



Study Scheme & Syllabus  
of

**B.Sc. Dialysis Technology**

(Semester I -VIII)

Batch 2024

Onwards

By

Board of Studies

**I K GUJRAL PUNJAB TECHNICAL UNIVERSITY**  
**KAPURTHALA**



### Semester - I

Course Code	Course Type	Course Title	Load Allocations			Marks Distribution		Total Marks	Credits
			L*	T*	P	Internal	External		
BDT-101-24	Core Theory	Human Anatomy I	3	1	0	40	60	100	4
BDT-102-24	Core Theory	Human Physiology I	3	1	0	40	60	100	4
BDT-103-24	Core Theory	General Biochemistry & Nutrition	3	1	0	40	60	100	4
BDT-104-24	Core Practical/ Laboratory	Human Anatomy Part I- Practical	0	0	4	60	40	100	2
BDT-105-24	Core Practical/ Laboratory	Human Physiology Part I- Practical	0	0	4	60	40	100	2
BDT-106-24	Core Practical/ Laboratory	General Biochemistry & Nutrition - Practical	0	0	4	60	40	100	2
BTHU-103-18	Ability Enhancement Compulsory Course-(AECC)	English & Communication	1	0	0	40	60	100	1
BTHU-104-18	Ability Enhancement Compulsory Course-(AECC)	English & Communication (Lab/ Seminars)	0	0	2	30	20	50	1
HVPE-101-18	Ability Enhancement Compulsory Course-(AECC)	Human Values, De-addiction & Traffic Rules	3	0	0	40	60	100	3
HVPE-102-18	Ability Enhancement Compulsory Course-(AECC)	Human Values, De-addiction & Traffic Rules (Lab/ Seminars)	0	0	1	25	**	25	1
BMPD-202-18	Ability Enhancement Compulsory Course-(AECC)	Mentoring & Professional Development	0	0	1	25	**	25	1
		<b>TOTAL</b>	<b>13</b>	<b>03</b>	<b>16</b>	<b>460</b>	<b>440</b>	<b>900</b>	<b>25</b>



### Semester - II

Course Code	Course Type	Course Title	Load Allocations			Marks Distribution		Total Marks	Credits
			L*	T*	P	Internal	External		
BDT-201-24	Core Theory	Human Anatomy II	3	1	0	40	60	100	4
BDT-202-24	Core Theory	Human Physiology II	3	1	0	40	60	100	4
BDT-203-24	Core Theory	General Microbiology	3	1	0	40	60	100	4
BDT-204-24	Core Theory	Basic Pathology and Haematology	3	1	0	40	60	100	4
BDT-205-24	Core Practical/ Laboratory	Human Anatomy Part II- Practical	0	0	4	60	40	100	2
BDT-206-24	Core Practical/ Laboratory	Human Physiology Part II- Practical	0	0	4	60	40	100	2
BDT-207-24	Core Practical/ Laboratory	General Microbiology- Practical	0	0	4	60	40	100	2
BDT-208-24	Core Practical/ Laboratory	Basic Pathology & Haematology- Practical	0	0	4	60	40	100	2
EVS-102-18	Ability Enhancement Compulsory Course-(AECC)	Environmental Studies	1	0	0	40	60	100	1
BMPD-202-18	Ability Enhancement Compulsory Course-(AECC)	Mentoring & Professional Development	0	0	1	25	**	25	1
		<b>TOTAL</b>	<b>13</b>	<b>04</b>	<b>17</b>	<b>465</b>	<b>460</b>	<b>925</b>	<b>26</b>



### Semester - III

Course Code	Course Type	Course Title	Load Allocations			Marks Distribution		Total Marks	Credits
			L*	T*	P	Internal	External		
BDT-301-24	Core Theory	General Pharmacology	3	1	0	40	60	100	4
BDT-302-24	Core Theory	Applied Pathology	3	1	0	40	60	100	4
BDT-303-24	Core Theory	Applied Microbiology	3	1	0	40	60	100	4
BDT-304-24	Core Theory	Basic Concepts of Renal Diseases	3	1	0	40	60	100	4
BDT-305-24	Core Practical/ Laboratory	General Pharmacology - Practical	0	0	4	60	40	100	2
BDT-306-24	Core Practical/ Laboratory	Applied Pathology - Practical	0	0	4	60	40	100	2
BDT-307-24	Core Practical/ Laboratory	Applied Microbiology - Practical	0	0	4	60	40	100	2
BDT-308-24	Core Practical/ Laboratory	Basic Concepts of Renal Diseases - Practical	0	0	4	60	40	100	2
BDT-309-24	Ability Enhancement Compulsory Course-(AECC)	Computer Applications	2	0	0	40	60	100	1
		<b>TOTAL</b>	<b>14</b>	<b>04</b>	<b>16</b>	<b>440</b>	<b>460</b>	<b>900</b>	<b>25</b>



**Semester - IV**

Course Code	Course Type	Course Title	Load Allocations			Marks Distribution		Total Marks	Credits
			L*	T*	P	Internal	External		
BDT-401-24	Core Theory	Haemodialysis - I	3	1	0	40	60	100	4
BDT-402-24	Core Theory	Peritoneal Dialysis	3	1	0	40	60	100	4
BDT-403-24	Core Theory	Medical Disorders and Intensive Care	3	1	0	40	60	100	4
BDT-404-24	Core Theory	Basics of Renal Dialysis Technology	3	1	0	40	60	100	4
BDT-405-24	Core Practical/ Laboratory	Haemodialysis – Practical	0	0	4	60	40	100	2
BDT-406-24	Core Practical/ Laboratory	Peritoneal Dialysis - Practical	0	0	4	60	40	100	2
BDT-407-24	Core Practical/ Laboratory	Medical Disorders and Intensive Care - Practical	0	0	4	60	40	100	2
BDT-408-24	Core Practical/ Laboratory	Basics of Renal Dialysis Technology - Practical	0	0	4	60	40	100	2
BDT-409-24	Ability Enhancement Compulsory Course-(AECC)	Biomedical Waste Management	2	0	0	40	60	100	1
		<b>TOTAL</b>	<b>14</b>	<b>04</b>	<b>16</b>	<b>440</b>	<b>460</b>	<b>900</b>	<b>25</b>



**Semester - V**

Course Code	Course Type	Course Title	Load Allocations			Marks Distribution		Total Marks	Credits
			L*	T*	P	Internal	External		
BDT-501-24	Core Theory	Haemodialysis - II	3	1	0	40	60	100	4
BDT-502-24	Core Theory	Applied Dialysis Technology - I	3	1	0	40	60	100	4
BDT-503-24	Core Theory	Advance Dialysis Technology -I	3	1	0	40	60	100	4
BDT-504-24	Core Theory	Recent Advances in Dialysis Technology	3	1	0	40	60	100	4
BDT-505-24	Core Practical/ Laboratory	Haemodialysis - II - Practical	0	0	4	60	40	100	2
BDT-506-24	Core Practical/ Laboratory	Applied Dialysis Technology – I - Practical	0	0	4	60	40	100	2
BDT-507-24	Core Practical/ Laboratory	Advance Dialysis Technology -I - Practical	0	0	4	60	40	100	2
BDT-508-24	Core Practical/ Laboratory	Recent Advances in Dialysis Technology - Practical	0	0	4	60	40	100	2
BDT-509-24	Ability Enhancement Compulsory Course-(AECC)	First Aid	2	0	0	40	60	100	1
		<b>TOTAL</b>	<b>14</b>	<b>04</b>	<b>16</b>	<b>440</b>	<b>460</b>	<b>900</b>	<b>25</b>



### Semester - VI

Course Code	Course Type	Course Title	Load Allocations			Marks Distribution		Total Marks	Credits
			L*	T*	P	Internal	External		
BDT-601-24	Core Theory	Applied Dialysis Technology - II	3	1	0	40	60	100	4
BDT-602-24	Core Theory	Advance Dialysis Technology -II	3	1	0	40	60	100	4
BDT-603-24	Core Theory	Dialysis in Special Situations	3	1	0	40	60	100	4
BDT-604-24	Core Theory	Research Methodology and Biostatistics	3	1	0	40	60	100	4
BDT-605-24	Core Practical/ Laboratory	Applied Dialysis Technology – II - Practical	0	0	4	60	40	100	2
BDT-606-24	Core Practical/ Laboratory	Advance Dialysis Technology -II - Practical	0	0	4	60	40	100	2
BDT-607-24	Core Practical/ Laboratory	Dialysis in Special Situations- Practical	0	0	4	60	40	100	2
BDT-608-24	Core Practical/ Laboratory	Recent Advances in Dialysis Technology - Practical	0	0	4	60	40	100	2
BDT-609-24	Ability Enhancement Compulsory Course-(AECC)	Hospital Management and Medical Ethics	2	0	0	40	60	100	1
		<b>TOTAL</b>	<b>14</b>	<b>04</b>	<b>16</b>	<b>440</b>	<b>460</b>	<b>900</b>	<b>25</b>



## **SYLLABUS OF THE PROGRAM**

The syllabus has been upgraded as per provision of the UGC module and demand of the academic environment. The contents of the syllabus have been duly arranged unit wise and included in such a manner so that due importance is given to requisite intellectual and laboratory skills. The application part of the respective contents has been appropriately emphasized.





Semester		First							
Course Code	Course Type	Course Title	Load Allocation			Marks Distribution		Total Marks	Credits
			L*	T*	P	Internal	External		
BDT-101-24	Core Theory	Human Anatomy I	3	1	0	40	60	100	4

### Course Outcomes:

**CO1:** Gain comprehensive knowledge of human anatomy, including the structure, function, and classification of cells, tissues, skin, bones, and joints.

**CO2:** Understand the muscular system, including muscle types, muscle groups, and the movements they produce, along with detailed knowledge of muscles in different body regions.

**CO3:** Acquire a thorough understanding of the respiratory and circulatory systems, including the anatomy and function of the respiratory tract, lungs, heart, and blood vessels.

**CO4:** Develop a detailed understanding of the digestive system, including the anatomy and function of the gastrointestinal tract and associated organs such as the liver, gall bladder, pancreas, and salivary glands.

### Module 1

**13 hours**

Introduction to Anatomy, Terminology, Cell and Cell division, Tissues of body, Skin.

**Skeletal System:** Classification of bones, Parts of developing long bone and its blood supply, Joints: Classification of joints, Synovial Joint. Appendicular skeleton: Bones of upper Limb, Bones of lower limb, Axial skeleton.

### Module 2

**11 hours**

**Muscular System:** Muscle Types, Muscle groups and movements, Muscles of Upper limb, Muscles of lower limb, Muscles of Neck, Muscles of back, Muscles of abdomen.

**Joints:** Shoulder, Hip, Knee, Movements and muscle groups producing movements at other joints.

### Module 3

**11 hours**

**Respiratory System:** Introduction to Respiratory system, Larynx, Thoracic cage and diaphragm, Lung & Pleura, Trachea & Bronchopulmonary segments, Mediastinum.

**Circulatory System:** Types of blood vessels, Heart & Pericardium, Coronary Circulation, Overview of Mediastinum, Blood vessels of Thorax.



**Module 4**

**10 hours**

**Digestive System:** Pharynx, Oesophagus, Stomach, Small and Large Intestine, Liver & Gall Bladder, Spleen, Pancreas, Salivary glands.

Semester	Course Code	Course Type	First Course Title	Load Allocation			Marks Distribution		Total Marks	Credits
				L*	T*	P	Internal	External		
BDT-104-24	Core Practical/ Lab	Human Anatomy I- Practical	0	0	4	60	40	100	2	

**List of Experiments:**

1. Introduction to Anatomy, Terminology, Cell and Cell division, Tissues of body, Skin
2. Histology of types of epithelium.
3. Demo of all bones showing parts, radiographs of normal bones and joints.
4. Histology of skeletal, smooth and cardiac muscle.
5. Demonstration of heart and vessels in the body.
6. Demonstration of parts of respiratory system.
7. Histology of lungs and trachea.
8. Demonstration of parts of Urinary system.
9. Histology of Kidney, ureter and Urinary Bladder.

**Suggested Books: -**

1. Manipal Manual of Anatomy for Allied Health Sciences courses: Madhyastha S.
2. G.J. Tortora & N.P Anagnostakos: Principles of Anatomy and Physiology
3. B.D. Chaurasia: Handbook of General Anatomy



Semester		First							
Course Code	Course Type	Course Title	Load Allocation			Marks Distribution		Total Marks	Credits
			L*	T*	P	Internal	External		
BDT-102-24	Core Theory	Human Physiology I	3	1	0	40	60	100	4

**Course Outcomes:** - At the end of the Course, the student will be able to

**CO1:** Develop a foundational understanding of general physiology, including the principles of homeostasis, cellular transport mechanisms, and the composition, properties, and functions of blood and body fluids.

**CO2:** Gain in-depth knowledge of the cardiovascular system, including the anatomical and physiological properties of the heart, cardiac cycle, cardiac output, heart sounds, blood pressure, electrocardiogram (ECG), and different types of shock.

**CO3:** Acquire comprehensive insights into the digestive system, including the organization, innervation, blood supply, composition and functions of digestive juices, and the processes involved in the digestion and absorption of carbohydrates, proteins, and fats.

**CO4:** Understand the respiratory system's physiological anatomy, functions, and mechanisms, including the non-respiratory functions of the lungs, mechanisms of respiration, lung volumes and capacities, and the transport and regulation of respiratory gases (O<sub>2</sub> and CO<sub>2</sub>).

**Module 1:**

**13 hours**

**General Physiology:** Introduction to physiology, Homeostasis, Transport Across cell membrane.

**Blood:** Composition, properties and functions of Blood, Erythropoiesis, Blood Groups– ABO and RH grouping, Coagulation of blood & Anticoagulants, Anaemias: Causes and classification, Body Fluid: Compartments, Composition.

**Module 2:**

**10 hours**

**Cardiovascular System:** Heart-Physiological Anatomy, Properties of cardiac muscle, Cardiac Cycle-Events –systole, diastole, Cardiac Output-Definition and factors affecting it, Heart sounds-normal heart sounds, its causes, Blood Pressure-Definition, normal value, Physiological variations, its measurement, ECG- normal waves, Shock-Definition, Types.



**Module 3:**

**07 hours**

**Digestive system:** General Introduction, organization, innervations & blood supply of Digestive System, Composition and functions of all Digestive juices, Movements of Digestive System (Intestine), Digestion & Absorption of Carbohydrate, Proteins & Fats.

**Module 4:**

**05 hours**

**Respiratory System:** Physiological anatomy, functions of respiratory system, non- respiratory functions of lung, Mechanism of respiration, Lung Volumes & capacities, Transport of Respiratory Gases O<sub>2</sub>, Transport of Respiratory Gases CO<sub>2</sub>, Regulation of Respiration.

Semester	Course Code	Course Type	First			Marks Distribution		Total Marks	Credits	
			Course Title	Load Allocation			Internal			External
				L*	T*	P				
	<b>BDT-105-24</b>	<b>Core Practical/Lab</b>	<b>Human Physiology I- Practical</b>	<b>0</b>	<b>0</b>	<b>4</b>	<b>60</b>	<b>40</b>	<b>100</b>	<b>2</b>

**List of Experiments**

1. Study of Microscope and its uses.
2. Collection of Blood and study of Hemocytometer.
3. Determination of Blood Groups
4. Determination of Bleeding Time, Determination of Clotting Time
5. Pulse & Blood Pressure Recording, Auscultation for Heart Sounds
6. Artificial Respiration – Demonstration.
7. Determination of Vital Capacity.
8. Study of Normal Electrocardiogram.

**Suggested Books: -**

1. Textbook of Medical Physiology, Guyton, 2nd South Asia Edition.
2. Textbook of Physiology Volume I & II (for MBBS) – Dr. A. K. Jain.
3. Comprehensive textbook of Medical Physiology Volume I & II – Dr. G. K. Pal



Semester		First							
Course Code	Course Type	Course Title	Load Allocation			Marks Distribution		Total Marks	Credits
			L*	T*	P	Internal	External		
BDT-103-24	Core Theory	General Biochemistry & Nutrition	3	1		40	60	100	4

**Course Outcomes:** - At the end of the Course, the student will be able to

**CO1:** Understand the basic structure, classification, and functions of carbohydrates, proteins, and nucleic acids.

**CO2:** Gain knowledge of enzyme classification, mechanisms, factors affecting activity, and biological oxidation.

**CO3:** Comprehend carbohydrate and protein metabolism, including glycolysis, TCA cycle, and the regulation of blood glucose.

**CO4:** Learn the importance of vitamins, minerals, nutrition science, and pre-examination skills related to sample handling and disposal.

**Module 1:**

**10 hours**

Introduction and scope of biochemistry. **Carbohydrates:** Definition, Functions, Properties, Outline of classification with examples (Definition of Monosaccharides, Disaccharides, Polysaccharides and their examples). **Chemistry of Proteins:** Amino acids (total number of amino acids, essential and non-essential Amino acids). Definition, Classification of Proteins Structural organization of protein, Denaturation of Proteins. **Chemistry of Nucleic acid:** Nucleosides and Nucleotides, Watson and Crick model of DNA, RNA- its type along with functions.

**Module 2:**

**10 hours**

**Elementary knowledge of enzymes:** Classification, mechanism of enzyme action, Factors Affecting Activity of enzymes, enzyme specificity, Enzyme inhibition, Isoenzymes and their diagnostic importance. **Biological oxidation:** Brief concept of biological oxidation: Definition of Oxidative phosphorylation Electron transport chain. Inhibitors and Uncouples briefly.



**Module 3:**

**15 hours**

**Metabolism of Carbohydrate:** Glycolysis, TCA cycle, Definition and significance of glycogenesis and glycogenolysis. Definition and significance of HMP shunt, definition and significance of gluconeogenesis. Regulation of blood Glucose level, Diabetes Mellitus, Glycosuria. Glucose Tolerance Test. **Metabolism of Proteins:** Transamination, Trans methylation reactions. Urea cycle, Functions of glycine, tyrosine, phenylalanine, tryptophan and Sulphur containing amino acids.

**Module 4:**

**10 hours**

**Vitamins and Minerals:** RDA, Sources, functions and deficiency manifestations of Fat-soluble vitamins. RDA, Sources, functions and deficiency manifestations of Water-soluble vitamins. RDA, Sources, functions and deficiency manifestations of Calcium, Phosphorous, Iron, Iodine.

**Principle and applications of:** Colorimeters, pH Meter

**Pre-examination Skills:** Collection and preservation of samples (Anticoagulants), transportation & Separation of biological specimens, Sample rejection criteria, Disposal of Biological Waste materials. **Nutrition:** History of Nutrition, Nutrition as a science, Food groups, RDA, Balanced diet, diet planning, Assessment of nutritional status. **Energy:** Units of energy, Measurements of energy and value of food, Energy expenditure, Total energy/calorie requirement for different age groups and diseases, Satiety value, Energy imbalance- obesity, starvation, Limitations of the daily food guide, Role of essential nutrients in the balanced diet.

Semester		First							
Course Code	Course Type	Course Title	Load Allocation			Marks Distribution		Total Marks	Credits
			L*	T*	P	Internal	External		
BDT-106-24	Core Practical /Lab	General Biochemistry & Nutrition - Practical	0	0	4	60	40	100	2

**List of Experiments:**

1. Introduction to Personnel protective equipment used in laboratory and their importance. (LCD)
2. Handling of colorimeters – operation and maintenance (LCD)



3. Serum electrolytes measurement (only demo)
4. Demonstration of semi-automated / fully automated blood analyzer
5. Demonstration of tests for carbohydrates (Monosaccharides, disaccharides and polysaccharides)
6. Precipitation Reactions of protein (only demonstration)
7. Test on bile salts (only demonstration)
8. Tests on Normal constituents of Urine (only demo)
9. Tests on Abnormal constituents of Urine (only demo)

**Suggested Books:**

1. Textbook of Medical Laboratory Technology, Volume 2, 3rd Edition by Praful Ghodkar
2. Medical Laboratory Technology (Volume 1): Procedure Manual for Routine Diagnostic, Kanai Mukharjee
3. Medical Laboratory Technology (Volume 2): Procedure Manual for Routine Diagnostic, Kanai Mukharjee
4. Medical Laboratory Technology (Volume 3): Procedure Manual for Routine Diagnostic, Kanai Mukharjee
5. Essentials of Biochemistry, Second Edition, Dr. (Prof) Satyanarayan.

Semester		First							
Course Code	Course Type	Course Title	Load Allocations			Marks Distribution		Total Marks	Credits
			L*	T*	P	Internal	External		
<b>BTHU-103-18</b>	<b>Ability Enhancement Compulsory Course (ACCE)</b>	<b>English &amp; Communication</b>	<b>1</b>	<b>0</b>	<b>0</b>	<b>40</b>	<b>60</b>	<b>100</b>	<b>3</b>

**Course Outcomes:** - At the end of the Course, the student will be able to

**CO1:** Develop a solid understanding of grammar, vocabulary, and writing skills, including various forms of written communication.

**CO2:** Enhance writing and reading skills through summary writing, creative writing, and practical exercises in formal speech and pronunciation.

**CO3:** Understand the communication process, including barriers and nuances of effective communication, and improve speaking and presentation skills.

**CO4:** Improve listening and reading efficiency, non-verbal communication, and rapport-building skills, particularly in professional settings.



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**Module 1:**

**15 hours**

**Basics of Grammar:** Vocabulary, Synonyms, Antonyms, Prefix and Suffix, Homonyms, Analogies and Portmanteau words, Active, Passive, Direct and Indirect speech, Prepositions, Conjunctions and Euphemisms **Writing Skills:** Letter Writing, Email, Essay, Articles, Memos, one-word substitutes, note making and Comprehension

**Module 2:**

**08 hours**

Writing and Reading, Summary writing, Creative writing, newspaper reading Practical Exercise, Formal speech, Phonetics, semantics and pronunciation

**Module 3:**

**10 hours**

**Introduction to communication skills:** Communication process, Elements of communication, Barriers of communication and how to overcome them, Nuances for communicating with patients and their attenders in hospitals. **Speaking:** Importance of speaking efficiently, Voice culture, Preparation of speech. Secrets of good Delivery, Audience psychology, handling, Presentation skills, Individual feedback for each student, Conference/Interview technique.

**Module 4:**

**12 hours**

**Listening:** Importance of listening, Self-assessment, Action plan execution, Barriers in listening, Good and persuasive listening. **Reading:** What is efficient and fast reading, Awareness of existing reading habits, tested techniques for improving speed, Improving concentration and comprehension through systematic study. **Non-Verbal Communication:** Basics of non-verbal communication, Rapport building skills using neuro- linguistic programming (NLP), Communication in Optometry practice.





Semester	Course Code	Course Type	First Course Title	Load Allocation			Marks Distribution		Total Marks	Credits
				L	T*	P	Internal	External		
				*						
BTHU-104-18	Core Practical /Lab	English & Communication (Lab/ Seminars)	0	0	2	30	20	50	1	

**List of Experiments:**

1. Interactive practice sessions in Language Lab on Oral Communication
2. Listening Comprehension
3. Self-Introduction,
4. Group Discussion and Role Play
5. Common Everyday Situations:
6. Conversations and Dialogues
7. Communication at Workplace
8. Interviews Formal Presentations,
9. Effective Communication/ Mis-communication Public Speaking

**Suggested Books:**

1. Graham Lock, Functional English Grammar: Introduction to second Language Teachers. Cambridge University Press, New York, 1996.
2. Gwen Van Servellen. Communication for Health care professionals: Concepts, practice and evidence, Jones & Bartlett Publications, USA, 2009



Semester		First							
Course Code	Course Type	Course Title	Load Allocations			Marks Distribution		Total Marks	Credits
			L*	T*	P	Internal	External		
<b>HVPE-101-18</b>	<b>Ability Enhancement Compulsory Course (ACCE)</b>	<b>Human Values, De-addiction &amp; Traffic Rules</b>	<b>3</b>	<b>0</b>	<b>0</b>	<b>40</b>	<b>60</b>	<b>100</b>	<b>3</b>

**Course Outcomes:** - At the end of the Course ,the student will be able to

**CO1:** Understand the need, guidelines, and process of value education, including self-exploration and the concepts of happiness and prosperity.

**CO2:** Gain insight into human harmony, understanding the coexistence of the self ('I') and the body, and the means to achieve personal harmony and well-being.

**CO3:** Comprehend the values and harmony in family and society, focusing on trust, respect, and universal human goals for a harmonious social order.

**CO4:** Grasp the holistic understanding of harmony in nature and existence, and apply this understanding to professional ethics, humanistic education, and sustainable development practices.

**Module 1:**

**06 hours**

Course Introduction – Need, Basic Guidelines, Content and Process for Value Education

- Understanding the need, basic guidelines, content and process for Value Education
- Self-Exploration–what is it? – its content and process; ‘Natural Acceptance’ and Experiential Validation-as the mechanism for self-exploration Continuous Happiness and Prosperity- A look at basic Human Aspirations Right understanding, Relationship and Physical Facilities- the basic requirements for 19ulfilment of aspirations of every human being with theircorrect priority
- Understanding Happiness and Prosperity correctly- A critical appraisal ofthe current scenario
- Method to 19ulfil the above human aspirations: understanding and living inharmony at various levels

**Module 2:**

**06 hours**

Understanding Harmony in the Human Being – Harmony in Myself

- Understanding human being as a co-existence of the sentient ‘I’ and thematerial ‘Body’
- Understanding the needs of Self (‘I’) and ‘Body’ – *Sukh* and *Suvidha* Understanding the Body as an instrument of ‘I’ (I being the doer, seer andenjoyer)
- Understanding the characteristics and activities of ‘I’ and harmony in ‘I’



Understanding the harmony of I with the Body: *Sanyam* and *Swasthya*; correct appraisal of Physical needs, meaning of Prosperity in detail Programs to ensure *Sanyam* and *Swasthya*

Practice Exercises and Case Studies will be taken up in Practice Sessions.

**Module 3:**

**10 hours**

Understanding Harmony in the Family and Society- Harmony in Human-Human Relationship

- Understanding harmony in the Family- the basic unit of human interaction  
Understanding values in human-human relationship; meaning of *Nyaya* and program for its fulfilment to ensure *Ubhay-tripti*;
- Trust (*Vishwas*) and Respect (*Samman*) as the foundational values of relationship
- Understanding the meaning of *Vishwas*; Difference between intention and competence
- Understanding the meaning of *Samman*, Difference between respect and differentiation; the other salient values in relationship
- Understanding the harmony in the society (society being an extension of family): *Samadhan*, *Samridhi*, *Abhay*, *Sah-astitva* as comprehensive Human Goals
- Visualizing a universal harmonious order in society- Undivided Society (*AkhandSamaj*), Universal Order (*SarvabhaumVyawastha* )- from family to world family! Practice Exercises and Case Studies will be taken up in Practice Sessions.

**Module 4:**

**06 hours**

**Listening:** Importance of listening, Self-assessment, Action plan execution, Barriers in listening, Understanding Harmony in the Nature and Existence – Whole existence as Co-existence

- Understanding the harmony in the Nature
- Interconnectedness and mutual fulfilment among the four orders of nature-recyclability and self-regulation in nature
- Understanding Existence as Co-existence (*Sah-astitva*) of mutually interacting units in all-pervasive space
- Holistic perception of harmony at all levels of existence

Practice Exercises and Case Studies will be taken up in Practice Sessions.

**Module 5:**

**06 hours**

Implications of the above Holistic Understanding of Harmony on Professional

- Natural acceptance of human values Definitiveness of Ethical Human Conduct
- Basis for Humanistic Education, Humanistic Constitution and Humanistic Universal Order
- Competence in professional ethics:  
Ability to utilize the professional competence for augmenting universal human order,  
Ability to identify the scope and characteristics of people-friendly and eco-



friendly production systems,  
Ability to identify and develop appropriate technologies and management patterns for above production systems.

- Case studies of typical holistic technologies, management models and production systems.

Semester	Course	First	Load Allocation			Marks Distribution		Total Marks	Credits
Course Code	Course Type	Course Title	L	T*	P	Internal	External		
			*						
HVPE-102-18	Core Practical /Lab	Human Values, De-addiction & Traffic Rules (Lab/ Seminars)	0	0	1	25	**	25	1

### List of Experiments:

One each seminar will be organized on Drug De-addiction and Traffic Rules. Eminent scholar and experts of the subject will be called for the Seminar at least once during the semester. It will be binding for all the students to attend the seminar

### Suggested Books:

1. Ivan Illich, 1974, *Energy & Equity*, The Trinity Press, Worcester, and HarperCollins, USA
2. E.F. Schumacher, 1973, *Small is Beautiful: a study of economics as if people mattered*, Blond & Briggs, Britain.
3. A Nagraj, 1998, *Jeevan Vidya ek Parichay*, Divya Path Sansthan, Amarkantak.
4. Sussan George, 1976, *How the Other Half Dies*, Penguin Press. Reprinted 1986, 1991
5. PL Dhar, RR Gaur, 1990, *Science and Humanism*, Commonwealth Publishers.
6. A.N. Tripathy, 2003, *Human Values*, New Age International Publishers.
7. Subhas Palekar, 2000, *How to practice Natural Farming*, Pracheen (Vaidik) Krishi Tantra Shodh, Amravati.
8. Donella H. Meadows, Dennis L. Meadows, Jorgen Randers, William W. Behrens III, 1972, *Limits to Growth Club of Rome's report*, Universe Books.
9. E G Seebauer & Robert L. Berry, 2000, *Fundamentals of Ethics for Scientists & Engineers*, Oxford University Press
10. M Govindrajran, S Natrajan & V.S. Senthil Kumar, *Engineering Ethics (including Human Values)*, Eastern Economy Edition, Prentice Hall of India



Ltd.

11. B P Banerjee, 2005, Foundations of Ethics and Management, Excel Books.
12. B L Bajpai, 2004, Indian Ethos and Modern Management, New Royal Book Co., Lucknow. Reprinted 2008

Semester		First							
Course Code	Course Type	Course Title	Load Allocations			Marks Distribution		Total Marks	Credits
			L*	T*	P	Internal	External		
<b>BMPD-202-18</b>	<b>Ability Enhancement Compulsory Course (ACCE)</b>	<b>Mentoring &amp; Professional Development</b>	<b>0</b>	<b>0</b>	<b>1</b>	<b>25</b>	<b>**</b>	<b>25</b>	<b>1</b>

**Course Outcomes:** - At the end of the Course, the student will be able to

**CO1:** Enhance learning through expert lectures, video lectures, aptitude tests, and quizzes on general and technical topics.

**CO2:** Develop communication and presentation skills through group discussions, student presentations, and team-building exercises.

**CO3:** Gain practical knowledge of computer fundamentals as integrated with various activities.

**CO4:** Participate in sports, NSS/NCC, and student society activities to foster holistic development and teamwork.

### Module 1:

1. Expert and video lectures
2. Aptitude Test
3. Group Discussion
4. Quiz (General/Technical)
5. Presentations by the students
6. Team building Exercises
- 7\* A part of above six points practicals on Fundamentals of Computers are also added as per Annexure-I

### Module 2:

1. Sports/NSS/NCC
2. Society Activities of various students chapter i.e. ISTE, SCIE, SAE, CSI, Cultural Club, etc.



Semester		Second							
Course Code	Course Type	Course Title	Load Allocation			Marks Distribution		Total Marks	Credits
			L*	T*	P	Internal	External		
BDT-201-24	Core Theory	Human Anatomy II	3	1	0	40	60	100	4

**Course Outcomes:**

**CO1:** Understand the structure and function of the nervous system, including the brain, spinal cord, cranial and spinal nerves, and sensory organs.

**CO2:** Gain knowledge of the endocrine system, including the structure and functions of key endocrine glands like the pituitary, adrenal, thyroid, and parathyroid glands.

**CO3:** Comprehend the anatomy of the male and female reproductive systems, including the structure of the testis, uterus, ovaries, and associated reproductive organs.

**CO4:** Learn the anatomy and functions of the urinary system, including the kidneys, ureters, urinary bladder, and urethra.

**Module 1**

**15 hours**

**Nervous system:** Neuron, classification of NS, Meninges, ventricles, CSF, Gross features of cerebrum, midbrain, pons, medulla oblongata, cerebellum, name of basal nuclei, Blood supply of brain, cranial nerves, Spinal cord and spinal nerves, Autonomic nervous system, Visual & auditory pathways. Sensory Organs: Skin & its appendages, Structure of eye & lacrimal apparatus, name of extraocular muscles. Structure of ear: external, middle & inner ear.

**Module 2**

**10 hours**

**Endocrine glands:** Name of all endocrine glands, gross structure & functions of pituitary gland, adrenal gland, thyroid gland and parathyroid gland.

**Module 3**

**10 hours**

**Reproductive system:** Parts of male reproductive system, gross structure of testis, vas deferens, epididymis, prostate, Parts of female reproductive system, gross structure of uterus, ovary, fallopian tube, mammary gland.

**Module 4**

**10 hours**



**Urinary System:** Parts of Urinary system, location and gross structure of kidney, ureter, urinary bladder, urethra.

Semester	Course Code	Course Type	Second			Marks Distribution		Total Marks	Credits	
			Course Title	Load Allocation			Internal			External
			L*	T*	P					
	BDT-205-24	Core Practical/ Lab	Human Anatomy II- Practical	0	0	4	60	40	100	2

**List of Experiments:**

1. Demonstration of parts of Urinary system
2. Demonstration of parts of Reproductive system
3. Demonstration of parts of Nervous System: Brain and Spinal Cord, Cranial & Spinal Nerves
4. Demonstration of various Sensory Organs: Eye, Ear (Demonstration from models)

**Suggested Books:-**

4. Manipal Manual of Anatomy for Allied Health Sciences courses: Madhyastha S.
5. G.J. Tortora& N.P Anagnostakos: Principles of Anatomy and Physiology
6. B.D. Chaurasia: Handbook of General Anatomy



Semester		Second							
Course Code	Course Type	Course Title	Load Allocation			Marks Distribution		Total Marks	Credits
			L*	T*	P	Internal	External		
BDT-202-24	Core Theory	Human Physiology II	3	1	0	40	60	100	4

**Course Outcomes:** - At the end of the Course, the student will be able to

**CO1:** Understand the structure and functions of the excretory system, including kidney functions, glomerular filtration, and the micturition reflex.

**CO2:** Gain knowledge of the reproductive system, covering spermatogenesis, ovulation, the menstrual cycle, and the functions of testosterone, oestrogen, and progesterone.

**CO3:** Comprehend the central nervous system, including neuron structure, nerve fibre properties, synapses, reflex arcs, tracts, and the functions of various brain regions and the autonomic nervous system.

**CO4:** Learn about nerve muscle physiology, including muscle classification, skeletal muscle structure, the neuromuscular junction, and excitation-contraction coupling.

**Module 1:**

**10 hours**

**Excretory System:** Kidneys-structure of nephron, functions of kidney Glomerular filtration Rate (GFR) and factors affecting it, Counter Current Mechanism, Bladder-its innervation, micturition reflex.

**Module 2:**

**10 hours**

**Reproductive System:** Male Reproductive System-Stages of spermatogenesis, function of Testosterone, Female Reproductive System-Ovulation, menstrual cycle, functions of Estrogen and progesterone.

**Module 3:**

**15 hours**

**Central Nervous System:** Structure of neuron, functions of nervous system, Classification and properties of nerve fibers, Synapse- structure and types, Receptors-Definition, classification, properties, Reflex Arc, Ascending and Descending tracts- names and functions, Functions of Hypothalamus, Functions of Cerebellum and Basal Ganglia, Functions of Cerebral Cortex, Autonomic Nervous System- Actions of sympathetic and parasympathetic system, and their comparison.





**Module 4:**

**05 hours**

**Nerve Muscle Physiology:** Classification of Muscle, structure of skeletal muscle, Neuromuscular Junction, Excitation Contraction Coupling.

Semester	Course Code	Course Type	Second			Course Title		Load Allocation	Marks Distribution		Total Marks	Credits
			L*	T*	P	Internal	External					
BDT-206-24	Core	Practical/Lab	0	0	4	Human Physiology I-Practical	60	40	100	2		

**List of Experiments**

1. To Examine Cranial nerve
2. To Examine Photopupillary reflex
3. To Examine Deep tendon reflex
4. To Examine Superficial Reflex
5. To Examine Sensory system
6. To Examine the Motor system
7. To Examine Eye Reflex
8. To study Histology slides of Different types of Muscle tissue
9. To identify the Urinary System organs using models and describe the function of the kidney
10. To Examine Hearing

**Suggested Books: -**

1. Textbook of Medical Physiology, Guyton, 2nd South Asia Edition.
2. Textbook of Physiology Volume I & II (for MBBS) – Dr. A. K. Jain.
3. Comprehensive textbook of Medical Physiology Volume I & II – Dr. G. K. Pal



Semester		Second							
Course Code	Course Type	Course Title	Load Allocation			Marks Distribution		Total Marks	Credits
			L*	T*	P	Internal	External		
BDT-203-24	Core Theory	General Microbiology	3	1		40	60	100	4

**Course Outcomes:** - At the end of the Course, the student will be able to

**CO1:** Understand general microbiology concepts including infection types, routes of infection, normal flora, and antimicrobial mechanisms, as well as staining and culture techniques for laboratory diagnosis.

**CO2:** Learn the principles of sterilization and disinfection, hospital-acquired infections, universal safety precautions, and biomedical waste management.

**CO3:** Gain insights into immunology, including antigen-antibody reactions, immune responses, innate and acquired immunity, hypersensitivity, autoimmunity, and immunoprophylaxis.

**CO4:** Comprehend bacteriology and virology, including bacterial morphology, classification, transmission, prevention methods, and the general properties, classification, and pathogenesis of viruses, with a focus on specific pathogens like HIV and hepatitis.

**Module 1:**

**15 hours**

**General Microbiology:** Infection, parasite, host, vector, fomite, contagious disease, infectious disease, epidemic, endemic, pandemic, Zoonosis, Epizootic, Attack rate Normal flora of the human body Routes of infection and spread, endogenous and exogenous infections at reservoir of infections Antimicrobials: mode of action, interpretation of susceptibility tests, resistance spectrum of activity Staining techniques: Gram staining, Acid fast staining, Culture methods Laboratory diagnosis of infection

**Module 2:**

**05 hours**

**Sterilization & Disinfection:** Definition of Asepsis, Sterilization and Disinfection Hospital Acquired infection, Universal safety precautions and Biomedical waste Disposal & Management.



**Module 3:**

**10 hours**

**Immunology:** Antigen- Antibody-reaction & application for Diagnosis, Immune response- Normal / Abnormal, Innate Immunity & acquired immunity (Vaccination) Hyper sensitivity & auto-immunity, Serological tests, Immunoprophylaxis.

**Module 4:**

**15 hours**

**Bacteriology:** Morphology, Classification according to the Pathogenicity, Mode of Transmission, methods of prevention, Collection and transport of samples for laboratory diagnosis, Interpretation of laboratory reports Staphylococci, Streptococci, & Pneumococci Neisseria, Mycobacterium: Tuberculosis, V. Cholerae and other medically important Vibrio's.

**Virology:** General Properties, Basic structure and broad Classification of Viruses. Pathogenesis and Pathology of viral infection (HIV, Hepatitis)

Semester		Second							
Course Code	Course Type	Course Title	Load Allocation			Marks Distribution		Total Marks	Credits
			L	T*	P	Internal	External		
BDT-207-24	Core Practical /Lab	General Microbiology - Practical	0	0	4	60	40	100	2

**List of Experiments:**

1. Introduction & visit to microbiology lab + Morphology of bacteria + Identification of bacteria (Culture plates & Basic biochemical reactions)
2. Gram stain, Acid fast Stain
3. Spotters, Instruments, Culture media inoculated & uninoculated
4. Applied Immunology (Bacterial) Serological tests — CRP, ASO, RPR, Widal Applied Immunology (Virology) Serological tests: HIV, HBsAg (Rapid Tests)
5. Stool Examination for eggs + Parasitology specimens

**Suggested Books:**

1. Ananthanarayanan (R), Textbook of Microbiology, Orient Longman Ltd., 10th Ed, 2017.
2. Mackie and McCartney Practical Medical Microbiology, Relx India Pvt ltd, 14th Ed, 2018.
3. Baveja CP, Textbook of Microbiology, APC, 6th ed, 2021.
4. Sriram Kumar (S), Textbook of Microbiology, All win Publication, 151 Ed, 2019



Semester		Second							
Course Code	Course Type	Course Title	Load Allocations			Marks Distribution		Total Marks	Credits
			L*	T*	P	Internal	External		
BDT-204-24	Core Theory	Basic Pathology and Haematology	3	1	0	40	60	100	4

**Course Outcomes:** - At the end of the Course, the student will be able to

**CO1:** Understand basic concepts in cellular adaptations, including cell injury, cell death, and the inflammatory process, along with immune system disorders.

**CO2:** Gain knowledge of infectious diseases, including bacterial, viral, fungal, parasitic, and syphilis infections, with specific examples.

**CO3:** Comprehend the principles of neoplasia, including tumor nomenclature, growth, metastasis, and the differences between benign and malignant tumors, as well as oncogenes and tumor suppressor genes.

**CO4:** Learn about hematology, including the structure and function of blood components, coagulation mechanisms, blood grouping, blood bank basics, and aspects of anemia and leukemia.

**Module 1:**

**15 hours**

**Basic Concepts in Cellular Adaption's:** Cell injury and Cell death, Cellular response to stress and other stimuli, Overview of Cell injury and Cell death

**Basic Principles in Inflammatory Process:** General features including inflammatory mediators and Basic Mechanisms of disorders of Immunity, General features of the immune system, Disorders of the Immune System, Acute and Chronic inflammation

**Module 2:**

**10 hours**

**Infectious Diseases:** Infectious diseases, Bacterial Infections (Typhoid, Tuberculosis and Leprosy) Viral infections (HIV, HbSAg and Polio) Viral infections (HIV, HbSAg and Polio) Specific Examples of Fungal, Parasitic and Syphilis infections

**Module 3:**

**10 hours**

**Neoplasia:** Nomenclature, Rudimentary aspects on Tumor growth and Metastasis, Definition of Neoplasia, Differences between Benign and Malignant Tumors, Staging and Grading of Tumors (Basic Aspects), Oncogenes and Tumor Suppressor genes.

**Module 4:**

**15 hours**



**Haematology:** Structure and functions of Formed elements Objective use of anticoagulants, Mechanisms of Haemostasis Tests to monitor Coagulation, Blood Grouping and Blood Bank (Basic aspects on Blood Components) Fixatives and Basic details in Cytology, Aspiration Cytology of Bone marrow Basic concepts in Anaemia, Cellular aspects of Leukaemia.

Semester		Second							
Course Code	Course Type	Course Title	Load Allocation			Marks Distribution		Total Marks	Credits
			L*	T*	P	Internal	External		
BDT-208-24	Core Practical /Lab	Basic Pathology and Haematology - Practical	0	0	4	60	40	100	2

**List of Experiments:**

1. Demo of coagulation profile
2. Phlebotomy techniques
3. Blood Grouping and Rh typing
4. Urine Routine
5. Hb, TLC, DLC
6. Gross Specimens
7. Slides

**Suggested Books:**

1. Mohan (H), Textbook of Pathology, Jaypee Pub, 5th Edi, 2019.
2. Kumar, Robbins & Cotran Pathologic Basis of Disease, WB Saunders, 106 Edi, 2020.
3. Kawthalkar(S), Essentials of Clinical Pathology, Jaypee Brothers, 2'd edi, 2018.
4. Nayak (R), Essentials of Hematology & Clinical Pathology, Jaypee Brothers, Edi, 2017.
5. Sengupta, Synopsis of Clinical Pathology & Microbiology, CBS Pub, 8th Edi, 2017.



Semester		Second							
Course Code	Course Type	Course Title	Load Allocations			Marks Distribution		Total Marks	Credits
			L*	T*	P	Internal	External		
<b>EVS-102-18</b>	<b>Ability Enhancement Compulsory Course (ACCE)</b>	<b>Environmental Studies</b>	<b>3</b>	<b>0</b>	<b>0</b>	<b>40</b>	<b>60</b>	<b>100</b>	<b>1</b>

**Course Outcomes:** - At the end of the Course, the student will be able to

**CO1:** Understand the basic concepts of environmental studies, including ecosystems, energy flow, and the structure and functions of various ecosystems.

**CO2:** Gain knowledge about natural resources, including renewable and non-renewable resources, their uses, conservation strategies, and related issues like water and land degradation.

**CO3:** Comprehend biodiversity, its types, conservation strategies, and the impacts of environmental pollution and global climate change on ecosystems and human health.

**CO4:** Apply practical skills through fieldwork, including visits to conservation sites, documentation of biodiversity, and assessment of local environmental issues.

**Module 1:**

**04 hours**

Introduction to Environmental Studies Multidisciplinary nature of Environmental Studies: Scope & Importance Need for Public Awareness Ecosystems Concept of an Ecosystem: Structure & functions of an ecosystem (Producers, Consumers & Decomposers) Energy Flow in an ecosystem: Food Chain, Food web and Ecological Pyramids Characteristic features, structure & functions of following Ecosystems: • Forest Ecosystem • Aquatic Ecosystem (Ponds, Lakes, River & Ocean)

**Module 2:**

**08 hours**

Natural Resources Renewable & Non-renewable resources Forest Resources: Their uses, functions & values (Biodiversity conservation, role in climate change, medicines) & threats (Overexploitation, Deforestation, Timber extraction, Agriculture Pressure), Forest Conservation Act Water Resources: Their uses (Agriculture, Domestic & Industrial), functions & values, Overexploitation and Pollution of Ground & Surface water resources (Case study of Punjab), Water Conservation, Rainwater Harvesting, Land Resources: Land as a resource; Land degradation, soil erosion and desertification. Energy Resources: Renewable & non-renewable energy resources, use of alternate energy resources (Solar, Wind, Biomass, Thermal), Urban problems related to Energy.

**Module 3:**

**08 hours**



Biodiversity & its conservation Types of Biodiversity: Species, Genetic & Ecosystem India as a mega biodiversity nation, Biodiversity hot spots and biogeographic regions of India Examples of Endangered & Endemic species of India, Red data book Environmental Pollution & Social Issues Types, Causes, Effects & Control of Air, Water, Soil & Noise Pollution Nuclear hazards and accidents & Health risks Global Climate Change: Global warming, Ozone depletion, Acid rain, Melting of Glaciers & Ice caps, Rising sea levels Environmental disasters: Earthquakes, Floods, Cyclones, Landslides.

**Module 4:**

**16 hours**

Field Work Visit to a National Park, Biosphere Reserve, Wildlife Sanctuary Documentation & preparation of a Biodiversity (flora & fauna) register of campus/river/forest Visit to a local polluted site: Urban/Rural/Industrial/Agricultural Identification & Photography of resident or migratory birds, insects (butterflies) Public hearing on environmental issues in a village.

**Suggested Books:**

1. Carson, R. 2002. Silent Spring. Houghton Mifflin Harcourt.
2. Gadgil, M., & Guha, R. 1993. This Fissured Land: An Ecological History of India. Univ. of California Press.
3. Gleeson, B. and Low, N. (eds.) 1999. Global Ethics and Environment, London, Routledge.
4. Gleick, P. H. 1993. Water in Crisis. Pacific Institute for Studies in Dev., Environment & Security. Stockholm Env. Institute, Oxford Univ. Press.
5. Groom, Martha J., Gary K. Meffe, and Carl Ronald Carroll. Principles of Conservation Biology. Sunderland: Sinauer Associates, 2006.
6. Grumbine, R. Edward, and Pandit, M.K. 2013. Threats from India's Himalaya dams. Science, 339: 36--- 37.
7. McCully, P. 1996. Rivers no more: the environmental effects of dams(pp. 29---64). ZedBooks.
8. McNeill, John R. 2000. Something New Under the Sun: An Environmental History of the Twentieth Century.
9. Odum, E.P., Odum, H.T. & Andrews, J. 1971. Fundamentals of Ecology. Philadelphia: Saunders.
10. Pepper, I.L., Gerba, C.P. & Brusseau, M.L. 2011. Environmental and Pollution Science. Academic Press.
11. Rao, M.N. & Datta, A.K. 1987. Waste Water Treatment. Oxford and IBH Publishing Co. Pvt. Ltd.
12. Raven, P.H., Hassenzahl, D.M. & Berg, L.R. 2012. Environment. 8th edition. John Wiley & Sons.
13. Rosencranz, A., Divan, S., & Noble, M. L. 2001. Environmental law and policy in India. Tripathi 1992.
14. Sengupta, R. 2003. Ecology and economics: An approach to sustainable development. OUP.
15. Singh, J.S., Singh, S.P. and Gupta, S.R. 2014. Ecology, Environmental Science and Conservation. S. Chand Publishing, New Delhi.
16. Sodhi, N.S., Gibson, L. & Raven, P.H. (eds). 2013. Conservation Biology: Voices from the Tropics. John Wiley & Sons.
17. Thapar, V. 1998. Land of the Tiger: A Natural History of the Indian Subcontinent.
18. Warren, C. E. 1971. Biology and Water Pollution Control. WB Saunders.
19. Wilson, E. O. 2006. The Creation: An appeal to save life on earth. New York: Norton.



Semester		Second							
Course Code	Course Type	Course Title	Load Allocations			Marks Distribution		Total Marks	Credits
			L*	T*	P	Internal	External		
BMPD-202-18	Ability Enhancement Compulsory Course (ACCE)	Mentoring & Professional Development	0	0	1	25	**	25	1

**Course Outcomes:** - At the end of the Course, the student will be able to

**CO1:** Enhance learning through expert lectures, video lectures, aptitude tests, and quizzes on general and technical topics.

**CO2:** Develop communication and presentation skills through group discussions, student presentations, and team-building exercises.

**CO3:** Gain practical knowledge of computer fundamentals as integrated with various activities.

**CO4:** Participate in sports, NSS/NCC, and student society activities to foster holistic development and teamwork.

#### **Module 1:**

1. Expert and video lectures
2. Aptitude Test
3. Group Discussion
4. Quiz (General/Technical)
5. Presentations by the students
6. Team building Exercises
- 7\* A part of above six points practicals on Fundamentals of Computers are also added as per Annexure-I

#### **Module 2:**

1. Sports/NSS/NCC
2. Society Activities of various students chapter i.e. ISTE, SCIE, SAE, CSI, Cultural Club, etc.