	60	-	-	90	-	60	150
		OR												
		1 subject of Major/Minor discipline relevant of 4 credit (for Honours Degree)	4											
		1 subject of Major/Minor discipline relevant SEC course of 2 credits (for Honours Degree)	2											
		OR												
	19010807RP01	**Research Project in Major Specific course**	6	-	12	-	-	60	-	-	90	-	60	150

		(For Honours with Research degree)												
		Total	**22**											

Research Project Guidelines:

Advanced – level disciplinary/interdisciplinary courses related to topic selection and research methodology and initial stage of research will be conducted like: determining the definition of the information needed, determining the methods of collection of qualitative and quantitative data, conducting secondary data analysis etc.

On-the-Job Training Guidelines: 45 days (180 Hrs.)

Semester-8

				Teaching Scheme (Hours / Week)			Internal Marks			External Marks		Passing Marks (Theory + CE)	Passing Marks (Practical)	Total Marks
NCrF-Credit-Level	**Code**	**Subject**	**Credit**	**Lect**	**Lab**	**Tut**	**T-**	**P**	**CE**	**T**	**P**	**Int.+Ext.**	**Int.+Ext.**	
6.0		**Major (Discipline Specific Course)**												
	19010308DS01	Biological Study of Perception, Learning, Behavior, Memory and Consciousness (P)	4	-	8	-	-	40	-	-	60	-	40	100
	19010308DS03	Nervous System and Spinal Cord (P)	4	-	8	-	-	40	-	-	60	-	40	100
	19010308DS02	Mechanism Of Brain Development (P)	4	-	8	-	-	40	-	-	60	-	40	100
		Minor -8 / Interdisciplinary Course (Select any one)												
	19011308AC01	**Anesthesia and Critical Care:** Clinic Pre-Intra-Post-Operative Preparation, Complication and Management	4	-	8	-	-	40	-	-	60	-	40	100
	19010908OT01	**Operation Theatre Technology:** Clinics Hospital Operation Management		-	8	-	-	40	-	-	60	-	40	100
	03010508AM01	**AIML in Health Care:** AI and Machine Learning Projects		-	8	-	-	40	-	-	60	-	40	100
	03011308NT01	**Nanotechnology in Health Care:** Nanotechnology Project		-	8	-	-	40	-	-	60	-	40	100
	19010808IN01	**On Job Training (OJT) - in Major Specific** (for Honours Degree)	6	-	12	-	-	60	-	-	90	-	60	150
		OR												
		1 subject of Major/Minor discipline relevant of 4 credit (for Honours Degree)	4											
		1 subject of Major/Minor discipline relevant SEC course of 2 credits (for Honours Degree)	2											
		OR												
	19010808RP01	**Research Project in Major Specific course**	6	-	12	-	-	60	-	-	90	-	60	150

		(For Honours with Research degree)												
		Total	**22**											

Total Credit of the Programme			**184**											

Research Project Guidelines:

The final semester will be devoted to seminar presentation, preparation and submission of research project report/dissertation. The project work/dissertation will be on a topic in the disciplinary programme of study or an interdisciplinary topic.

On-the-Job Training Guidelines: 45 days (180 Hrs.)

Note: Course Curriculum from 4th Semester up to 8th semester may undergo revision. Any revision to this effect will be uploaded on the University Website. Students are requested to visit the University Website for any updates related to the revision in the course curriculum or shall contact Dean/HoI/Hod for the same.