

**Maulana Abul Kalam Azad University of Technology, West Bengal**  
(Formerly West Bengal University of Technology)  
**Syllabus for Bachelor of Science in Yoga (B.Sc.Yoga)**  
(Effective from Academic Session 2019-2020)

**SYLLABUS IN DETAIL: SEMESTER 1**

**Theory:**

**BSY 101 Human Anatomy & Physiology**  
**BSY 102 Human System according to Yoga**  
**BSY 103 Introduction to Sanskrit - I**  
**BSY 104 Introduction to Classical Yogasanas**

**Practical:**

**BSY 191 Yoga & Education for Personality Development**  
**BSY 192 Vedic Chanting and Devotional Music**

***HUMAN ANATOMY & PHYSIOLOGY***

***Sub Code: BSY 101***

***Course Outcome (CO): Following the completion of the course, students shall be able to:***

*CO-1: know about the structure of the body.*

*CO-2: know about the necessary functions of the body.*

*CO-3: understand the involvement of their body parts while practicing various postures of yoga.*

**Chapter 1: Introduction to Human Anatomy and Physiology.**

- Introduction to Human Anatomy and Physiology, Basic Anatomical and Physiological terminologies.
- Cell: Structure & Functions, different cell organelles and their functions.
- Tissues and Organization of human system; Introduction to Support Systems.
- Maintenance Systems, Control Systems, Defense System and Concept of Homeostasis.

**Chapter 2: Musculoskeletal System.**

- The Skeletal System: Skeleton, Functions of skeleton, Classification of bones, Study of joints.
- Structure and function of a Synovial joint.
- The Muscular System: Types of Muscles in the body.
- The characteristics, structure and functions of the Skeletal Muscles, Smooth Muscles and Cardiac Muscles.

**Chapter 3: Digestive System.**

- Gross anatomy of digestive system, functional anatomy of Buccal cavity, Pharynx, Esophagus, Stomach, Small intestine, Large intestine and Anal canal.
- Physiology of digestion, assimilation & peristalsis, Gastric and digestive juices involved in digestion & associated glands involved in digestive system.

**Chapter 4: Urinary system.**

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- Anatomy of urinary tract with special reference to anatomy of kidney and nephrons, functions of kidney and urinary tract, physiology of urine formation, micturition reflex.
- Role of kidneys in acid base balance, role of RAS in kidney and disorders of kidneys.

**Chapter 5: Respiratory System.**

- Gross anatomy of the respiratory passages, functions of Nasal cavity, Pharynx, Larynx, Trachea, Bronchus, Lungs and Alveoli.
- The process of Respiration, Lung volumes & capacities, Mechanics of breathing and exchange of gases in alveoli.

**Chapter 6: Blood & Lymphatic system.**

- Composition of blood corpuscles – RBC, WBC and Platelets.
- Blood: Composition and Functions, Blood groups and their importance.
- Plasma, hemoglobin – coagulation of blood and anti coagulants.
- Sites, functional anatomy of lymph nodes and their function.
- Lymphatic system and its role in immune system.

**Chapter 7: Cardiovascular System.**

- Functional anatomy of the Heart, arteries, veins and capillaries.
- The organization of systematic and pulmonary circulation, the cardiac cycle.
- Cardiac output and Venous return.
- Blood pressure and Regulation of blood pressure.

**Chapter 8: Nervous System.**

- An introduction to Histology – nerve – structure and properties of neurons – nerve – action potential – generation propagation – factors influencing classification of neurons and nerve fibers, neuralgia cells, receptors and reflex arcs.
- Functional anatomy of Cerebrum, Cerebellum, spinal cord.
- Functions and importance of the parts of the brain viz., cerebrum, pons, medulla, thalamus, hypothalamus, cerebellum and autonomic nervous system [sympathetic and parasympathetic].

**Chapter 9: Special Senses.**

- Functional anatomy and physiology of eyes, ears, nose, tongue and skin.

**Chapter 10: Endocrine System.**

- Anatomical structure of important endocrine glands (Pituitary, thyroid, parathyroid, pancreas, adrenal and gonads).
- Short anatomy of the hypothalamus and the releasing hormones secreted from it.
- Structure and function of anterior and posterior Pituitary.
- Function of thyroid, parathyroid, suprarenal and islets of Langerhans.

**Chapter 11: Reproductive system.**

- Functional anatomy male reproductive system, seminal vesicles and prostate glands.

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- Spermatogenesis.
- Functional anatomy of female reproductive system.
- Ovarian hormones, menstruation, pregnancy, parturition and lactation.

**REFERENCE BOOKS:**

1. Gore, M.M.: Anatomy and Physiology of Yogic practices (Kanchan Prakshan, Lonavala, 2003)
2. Sri Krishna: Notes on Structure and Functions of Human Body and Effects of Yogic practices on it (Kaivalydhama S.M.Y.M Samiti, Lonavala, 1988)
3. Charu, Supriya: Sarir Rachana evam Kriya Vigyan.
4. Evelyn, C. Pearce: Anatomy and Physiology for Nurses (Faber and Faber Ltd. London, 1968)
5. Chatterjee, C.C.: Human Physiology (Vol. I & II) (Medical Allied Agency, Calcutta, 1992)

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**HUMAN SYSTEM ACCORDING TO YOGA**

**Sub Code: BSY 102**

**Course Outcome (CO): Following the completion of the course, students shall be able to:**

CO-1: understand the Evolution of Human Body.

CO-2: understand the Pancha Kosha Theory.

CO-3: have the knowledge about the Chakras, Mandalas, Vayus, Nadis & Swara Yoga.

**Chapter 1: Evolution of Human Body.**

- Panchamahabhutas , Panchatattvas and Panchatanmatras.
- Evolution of human body in the context of Sankhya Darshana.
- Evolution of Jnanendriyas, Karmendriyas, Mahat, Manas, Buddhi, Chitta and Ahamkara.
- Saptadhatus that make the human body.

**Chapter 2: Pancha Kosha Theory.**

- Critical analysis of the story of Bhrigu and Varuna.
- The existence of five koshas in the human body.
- The product of five koshas.
- Disturbance of each kosha.

**Chapter 3: Chakras & Mandalas.**

- Introduction to Chakras.
- Evolution through the Chakras.
- Description of Muladhara , Swadhistana, Manipura, Anahata, Vishudhi, Bindubisarga, Ajna and Sahasrara Chakras.
- Concept of Mandalas, types and their work.

**Chapter 4: Vayus, Nadis & Swara Yoga.**

- Concept of Vayus, type, their names and function.
- Concept of Nadis, their characteristics and the names of 10 major Nadis and their functions.
- Difference between Ida, Pingala and Sushumna.
- Effects of Swarayoga as explained in the Hatha yogic texts, Relevance of svara- vijnana in day to day life and the importance of Swarodaya in health and disease.

**REFERENCE BOOKS:**

1. Swami Harshananda: The Six Systems of Hindu Philosophy (Ramakrishna Matt, Bangalore, 2000)
2. Dr H R Nagendra & Dr R Nagarathna: Yoga Health (Swami Vivekananda Yoga Prakashana, 2000)
3. Swami Muktibodhananda: Hatha Yoga Pradeepika, Yoga Publication Trust, Munger.
4. Karel Werner: Yoga and Indian Philosophy (Motilal Banarsidass, Delhi, 1979).
5. Radhakrishnan, S.: Indian Philosophy (Vol. I & II) (George Allen and Unwin, London, 1971)
6. Sharma, Chandradhar: A Critical Survey of Indian Philosophy (Motilal Banarsidass, Delhi, 2000)
7. Nagendra H R: Integrated Approach of Yoga Therapy for positive health, Swami Vivekananda Yoga Prakashana, Bangalore.
8. Swami Niranjanananda Saraswati: Prana, Pranayama & Pranavidya, Yoga Publication Trust, Munger.

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**INTRODUCTION TO SANSKRIT- I**

**Sub Code: BSY 103**

**Course Outcome (CO): Following the completion of the course, students shall be able to:**

*CO-1: read and understand the colloquial words of Sanskrit.*

*CO-2: communicate and comprehend Sanskrit to the best of their ability.*

*CO-3: write in Sanskrit and have some idea about grammar.*

**Chapter 1:** Vowels and Consonants, pronunciation, articulation of each letter and the technical names of the letters according to their articulation, similar and dissimilar letters and how to write them.

**Chapter-2:** Consonants combined with vowels, pronunciation and writing, special letters which do not follow the general method.

**Chapter-3:** Conjunct letters, rules to combine consonants, special consonants, how Sanskrit articulation can be applied to languages like English, special attention to Anusvara, when it can be written in the form of a nasal, two consonant combination and three consonant combination, their writing practice, special conjunct letters and their writing.

**Chapter-4:** Transliteration according to authentic dictionary method.

**REFERENCE BOOKS:**

1. Dr. Sarasvati Mohan, Sanskrit Level-1 Sharadh Enterprises, Bangalore, 2007.
2. Dr. Sarasvati Mohan, DVD and CD.
3. Publication of Akshram and Hindu Seva Prathisthana.

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**INTRODUCTION TO CLASSICAL YOGASANAS**

**Sub Code: BSY 104**

**Course Outcome (CO): Following the completion of the course, students shall be able to:**

*CO-1: understand the Asanas with Textual Reference from Hatha Yoga Pradipika & Hatha Ratnavali.*

*CO-2: understand the Asanas with Textual Reference from Gheranda Samhita.*

*CO-3: understand the Asanas with Textual Reference from Shiva Samhita and Goraksa Samhita.*

**Chapter 1: Asanas with Textual Reference from Hatha Yoga Pradipika.**

- Classification of asanas.
- Important asanas in the context of Kundalini awakening.
- Psychological, Physiological and Spiritual aspects of selected asanas with reference to Hatha yoga pradipika.
- Commonalities of asanas with other texts.

**Chapter 2: Asanas with Textual Reference from Hatha Ratnavali.**

- Classification of asanas.
- Important asanas in the context of Kundalini awakening.
- Psychological, Physiological and Spiritual aspects of selected asanas with special reference to Hatharatnavali.
- Commonalities of asanas with other texts.

**Chapter 3: Asanas with Textual Reference from Gheranda Samhita.**

- Classification of asanas.
- Important asanas in the context of Kundalini awakening.
- Psychological, Physiological and Spiritual aspects of selected asanas with special reference to Gheranda Samhita.
- Commonalities of asanas with other texts

**Chapter 4: Asanas with Textual Reference from Shiva Samhita and Goraksa Samhita.**

- Classification of asanas.
- Important asanas in the context of Kundalini awakening.
- Psychological, Physiological and Spiritual aspects of selected asanas with reference to Shiva Samhita and Goraksa Samhita.
- Commonalities of asanas with other texts.

**REFERENCE BOOKS:**

1. Vasu RBSC.: The Gheranda Samhita (Munshiram Manoharlal Publishers Pvt.Ltd).
2. Vasu RBSC: The Siva Samhita, (Oriental Books Reprint Corporation, New Delhi.1979.
3. Mahayogindra S.: Hatha Rathnavalli, Sri M Ramkrishna Reddy
4. Swami Muktibodhananda Saraswati: Hatha Yoga Pradeepika, Yoga Publication Trust, Munger, Bihar, 1985.

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**YOGA & EDUCATION FOR PERSONALITY DEVELOPMENT**

**Sub Code: BSY 191**

**Course Outcome (CO): Following the completion of the course, students shall be able to:**

*CO-1: understand the new dimensions of yoga & education.*

*CO-2: apply the principles of yoga for personality development.*

*CO-3: understand the Basics of Computer Application and Statistics.*

**Chapter 1: New Dimension in Modern Education.**

- Aparā and Parā vidyā, Personality Development; physical, mental, intellectual, emotional and spiritual, Civic Sense, Patriotic Urge, Spiritual Urge, Residential Schools, Day-Scholar Schools, Non-Formal Education.

**Chapter 2: Yoga and Education.**

- Education - Its meaning, scope, goal and importance.
- Yoga education: Salient features, Factors of Yoga education-Teacher, Student and Teaching.
- Methods of teaching, factors influencing Yoga teaching.
- Yoga-Teacher as a Friend, Philosopher and Guide, Yoga Teacher's personality and his role in the development of student's personality, Concept of Guru-Shishya parampara.
- Relation between yoga and other forms of education.
- Comparison of Asanas and Exercise.
- Role of Asanas, Pranayamas & Kriyas in Education.

**Chapter 3: Yoga and Value Education.**

- Concept of Value, Definition of value, Types of Values.
- Value Oriented Education, Value-education and its components.
- Value oriented personality, Role and function of values in Society.
- Yoga as global value, Yoga as value and yoga as Practice.
- Contribution of Yoga towards the development of values.

**Chapter 4: Yoga Education – its Practical Application.**

- Self-direction or dharma.
- Knowledge (Jnana) and concentration.
- Development through vairagya or through objectivity.

**Chapter 5: Integrated Yoga Module (IYM) for:**

- Eyesight
- Hearing
- Voice
- Physical stamina & strength
- National awareness
- Memory
- IQ
- Creativity & Emotions

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- Service urge
- Leadership and Spiritual urge

**Chapter 6: Basic Computer Application and Statistics.**

- Introduction to Microsoft Office: Word, Excel, Power point.
- Descriptive Statistics using excel: sum, mean, mode, standard deviation, t-test.
- Descriptive Statistics using SPSS: mean, mode, standard deviation, t-test.

**REFERENCE BOOKS:**

1. Dr H R Nagendra and T Mohan, Yoga in Education, Vol I, Swami Vivekananda Yoga Prakashana, Bangalore, 2001.
2. Dr Jayadeva Yogendra, Cyclopaedia Yoga, Vol. I, The Yoga Institute, Santacruz East, Mumbai, 2006.
3. Dr Jayadeva Yogendra, Cyclopaedia Yoga, Vol. II, The Yoga Institute, Santacruz East, Mumbai, 1989.
4. Duggal, Satyapad : Teaching Yoga (The Yoga Institute, Santacruz, Bombay, 1985)
5. Swami Satyananda Saraswati: Yoga Education for Children (Bihar Schools of Yoga, Munger, 1990)
6. Gawande, E.N. : Value Oriented Education (Sarup & Sons, New Delhi – 110002)
7. Nagendra, H.R. and Nagarathna R: New Perspectives in Stress Management (V.K.Yogas, Bangalore, 1988)
8. Udupa, K.N.: Stress and its Management by Yoga (Motilal Banarsidass, Delhi) Swami Satyananda Saraswati : Yoga Education For Children. (Bihar Schools of Yoga, Munger, 1990)
9. Gawande, E.N.: Value Oriented Education. (Sarup & Sons, New Delhi – 110002)
10. Ghorote, M.L.: Yoga Applied to Physical Education Lonavala; Kaivalyadhama.
11. Dr R Nagarathna and Dr H R Nagendra: Integrated Approach of Yoga Therapy for Positive Health, Swami Vivekananda Yoga Prakashana, Bangalore, 2003.



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***VEDIC CHANTING AND DEVOTIONAL MUSIC***

***Sub Code: BSY 192***

***Course Outcome (CO): Following the completion of the course, students shall be able to:***

*CO-1: understand the importance of Vedic chanting in yoga.*

*CO-2: recite the Vedic hymns skillfully.*

*CO-3: apply the understanding in breathing in yogic practice.*

- Vedic Chanting.
- Dasha Shanti.
- Vriguvalli.
- Devotional Music.
- Bhajans, dhuns, namavalis, prayers and group singing of bhajans.

**REFERENCE BOOKS:**

1. Mantrapushpam , Ramakrishna Mission.
2. Vyasa Pushpanjali, Swami Vivekananda Yoga Prakashana, Bangalore, 2002.