Syllabus of

Post Graduate Diploma in Yoga Engineering (PGDYE)

University of Patanjali

Academic Session 2025-26

International Centre of Excellence on Disaster Medicine, Management & Climate Change

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Department of Yoga Science

University of Patanjali, Haridwar

Program Specific Outcomes:

PSO1: Demonstrate foundational knowledge of classical and contemporary Yoga philosophy, including key texts such as the Bhagavad Gita and Yoga Sutras, and apply their teachings to personal growth and ethical living.

PSO2: Apply anatomical and physiological principles to enhance the safety, effectiveness, and therapeutic potential of yoga practices.

PSO3: Analyze human movement and posture using biomechanics to support injury prevention, performance enhancement, and individual adaptations in yoga.

PSO4: Design and facilitate yoga sessions that integrate asanas, pranayama, meditation, and mindfulness with attention to anatomical structure, breath-body coordination, and holistic well-being.

PSO5: Critically evaluate the impact of yoga on the various systems of the human body and articulate its benefits for stress reduction, metabolic balance, and cardiovascular and nervous system regulation.

PSO6: Demonstrate a comprehensive understanding of classical and contemporary yogic philosophies and their relevance to modern scientific paradigms.

PSO7: Apply yogic techniques—including asana, pranayama, and meditation—to promote personal well-being, emotional mastery, and nervous system regulation.

PSO8: To integrate the concepts of engineering into science of Yoga.

PSO9: Analyze and integrate concepts from neuroscience, psychology, and systems thinking into practical yoga applications.

PSO10: Design and implement yoga-based interventions tailored to specific populations and life contexts (e.g., students, professionals, trauma survivors).

PSO11: Exhibit professional and ethical responsibility by developing and presenting socially impactful yoga toolkits and lifestyle engineering strategies.

Table 1
Credits allocation according to NEP-2020 for "Post Graduate Diploma in Yoga Engineering"

S. No.	Subject Code	Subject Title	Periods per week			Evaluation Scheme				Subject Total
						Seasonal			SEE	
			L	T	P	Credits	CT*	CA		
Semester - I										
1	YE-MJ-PGD-101	Yoga Engineering-I	3	1	0	4	15	10	75	100
2	YE-MJ-PGD-102	Fundamentals of Physics	3	1	0	4	15	10	75	100
3	YE-MN-PGD-103	Biomechanics	3	1	0	4	15	10	75	100
4	YE-SEC-PGD-104	Fundamentals of Computer Applications	3	1	0	4	15	10	75	100
5	YE-VA-PGD-105	Disaster Medicine and Disaster Management	3	1	0	4	15	10	75	100
6	YE-CP-PGD-106	Yoga Practical-I	0	0	8	4	15	10	75	100
Semester - II										
1	YE-MJ-PGD-201	Yoga Engineering-II	3	1	0	4	15	10	75	100
2	YE-MJ-PGD-202	Advance Concepts of Physics	3	1	0	4	15	10	75	100
3	YE-MN-PGD-203	Kinesiology	3	1	0	4	15	10	75	100
4	YE-SEC-PGD-204	Advance Applications of Computer Applications	3	1	0	4	15	10	75	100
5	YE-VA-PGD-205	Internship in Wellness & report writing	3	1	0	4	15	10	75	100
6	YE-CP-PGD-206	Yoga Practical-II	0	0	8	4	15	10	75	100

YE: Yoga Engineering; **CT:** Core Theory; **PGD:** Post Graduate Diploma; **CP:** Core Practical; **L:** Lecture; **T:** Tutorial; **P:** Practical; **CT*:** Class Test; **CA:** Class Assignment; **SEE:** Semester End Examination

Semester – I

Table 2
Credits allocation according to NEP-2020 for "Post Graduate Diploma in Yoga Engineering" for Semester - I

S. No.	Subject Code	Subject Title	Periods per week			Evaluation Scheme				Subject Total
						Seasonal			SEE	
			L	T	P	Credits	CT	CA		
1	YE-MJ-PGD-101	Yoga Engineering-I	3	1	0	4	15	10	75	100
2	YE-MJ-PGD-102	Fundamentals of Physics	3	1	0	4	15	10	75	100
3	YE-MN-PGD-103	Biomechanics	3	1	0	4	15	10	75	100
4	YE-SEC-PGD-104	Fundamentals of Computer Applications	3	1	0	4	15	10	75	100
5	YE-VA-PGD-105	Disaster Medicine and Disaster Management	3	1	0	4	15	10	75	100
6	YE-CP-PGD-106	Yoga Practical-I	0	0	8	4	15	10	75	100

YE: Yoga Engineering; **CT:** Core Theory; **PGD:** Post Graduate Diploma; **CP:** Core Practical; **L:** Lecture; **T:** Tutorial; **P:** Practical; **CT*:** Class Test; **CA:** Class Assignment; **SEE:** Semester End Examination

Course Title: Yoga Engineering-I

Course Code: YE-MJ-PGD-101

Credits: 4 (L 3 + T 1 + P 0)
Total Hours: 60
Course Type: Major Core
Course: Yoga Engineering-I
Prerequisites: Any Graduate Degree

Program Specific Outcomes (PSOs)

PSO1: Demonstrate foundational understanding of classical and modern yoga systems and philosophies rooted in Indian traditions.
PSO2: Apply ethical, philosophical, and spiritual principles of yoga in personal and professional life.
PSO3: Integrate scientific knowledge of anatomy and physiology with yogic practices for therapeutic and educational purposes.
PSO4: Analyze and interpret yogic scriptures such as the Bhagavad Gita and Yoga Sutras for practical application.
PSO5: Demonstrate competence in teaching yoga using biomechanical, physiological, and psychological perspectives.
PSO6: Apply the yogic understanding of human systems (Pancha Koshas, Chakras) for holistic health and well-being.
PSO7: Evaluate and interpret physiological effects of yogic practices using tools from system science (EEG, EMG, ECG, etc.).

Course Specific Outcomes (CSOs)

CSO1: Explain the definition, origin, and historical development of yoga, and identify major classical paths such as Jnana, Bhakti, Karma, Raja, and Hatha Yoga.
CSO2: Analyze the yogic concept of the Pancha Koshas and Shatchakras and their role in understanding the psycho-physiological human system.
CSO3: Interpret the Eight Limbs of Ashtanga Yoga and key philosophical concepts from the Patanjali Yoga Sutras and Bhagavad Gita.
CSO4: Illustrate how yogic teachings from the Bhagavad Gita address duty, self-mastery, and emotional balance.
CSO5: Describe the structure and function of skeletal, muscular, and joint systems, and relate them to asana performance and posture analysis.
CSO6: Evaluate the mechanisms of respiratory, circulatory, nervous, and endocrine systems, and explain how yoga influences their functioning.
CSO7: Apply knowledge of yogic anatomy and physiology in analyzing breathing, movement, and stress responses through lab-based and experiential learning activities.

Unit I: Foundations of Yoga (15 Hours)

Definition and Origin of Yoga: Etymology and interpretations of "Yoga", Historical development: Vedic to modern Yoga traditions; **Classical Streams of Yoga:** Jnana Yoga (path of knowledge), Bhakti Yoga (path of devotion), Karma Yoga (path of action), Raja Yoga (path of meditation), Hatha Yoga (path of discipline); **Pancha Koshas** (Five Sheaths of Existence) and the Yogic model of the human system; Shatchakra of Hatha Yoga; Concepts of Adhi-Vyadhi & its importance-in Psycho-Physiological changes in system science.

Unit II: Ashtanga Yoga and Bhagavad Gita (15 Hours)

Ashtanga Yoga (Eight Limbs) – from Patanjali Yoga Sutras: Yama (ethical disciplines), Niyama (personal observances), Asana (posture), Pranayama (breath control), Pratyahara (withdrawal of senses), Dharana (concentration), Dhyana (meditation), Samadhi (absorption); Hey, Hetu, Han, Hanopaya, Chitta Prasadanam, Kaivalyam (the absolute absorption of thought) **Bhagavad Gita:** Yogic teachings on duty, equanimity, and self-mastery (Chapters 2, 3, 6), messages from saints on Bhagavad Gita; Messages from saints on Bhagavad Gita.

Unit III: Yogic Anatomy & Physiology-I (15 Hours)

Introduction to Yoga Anatomy: Anatomical terms and planes of movement, Directional references and body orientation, Structure and function of bones; **Skeletal System:** Structure and function of bones; **Joint types and mechanics:** Role of connective tissues, Muscular System: Major muscle groups in yoga, Agonist, antagonist, and -EMG stabilizer muscles, Functional anatomy in movement; **Integration and Application:** Experiential learning through movement labs, Breath work and guided meditation practices, Posture analysis, Gait.

Unit IV: Yogic Anatomy & Physiology-II (15 Hours)

Respiratory System: Anatomy of breathing, Lungs, diaphragm, intercostal muscles, Breathing mechanics in pranayama (external & internal breathing); partial pressure, ventilation-perfusion (V/Q) ratio; **Circulatory & Cardiovascular System:** Heart function and circulation, Blood pressure and heart rate, ECG Effects of yoga on vascular health; **Nervous System:** Central and autonomic nervous systems, Enteric Nervous System; Stress response (sympathetic vs. parasympathetic), Neural pathways in yoga; EEG and its uses in system science; **Endocrine System (Overview):** Hormonal influence in stress and metabolism, Secretion of different hormones from endocrine glands; Glands affected by yoga practices.

Suggested Readings:

Bryant, E. F. (2009). *The Yoga Sūtras of Patañjali: A New Edition, Translation, and Commentary.* North Point Press.

Calais-Germain, B. (2007). *Anatomy of Movement* (Revised ed.). Eastland Press.

Coulter, D. H. (2001). *Anatomy of Hatha Yoga: A Manual for Students, Teachers, and Practitioners.* Body and Breath Inc.

Hennessy, E. (2015). *The Science of Yoga: Understanding the Anatomy and Physiology to Perfect Your Practice.* DK Publishing.

Iyengar, B. K. S. (2002). *Light on Yoga.* HarperCollins.

Kaminoff, L., & Matthews, A. (2012). *Yoga Anatomy* (2nd ed.). Human Kinetics.

Long, R. (2010). *The Key Muscles of Yoga: Scientific Keys,* Volume I (2nd ed.). Bandha Yoga Publications.

McCall, T. (2007). *Yoga as Medicine: The Yogic Prescription for Health and Healing.* Bantam.

Natarajan, A. (1993). *Patanjali's Yoga Sutras: Commentary by Swami Vivekananda.* Sri Ramakrishna Math.

Saraswati, S. (2008). *Asana Pranayama Mudra Bandha* (4th ed.). Bihar School of Yoga.

Swami Sivananda. (2000). *The Bhagavad Gita.* Divine Life Society.

Tiwari, O. P. (2006). Asana: *Why and How?* Kaivalyadhama Yoga Institute.

Course Title: Fundamentals of Physics

Course Code: YE-MJ-PGD-102

Credits: 4 (L 3 + T 1 + P 0)
Total Hours: 60
Course Type: Major Core
Course: Fundamentals of Physics
Prerequisites: Any Graduate Degree

Program Specific Outcomes (PSOs)

PSO1: Understand and apply core principles of classical and modern physics to explain natural phenomena.
PSO2: Analyze physical laws and their mathematical formulations to interpret experimental data and real-world systems.
PSO3: Develop conceptual clarity and problem-solving skills in mechanics, optics, thermodynamics, and modern physics.
PSO4: Connect physical principles with biological and environmental systems, particularly through radiation and optical activity.
PSO5: Perform calculations and reasoning involving energy, momentum, force, and thermodynamic principles in diverse frames of reference.
PSO6: Evaluate the impact of radiation and electromagnetic phenomena on living systems and ecosystems.
PSO7: Utilize theoretical and practical knowledge of fluid dynamics and optics for applications in system science and instrumentation.

Course Specific Outcomes (CSOs)

CSO1: Describe and apply basic concepts of elasticity, surface tension, and inertial and non-inertial frames to understand matter's behavior under force.
CO2: Analyze Newton's laws of motion, angular momentum, and non-inertial effects such as Coriolis and centrifugal forces.
CSO3: Explain the concept of special relativity and apply the mass-energy and energy-momentum relations to physical systems.
CSO4: Describe the physical basis of viscosity and fluid flow, and relate Bernoulli's principle and hydraulic systems to biological and environmental contexts.
CSO5: Understand and apply concepts of geometrical and wave optics including reflection, refraction, interference, diffraction, and polarization.
CSO6: Demonstrate understanding of optical phenomena relevant to biological systems, such as birefringence, optical activity, and dispersion.
CSO7: Explain thermodynamic laws, especially the first law, and concepts such as entropy and enthalpy, and relate them to energy transformations in physical and biological systems.

Unit I: Properties of Matter (15 Hours)

General Properties of Matter: Elasticity: Strain and stress, Young's Modules, elastic limit, Surface tension and surface energy, Inertial and non-inertial frames of reference, Concepts of Inertial frames, force and mass; **Fundamentals of Dynamics:** Review of Newton's Laws: Mechanistic view of the Universe, Newton's third Law, **Momentum and Angular Momen**tum of a system, Torque acting on a system, Effect of centrifugal and Coriolis forces due to earth's rotation.

Unit II: Relativity & Viscosity (15 Hours)

Relativity: Relativistic relation between energy and momentum mass energy relation; **Viscosity:** Flow of liquids and gases, Electromagnetic spectrum, Ionizing radiations and their effect on biological systems**, Effects of radiation relevant to Biology:** Photosynthesis, Green House Effect, DNA Damage and Depletion of Ozone. Bernoulli's Principle (fluid dynamics), Hydraulic pumps and its relevance to system science.

Unit III: Optics (15 Hours)

Geometrical optics: reflection and refraction, Focal length of a spherical surface, concave and convex mirror and lenses, magnification, compound lenses, Resolving power; **Interference:** Young's double-slit experiment its application; **Diffraction:** Fraunhoffer and Fresnel diffraction; Grating and its resolving power, Refractive index, dispersion and absorption, Polarization and Polarisers, Birefringence Optical activity and its relevance to biological systems. Electromagnetic nature of light.

Unit 4: Thermodynamics & Polarization (15 Hours)

Thermodynamics: First law of thermodynamics, Enthalpy, Entropy; **Polarization:** Polarized light, Production of polarized light by reflection, refraction and scattering. Polarization by double refraction and **Huygen's theory, Nicol prism,** Retardation plates, Production and analysis of circularly and elliptically polarized light. Optical activity and Fresnel's theory, Biquartz polarimeter.

Suggested Readings:

Avadhanulu, M. N., & Kshirsagar, P. G. (2014). *A textbook of engineering physics* (Revised ed.). S. Chand Publishing.

Beiser, A. (2002). *Concepts of modern physics* (6th ed.). McGraw-Hill Education.

Halliday, D., Resnick, R., & Krane, K. S. (2001). *Physics* (Vols. 1–2, 5th ed.). Wiley.

Hecht, E. (2016). *Optics* (5th ed.). Pearson Education.

Mathur, D. S. (2008). *Elements of properties of matter* (11th ed.). S. Chand Publishing.

Verma, H. C. (2019). *Concepts of physics* (Vols. 1–2). Bharati Bhawan.

Young, H. D., & Freedman, R. A. (2019). *University physics with modern physics* (15th ed.). Pearson.

Zemansky, M. W., & Dittman, R. H. (1997). *Heat and thermodynamics* (7th ed.). McGraw-Hill.

Course Title: Biomechanics

Course Code: YE-MN-PGD-103

Credits: 4 (L 3 + T 1 + P 0)
Total Hours: 60
Course Type: Minor Course
Course: Biomechanics
Prerequisites: Any Graduate Degree

Program Specific Outcomes (PSOs)

PSO1: Understand the fundamental principles of biomechanics and apply them to assess and improve human movement.
PSO2: Integrate anatomical and physiological knowledge with mechanical principles to enhance safety and effectiveness in yoga practice.
PSO3: Analyze yogic postures and transitions through the lens of kinematics, kinetics, and musculoskeletal dynamics.
PSO4: Design therapeutic yoga interventions using evidence-based biomechanical assessments and alignment strategies.
PSO5: Demonstrate competency in applying core stability, posture control, and breath mechanics to both yoga performance and rehabilitation.
PSO6: Evaluate movement impairments and risks using modern biomechanical tools and apply ergonomic principles to yoga-based health programs.
PSO7: Apply interdisciplinary knowledge to optimize yoga practices for individual needs, enhance physical performance, and prevent injuries.

Course Specific Outcomes (CSOs)

CSO1: Explain fundamental biomechanical concepts including kinematics, kinetics, torque, equilibrium, and muscle contractions, and relate them to yogic movement.
CSO2: Analyze yogic postures and transitions using Newtonian mechanics, with a focus on body alignment, force application, and leverage.
CSO3: Describe the structure and biomechanics of key joints and muscles, and assess their function during yoga asanas.
CSO4: Evaluate postural alignment, joint loading, and flexibility in various asanas, and suggest biomechanically-informed modifications.
CSO5: Illustrate the mechanics of respiration, core engagement, and spinal stabilization and apply them to pranayama and advanced yoga postures.
CSO6: Identify injury mechanisms in yoga practice and propose preventive strategies based on ergonomic and biomechanical principles.
CSO7: Demonstrate the use of basic biomechanical assessment tools to design and evaluate yoga-based therapy interventions for conditions like scoliosis or arthritis.

Unit I: Fundamentals of Biomechanics and Human Movement (15 Hours)

Introduction to biomechanics: definitions, history, and scope; Kinematics and kinetics of human movement; Planes and axes of movement; Newton's laws of motion and their applications to body mechanics; Concepts of force, torque, leverage, equilibrium, center of gravity; **Types of muscle contractions:** concentric, eccentric, isometric; Open vs. closed kinetic chain exercises; **Applications to Yoga:** Analysis of static and dynamic yogic postures, Mechanical principles in transitions between asanas.

Unit II: Musculoskeletal Biomechanics in Yoga (15 Hours)

Structural and functional anatomy of bones, joints, and muscles; **Joint biomechanics** (spine, shoulder, hip, knee, ankle, wrist); **Range of motion (ROM),** flexibility, and limitations; Biomechanical implications of different asanas (e.g., standing, seated, balancing); Loading patterns and stress distribution during yoga practice; Common postural misalignments and their biomechanical consequences; **Applications to Yoga:** Alignment principles in asanas for optimal joint loading, Use of props from a biomechanical perspective.

Unit III: Biomechanics of Breathing and Core Stability (15 Hours)

Mechanics of respiration: diaphragmatic movement, rib cage dynamics; Biomechanics of pranayama and bandhas; Role of core musculature in postural control and balance; Intra-abdominal pressure and spinal stabilization; Functional breathing and breath-body coordination in asanas; **Applications to Yoga:** Pranayama practices from a mechanical standpoint, Core activation and stabilization in advanced poses (e.g., arm balances).

Unit IV: Applied Biomechanics in Yoga Therapy and Performance (15 Hours)

Injury mechanisms and prevention in yoga; Ergonomics and yoga: principles of safe practice; Biomechanical assessment tools (motion capture, force plates, EMG basics); Movement analysis and gait assessment; Individualized modifications based on biomechanical profiling; **Case studies:** scoliosis, arthritis, lower back pain, Knee pain etc.; **Applications to Yoga:** Designing therapeutic yoga interventions based on biomechanical findings, Enhancing performance and preventing injury through engineering analysis.

Suggested Readings:

Calais-Germain, B. (2007). *Anatomy of movement* (Revised ed.). Eastland Press.

Hall, S. J. (2018). *Basic biomechanics* (8th ed.). McGraw-Hill Education.

Kendall, F. P., McCreary, E. K., Provance, P. G., Rodgers, M. M., & Romani, W. A. (2005). *Muscles: Testing and function with posture and pain* (5th ed.). Lippincott Williams & Wilkins.

Levangie, P. K., & Norkin, C. C. (2011). *Joint structure and function: A comprehensive analysis* (5th ed.). F.A. Davis Company.

McGinnis, P. M. (2013). *Biomechanics of sport and exercise* (2nd ed.). Human Kinetics.

Neumann, D. A. (2017). *Kinesiology of the musculoskeletal system: Foundations for rehabilitation* (3rd ed.). Elsevier Health Sciences.

Ray, U. (2010). *Applied anatomy and physiology for yoga* (Revised ed.). Kaypee Publishers.

Trew, M., & Everett, T. (2005). *Human movement: An introductory text* (6th ed.). Elsevier.

Course Title: Fundamentals of Computer Applications

Course Code: YE-SEC-PGD-104

Credits: 4 (L 2 + T 1 + P 1)
Total Hours: 75
Course Type: Skill Enhancement Course
Course: Fundamentals of Computer Applications
Prerequisites: Any Graduate Degree

Program Specific Outcomes (PSOs)

PSO1: Demonstrate foundational proficiency in using digital tools for personal, professional, and wellness-related communication.
PSO2: Apply office productivity software to create structured documents, spreadsheets, and presentations for yoga teaching and therapy documentation.
PSO3: Use digital platforms for data handling, reporting, and basic wellness analytics (e.g., progress tracking).
PSO4: Implement safe digital practices, including cybersecurity, file management, and responsible online behavior.
PSO5: Design and deliver effective digital presentations for educational and professional purposes in yoga and wellness settings.
PSO6: Leverage cloud-based tools and video conferencing platforms for remote yoga instruction and collaboration.
PSO7: Integrate technology seamlessly into the management and delivery of wellness programs and yoga interventions.

Course Specific Outcomes (COs)

CSO1: Describe the basic structure and components of a computer system and demonstrate file and folder management in Windows or Linux environments.
CSO2: Operate system utilities and apply basic cybersecurity practices such as password safety, backups, and antivirus use.
CSO3: Create, format, and share structured documents using word processing tools for yoga-related applications like schedules, reports, and certificates.
CSO4: Use spreadsheets to manage wellness and student data, apply basic formulas, and visualize progress with simple charts.
CSO5: Develop presentations with multimedia elements to support yoga workshops, awareness sessions, or teaching modules.
CSO6: Communicate effectively via email, organize messages, and manage attachments relevant to yoga instruction and therapy.
CSO7: Collaborate and deliver yoga classes or workshops online using cloud tools and video conferencing platforms like Google Meet or Zoom.

Unit I: Basics of Computer Systems and Operating Environment (15 Hours)

Introduction to computers: characteristics, history, applications; Types of computers: desktops, laptops, tablets, embedded systems; Components: hardware (CPU, RAM, input/output devices), software (system and application); Introduction to Operating Systems (Windows/Linux); File management: folders, copying, deleting, searching; Introduction to cybersecurity: safe passwords, antivirus, backups. **Practical Components:** Navigating file systems, Using system tools (notepad, calculator, file explorer), Setting up user accounts and security features.

Unit II: Word Processing and Documentation Tools (15 Hours)

Introduction to Word Processors (MS Word/Google Docs/LibreOffice); Creating and formatting documents: fonts, alignment, tables, images; Page layout: margins, headers/footers, page numbers; Templates for yoga class schedules, certificates, consent forms; Spell check, track changes, and comment functions; Saving/exporting to PDF, sharing documents online. **Practical Components:** Drafting a yoga therapy report, Preparing formatted lesson plans and class handouts.

Unit III: Spreadsheets and Data Handling (15 Hours)

Introduction to spreadsheets (MS Excel/Google Sheets); Data entry, formatting, and formulas: SUM, AVERAGE, COUNT, IF; Sorting and filtering data; Creating charts: bar, line, pie (for presenting wellness outcomes); Basic attendance, assessment, and progress trackers; Health data recording: BP, heart rate, sleep, stress levels. **Practical Components:** Creating yoga student attendance sheets, Charting wellness data pre/post yoga intervention.

Unit IV: Digital Communication, Presentations & Online Tools (15 Hours)

Introduction to presentation software (MS PowerPoint/Google Slides); Creating slide shows: design, text, images, transitions, animations; Internet basics: browsers, search engines, digital citizenship; Email tools: composing, replying, attaching, managing folders; Cloud tools: Google Drive, Dropbox basics; Online collaboration: Google Meet, Zoom, Google Forms. **Practical Components:** Designing a short yoga workshop presentation, Hosting and recording a short online yoga class or discussion.

Suggested Readings:

Anderson, D. (2019). *Cybersecurity for beginners.* CreateSpace Independent Publishing.

Gaskin, S., Vargas, A., Geoghan, D., & Graviett, C. (2020). *GO! with Microsoft Office 365: Introductory* (2021 ed.). Pearson.

Google Workspace Learning Center. (n.d.). *Google Docs Editors Help.* Google. https://support.google.com/a/users

Harris, S. (2013). *Practical computer literacy* (4th ed.). Cengage Learning.

Microsoft Corporation. (2020). *Office 365 user guide: The beginner to advanced guide for mastering Microsoft Word, Excel, PowerPoint, and Outlook.* Microsoft Press.

Morley, D., & Parker, C. S. (2020). *Understanding computers: Today and tomorrow* (17th ed.). Cengage Learning.

Pogue, D. (2021). *Windows 11 for dummies.* Wiley.

Van Vliet, C. M. (2019). *Excel 2019 Bible: The comprehensive tutorial resource.* Wiley.

Course Title: Disaster Management, Disaster Medicine & Climate Change

Course Code: YE-VA-PGD-105

Credits: 4 (L 3 + T 1+ P0)
Total Hours: 60
Course Type: Compulsory "Value-added" course in all UG courses of University of Patanjali, Patanjali Ayurveda College
Prerequisites: 12th pass

Program specific Outcome (PSOs)

PSO1: The course will provide an in-depth understanding of climate change.
PSO2: The learner's would understand the causes, impacts in terms of disasters and help find its potential solutions.
PSO3: Students will learn about the science behind climate change, its effects on the environment and human societies.
PSO4: The learners would be able to make various strategies for mitigating and adapting to climate change.

Course Specific Outcome (CSOs)

CSO1: Students will gain a deep understanding of principles and practices of disaster medicine and management.
CSO2: The students would learn to focus on preparedness, response, and recovery related to disaster management.
CSO3: The students would equipped with theoretical and practical components of skills and knowledge necessary for managing disasters.
CSO4: The learners would learn to make a comprehensive attitude towards disaster management, disaster medicine and climate change.

Unit I: Introduction to Climate Change (15 Hours)
Definition and basics of climate change, History of climate change research and international agreements, Earth's climate system and greenhouse gases, Climate modeling and prediction, Impacts of Climate Change.

Unit II: **Environmental impacts (sea-level rise, extreme weather events, etc.) (15 hours)**
Social and economic impacts (human health, food security, etc.); Climate Change Mitigation, Reducing greenhouse gas emissions (renewable energy, energy efficiency, etc.), Carbon sequestration and geoengineering; Climate Change Adaptation; Adapting to climate change impacts (infrastructure, agriculture, water management, etc.), Climate-resilient development and policy.

Unit III: Climate Change Policy and Governance International climate agreements (15 hours)
National and local climate policies, Natural and Anthropogenic Disasters: Study of various types of natural and man-made disasters (Landslides, pandemic, forest fire etc.), their causes, and consequences. Paris agreement of climate change, Principles and practices of disaster management, including disaster risk reduction, mitigation, preparedness, response, and recovery; **GIS and Statistics in Disaster Management:** Application of geographic information systems (GIS) and statistical analysis in disaster management.

Unit IV: **Disaster Medicine Topics** **(15 hours)**

Characteristics of Disasters: Main concepts and classifications of disasters, including their impact on public health; Medical Protection of the Public: Organization of medical measures during disasters, including first aid, triage, and evacuation; Trauma Care: Management of casualties with thoracic, abdominal, and musculoskeletal trauma; Disaster Epidemiology: Study of the health consequences of disasters and the application of epidemiological data in disaster management; Triage and Emergency Medical Services: Principles and practices of triage and emergency medical services in disaster situations.

Suggested Readings:

Acharya Prashant: Climate Change
David E.Hogan: Disaster Medicine
Dhani Arya: Climate Change- Impact on Himalayan Biodiversity
R. B.Singh: Natural Hazards and Disaster; management: vulnerability and mitigation
Rajan K.Sahoo: Management and Mitigation of natural disasters
Rajan Mehta: Backstage Climate: The science and politics behind climate change
Ravi P. Agrahari: Environmental Ecology, Biodiversity, Climate Change & disaster management
Satyendra Mittal: An Introduction to Ground Improvement Engg.
Surya Prakash: Landslide mitigation

Course Title: Yoga Practical-I

Course Code: PGDYE-106

Credits: 4 (L 0 + T 0 + P4)
Total Hours: 120 Hours
Course Type: Core Practical
Course: Yoga Practical-I
Prerequisites: Any Graduate Degree

Program Specific Outcomes:

PSO1: Develop precision and awareness in yoga practice by integrating principles of biomechanics, focusing on alignment, joint function, and safe movement patterns across foundational and intermediate postures.
PSO2: Cultivate evidence-based teaching and assessment skills through postural labs, biomechanical workshops, and individualized practice design, preparing students to adapt yoga for varied anatomical needs and therapeutic goals.
PSO3: Integrate yoga-based therapeutic strategies with conventional exercise therapy approaches for preventive and rehabilitative care.
PSO4: Apply biomechanical and physiological principles to design safe, effective, and personalized exercise protocols.
PSO5: Employ evidence-based methods to evaluate, document, and enhance physical performance and recovery in clinical or wellness settings.
PSO6: Develop pedagogical skills for integrating yoga and technology tools in a classroom or therapeutic setting.
PSO7: Cultivate innovation in instructional methods using both traditional yogic instruments and modern educational tools.
PSO8: Train future yoga educators and technologists to use tools effectively for enhanced learner engagement and outcomes.

Course Specific Outcomes:

CSO1: Apply biomechanical principles—such as lever systems, torque, and load distribution—to analyze and refine alignment, muscular activation, and joint safety in yoga asanas.
CSO2: Design and deliver personalized yoga sequences targeting specific structural or functional goals (e.g., spinal extension, hip stability), incorporating intelligent use of props and adaptive teaching methods.
CSO3: Explain the fundamental principles and classifications of exercise therapy.
CSO4: Demonstrate competency in planning and administering yoga-based and conventional therapeutic exercises for musculoskeletal and systemic conditions.
CSO5: Critically evaluate the role of exercise therapy in holistic health, including mental and environmental wellness.
CSO6: Identify and classify various tools used in yoga education and therapy (traditional and modern).
CSO7: Apply learner-centered teaching strategies for practical sessions involving tools.
CSO8: Design, implement, and evaluate teaching modules using appropriate tools in yoga and health education.

Unit I: Yoga Practical (30 hours)

Daily guided practice of foundational and intermediate postures: Focus on alignment, joint tracking, muscle activation, and breath coordination, Emphasis on structural integrity, proprioception, and kinetic chain awareness; **Biomechanical Analysis Workshops: Posture breakdowns:** understanding lever systems, torque, center of gravity, and load distribution, partner work to assess joint angles, balance, and muscular effort in standing, seated, and inverted poses, use of props and tools (blocks, belts, walls) for leverage and support; **Postural Labs and Adjustments:** Observation and feedback-based learning, identifying alignment deviations. Safe hands-on and verbal cueing techniques for correcting misalignments. Discussion on anatomical variability and adaptive teaching; **Self-Practice Design:** Students design a 60 minutes practice sequence targeting specific anatomical or biomechanical goals (e.g., spinal extension, hip stability).

Unit II: Fundamentals of Exercise Therapy (30 Hours)

Introduction to Exercise Therapy: Definition, history, and scope; Goals and principles (overload, specificity, reversibility); Types: Passive, active (assisted, resisted), aerobic, anaerobic, isometric, isotonic; **Human Movement and Assessment:** Basic kinesiology and biomechanics in therapeutic settings, Goniometry and range of motion (ROM) assessment, Postural and gait analysis; **Healing and Tissue Adaptation:** Mechanisms of muscle, joint, and connective tissue healing; Therapeutic window and dosing, **Prec**autions and contraindications; **Integration with Yoga:** Understanding *asanas* and *pranayama* as therapeutic movements, Concept of *pratikriya* (counterpose) and its physiological value, Synergy between exercise therapy and yoga for rehabilitation.

Unit III: Clinical Applications and Protocol Design (30 Hours)

Exercise Therapy for Orthopedic Conditions: Low back pain, osteoarthritis, frozen shoulder, post-fracture rehabilitation; Strengthening, stretching, and mobility regimens; Integration with yoga postures (e.g., Bhujangasana for spinal rehab); **Exercise Therapy for Systemic and Neurological Conditions:** Cardiovascular (e.g., post-cardiac event rehab), respiratory (e.g., COPD), neurological (e.g., stroke, Parkinson's), Role of graded aerobic training and yoga breathing techniques, Safety and progression; **Designing Holistic Exercise Protocols:** Principles of prescription: FITT (Frequency, Intensity, Time, Type), Structuring a session: Warm-up, main activity, cool-down, relaxation; Documentation, assessment scales, feedback mechanisms; **Innovations and Research in Yoga-Based Therapy:** Evidence-based practice: Case studies and clinical trials, Technology integration (biofeedback, motion analysis), Environmental and psychological factors in therapeutic design.

Unit IV: Teaching Methods of Tools (30 Hours)

Introduction to Teaching Tools in Yoga: Historical and contemporary relevance, Types: traditional (e.g., danda, belts), therapeutic (props, bolsters), and technological (biofeedback devices, VR), Criteria for selecting tools for teaching; **Pedagogical Principles for Using Tools**: Instructional methods: demonstration, guided practice, scaffolded learning; Safety, adaptability, and inclusivity in tool usage; Balancing tool use with yogic philosophy (Ahimsa, Aparigraha); **Teaching Techniques with Tools:** Hands-on teaching with props: belts, blocks, chairs, walls; Digital tools: using videos, motion tracking apps, smart mats; **Use of teaching aids:** charts, anatomical models, interactive boards; **Designing Tool-Based Sessions:** Structuring a session (warm-up, main practice, cool-down) with tools, Goal-based planning (e.g., alignment, support, rehab), Customization for different needs (beginners, elderly, therapeutic groups); **Evaluation and Feedback Methods:** Observational techniques, student reflection; Digital tracking and documentation tools, Self-assessment and peer feedback models.

Suggested Readings:

Biel, A. (2014). *Trail guide to the body: How to locate muscles, bones, and more* (5th ed.). Books of Discovery.

Long, R. (2010). *The key muscles of yoga: Scientific keys* (Vol. 1). Bandha Yoga Publications.

Fishman, L. M., & Saltonstall, E. (2008). *Yoga for osteoporosis: The complete guide.* Turner Publishing Company.

Iyengar, B. K. S. (2001). *Light on yoga* (Revised ed.). HarperCollins.

Kirkendall, D. T., & Garrett, W. E. (2001). *Exercise and sport science.* Lippincott Williams & Wilkins.
Krishna Raman. (2003). *A matter of health: Integration of yoga and western medicine for prevention and cure.* EastWest Books.
Magee, D. J. (2021). *Orthopedic physical assessment* (7th ed.). Elsevier.
McArdle, W. D., Katch, F. I., & Katch, V. L. (2015). *Exercise physiology: Nutrition, energy, and human performance* (8th ed.). Wolters Kluwer Health.

Semester II

Table 3
Credits allocation according to NEP-2020 for "Post Graduate Diploma in Yoga Engineering" for Semester - II

S. No.	Subject Code	Subject Title	Periods per week			Evaluation Scheme				Subject Total
						Seasonal			SEE	
			L	T	P	Credits	CT	CA		
1	YE-MJ-PGD-201	Yoga Engineering-II	3	1	0	4	15	10	75	100
2	YE-MJ-PGD-202	Advance Concepts of Physics	3	1	0	4	15	10	75	100
3	YE-MN-PGD-103	Biomechanics	3	1	0	4	15	10	75	100
4	YE-SEC-PGD-204	Advance Applications of Computer Applications	3	1	0	4	15	10	75	100
5	YE-VA-PGD-205	Internship in Wellness & report writing	3	1	0	4	15	10	75	100
6	YE-CP-PGD-206	Yoga Practical-II	0	0	8	4	15	10	75	100

YE: Yoga Engineering; **CT:** Core Theory; **PGD:** Post Graduate Diploma; **CP:** Core Practical; **L:** Lecture; **T:** Tutorial; **P:** Practical; **CT*:** Class Test; **CA:** Class Assignment; **SEE:** Semester End Examination

Course Title: Yoga Engineering-II

Course Code: YE-MJ-PGD-201

Credits: 4 (L 3 + T 1 + P 0)
Total Hours: 60
Course Type: Major Core
Level: Yoga Engineering-II
Prerequisites: Any Graduate Degree

Program Specific Outcomes (PSOs)

PSO1: Understand yoga as a transformative system for reprogramming thought patterns, emotions, and lifestyle.
PSO2: Apply mindfulness, pranayama, and meditation techniques for emotional regulation and mental clarity.
PSO3: Integrate traditional yogic wisdom with evidence from neuroscience, physiology, and psychological science.
PSO4: Analyze human well-being through a systems thinking lens, drawing parallels between yoga practices and feedback-based models.
PSO5: Design personalized and population-specific yoga-based interventions for education, healthcare, and professional contexts.
PSO6: Demonstrate practical and theoretical skills for using yoga to address issues such as burnout, addiction, trauma, and social stress.
PSO7: Develop innovative yoga-based projects, tools, or applications for individual and societal benefit.

Course Specific Outcomes (CSOs)

CSO1: Describe the yogic approach to mental pattern transformation (samskara), emotional mastery, and the cultivation of self-awareness.
CSO2: Demonstrate familiarity with classical and contemporary meditation techniques and understand their physiological and psychological benefits.
CSO3: Apply principles of yogic lifestyle engineering, including diet, sleep hygiene, digital minimalism, and daily routines, to promote holistic well-being.
CSO4: Explain the neurophysiological effects of yoga and meditation using concepts such as brain plasticity, vagal tone, HRV, and cortisol regulation.
CSO5: Analyze the systems-based view of human functioning and identify parallels between yogic models and engineering frameworks (e.g., feedback loops).
CSO6: Design a customized yoga practice (sadhana) integrating asana, pranayama, and meditation according to individual needs and life stages.
CSO7: Create an applied yoga-based solution (e.g., toolkit, app, workshop) addressing real-world challenges in education, healthcare, corporate or social sectors.

Unit I: Yoga and its system (10 Hours)

Concept of Yogic system: Reprogramming habitual mental patterns (samskaras), Moving from reaction to conscious response; **Self-awareness and Emotional Mastery:** Yogic tools for managing anger, fear, anxiety, Developing the witness consciousness (sakshi bhava); **Breath as the Bridge:** Introduction to Pranayama: Nadi Shodhana, Ujjayi, Bhramari, Role of breathing in nervous system regulation (Swami Ramdev's suggestions).

Unit II: Meditation and Lifestyle Engineering (10 Hours)

Meditation Practices: Body scan, mindfulness (Jon-Kabat Zinn), mantra meditation (Gayatri Mahamantra), Vipassana (Buddhist), Savita Dhyana & Naad Yoga (Pandit Sri Ram Sharma), Heartfulness (Daaji), Preksha (Acharya Tulsi) and Isha Yoga (Sadguru), Sudarshan Kriya (Sri Sri Ravishankar); **Lifestyle Engineering:** Yogic daily routine (Dinacharya), The science of sleep, sattvic diet, digital detox.

Unit III: Yoga and Modern Science (20 Hours)

Yoga and Neuroscience: Brain changes with meditation (plasticity, amygdala deactivation, prefrontal cortex activation), Role of vagus nerve and parasympathetic activation; **Stress and the Physiology of Peace**: Fight-or-flight vs. rest-and-digest systems, Yoga's effect on cortisol, HRV (Heart Rate Variability), ECG, EEG and inflammation; **Psychological Benefits of Yoga**: Enhancing attention, memory, and resilience, Application in trauma healing, addiction recovery; **Systems Thinking and Yoga**: Human being as a multidimensional system, Parallels with engineering systems: feedback loops, optimization, harmonics; **Scientific Validation**: Overview of key research findings, Case studies from healthcare, education, and corporate wellness.

Unit IV: Applied Yoga Engineering (20 Hours)

Designing a Personal Sadhana (Practice): Choosing suitable practices based on one's constitution (prakriti) and life stage, Creating a balanced routine of asana, pranayama, and meditation; **Integrative Practices:** Yoga Nidra for deep relaxation, Journaling and sankalpa (intention-setting), Meditative Cognitive Psychotherapy; **Yoga for Modern Professions:** Yoga for students, software engineers, healthcare workers, executives, Reducing burnout and enhancing flow state; **Social Impact of Yoga:** Yoga in prisons, addiction centers, schools, Global movements: International Day of Yoga, WHO guidelines; **Capstone Project:** Students create a "Yoga Engineering Toolkit" (a practical plan or app that integrates concepts learned for specific audiences).

Suggested Readings and Reference Books

Brown, R. P., & Gerbarg, P. L. (2012). *The Healing Power of the Breath: Simple Techniques to Reduce Stress and Anxiety, Enhance Concentration, and Balance Your Emotions*. Shambhala Publications.

Davidson, R. J., & Goleman, D. (2017). *Altered Traits: Science Reveals How Meditation Changes Your Mind, Brain, and Body*. Avery.

Desikachar, T. K. V. (1995). *The Heart of Yoga: Developing a Personal Practice*. Inner Traditions.

Kabat-Zinn, J. (2005). *Wherever You Go, There You Are: Mindfulness Meditation in Everyday Life*. Hachette Books.

Kabat-Zinn, J. (2013). *Full catastrophe living: Using the wisdom of your body and mind to face stress, pain, and illness* (Revised ed.). Bantam Books.

Nidich, S., & Nidich, R. (Eds.). (2022). *Meditation: From Research to Real-World Application*. Springer.

Rama, S., Ballentine, R., & Hymes, A. (1976). *Science of Breath: A Practical Guide*. Himalayan Institute Press.

Sadhguru. (2016). *Inner Engineering: A Yogi's Guide to Joy*. Spiegel & Grau.

Selhub, E. M. (2007). *The Love Response*. Ballantine Books.

Singh, S. (2025). *Notes on Meditative Cognitive Psychotherapy available on google cloud.*
Swami Niranjanananda Saraswati. (2010). *Yoga Darshan: Vision of the Yoga Upanishads*. Yoga Publications Trust.
Swami Ramdev. (2009). *Pranayama Rahasya*. Divya Prakashan.
Telles, S., & Singh, N. (2013). *Scientific Perspectives on Yoga and Its Applications*. Patanjali Research Foundation.
Wallace, B. A. (2006). *The Attention Revolution: Unlocking the Power of the Focused Mind*. Wisdom Publications.

Course Title: Advance Concepts of Physics

Course Code: YE-MJ-PGD-202

Credits: 4 (L 3 + T 1 + P 0)
Total Hours: 60
Course Type: Major Core
Level: Advance Concepts of Physics
Prerequisites: Any Graduate Degree

Program Specific Outcomes (PSOs)

PSO1: Understand fundamental concepts in electromagnetism, gravitation, and thermodynamics and their relevance to natural and biological systems.
PSO2: Apply principles of modern physics to interpret physiological phenomena and support yoga-based scientific reasoning.
PSO3: Analyze matter and field interactions, including electrostatic and magnetic effects, using classical and quantum models.
PSO4: Explore wave-particle duality and thermodynamic laws to better understand energy exchange and transformation in living systems.
PSO5: Utilize physics concepts like electric potential, gravitational forces, and magnetic fields to explore biomechanics and physiological processes.
PSO6: Apply mathematical reasoning and field theory to understand and solve problems related to bioelectric and biomechanical systems.
PSO7: Integrate physical principles with yoga and wellness practices through scientific understanding and engineering frameworks.

Course Specific Outcomes (CSOs)

CSO1: Explain dielectric behavior in materials and apply Gauss's law to various charge distributions in biological and non-biological systems.
CSO2: Interpret key modern physics phenomena such as wave-particle duality and the photoelectric effect in the context of matter-energy interactions.
CSO3: Analyze thermodynamic laws and their relevance to entropy, free energy, and biological system equilibrium, particularly in yoga-based energy systems.
CSO4: Evaluate electrostatic fields and potentials for linear, surface, and spherical charge distributions and understand their physiological implications.
CSO5: Describe and apply Newton's Law of Gravitation and Kepler's laws to central force motion, and explore their analogs in human biomechanics and balance.
CSO6: Analyze the gravitational potential and field due to spheres and shells, with applications in postural mechanics and energy alignment in yoga practices.
CSO7: Demonstrate understanding of magnetism, calculate magnetic fields using Biot-Savart's law, and explore how magnetic principles relate to biological systems and movement.

Unit I: Modern Physics-I (15 Hours)

Electronics and modern physics: Properties of Materials Physical; Gauss theorem, Dielectrics , Polar and Non Polar dielectrics, Polarization P and bound charges (surface and volume), Electric displacement D, Gauss law in dielectrics. Wave-particle duality, Photoelectric effect, Thermal Physics: Thermodynamics: Laws of thermodynamics and interpretation, Relevance to biological systems, Entropy and disorder, free-energy and chemical potential, Coulombs law, principle of superposition, electrostatic field.

Unit II: Modern Physics-II (15 Hours)

Electric field and charge density, surface and volume charge density, charge density on the surface of a conductor. Force per unit area on the surface. Conservative nature of electrostatic field, electrostatic potential, Calculation of potential for linear, surface and volume charge distributions, potential for a uniformly charged spherical shell and solid sphere.

Unit III: Gravitation (15 Hours)

Gravitation and Central Force Motion. Newton's Law of Gravitation. Inertial and gravitational mass. Motion under an Inverse square force. Kepler's Laws. Satellite in circular orbit and applications. Weightlessness. (c) Gravitational potential energy. Potential and field due to spherical shell and solid sphere. Application of Laws into yoga-bio engineering.

Unit IV: Magnetism (15 Hours)

Magnetic properties of matter, Potential and field due to a magnetic dipole. Magnetic dipole moment. Force and torque on a magnetic dipole in a uniform magnetic field Biot-Savart's law, Application of Biot-Savart's law to determine the magnetic field of a straight conductor, circular coil. Force on a moving point charge due to a magnetic field.

Suggested Readings:

Beiser, A. (2003). *Concepts of modern physics* (6th ed.). McGraw-Hill.
Griffiths, D. J. (2017). *Introduction to electrodynamics* (4th ed.). Cambridge University Press.
Halliday, D., Resnick, R., & Walker, J. (2017). *Fundamentals of physics* (11th ed.). Wiley.
Nelson, D. L., & Cox, M. M. (2017). *Lehninger principles of biochemistry* (7th ed.). W.H. Freeman.
Sears, F. W., Zemansky, M. W., & Young, H. D. (1982). *University physics* (6th ed.). Addison-Wesley.
Singh, H. P. (2006). *Engineering physics*. S. Chand Publishing.
Tipler, P. A., & Mosca, G. (2007). *Physics for scientists and engineers with modern physics* (6th ed.). W.H. Freeman.
Young, H. D., & Freedman, R. A. (2020). *University physics with modern physics* (15th ed.). Pearson.

Course Title: Kinesiology

Course Code: YE-MN-PGD-203

Credits: 4 (L 3 + T 1 + P 0)
Total Hours: 60
Course Type: Minor Core
Level: Kinesiology
Prerequisites: Any Graduate Degree

Program Specific Outcomes (PSOs)

PSO1: Understand foundational kinesiology concepts and their relevance in yoga and functional human movement.
PSO2: Apply anatomical and physiological knowledge to analyze movement and posture in yogic practices.
PSO3: Assess neuromuscular coordination, posture, and gait using evidence-based kinesiology principles.
PSO4: Integrate kinesiology into yoga therapy planning for diverse populations including special or clinical groups.
PSO5: Utilize kinesiological knowledge to prevent injuries and enhance performance in yoga practice.
PSO6: Demonstrate skills in muscle testing, postural correction, and movement analysis for individualized yoga instruction.
PSO7: Design therapeutic and functional movement-based yoga interventions informed by kinesiology and ergonomic principles.

Course Specific Outcomes (CSOs)

CSO1: Define kinesiology and describe its scope and importance in the context of yoga and movement science.
CSO2: Classify human movements and identify joint types and their associated motions across planes and axes.
CSO3: Explain muscular structure and function, including muscle roles (agonist, antagonist, synergist) during yogic postures.
CSO4: Analyze postural alignment, gait mechanics, and neuromuscular coordination using movement assessment tools.
CSO5: Demonstrate understanding of motor control, proprioception, and kinesthetic awareness in relation to yoga instruction.
CSO6: Apply kinesiological knowledge to design yoga interventions for posture correction, gait improvement, and neuromuscular training.
CSO7: Use kinesiology to inform yoga therapy sequencing, evaluate movement dysfunctions, and adapt practices for special populations.

Unit I: Introduction to Kinesiology and Human Movement (15 Hours)

Definition, scope, and relevance of kinesiology in yoga; Principles of human movement; Classification of movements: voluntary, involuntary, reflexive; Planes and axes of movement; Types of joints and types of movements at joints; Kinesiology vs. biomechanics vs. exercise physiology; **Yoga Applications:** Mapping yogic postures to planes of motion, Movement classification in Surya Namaskar and vinyasa flows.

Unit II: Muscular and Skeletal Contributions to Movement (15 Hours)

Structure and function of skeletal muscles; Muscle fiber types and recruitment in yogic practice; Origin, insertion, action of key muscles involved in yoga; Agonist, antagonist, synergist, stabilizer roles; Joint mobility vs. stability; Laws of motion in muscular activity; **Yoga Applications:** Muscle activation patterns in common asanas, Identifying key stabilizers in balance postures (e.g., Tree Pose, Warrior III).

Unit III: Posture, Gait, and Neuromuscular Coordination (15 Hours)

Concepts of ideal and faulty posture; Postural assessment and correction techniques; Kinesiology of gait: stance and swing phases; Balance and proprioception; Neural control of movement: CNS and PNS overview; Motor control, motor learning, and kinesthetic awareness; **Yoga Applications:** Improving posture through yogic interventions, Enhancing gait efficiency with yogic neuromuscular training, Breath-movement integration and kinesthetic cueing in asanas.

Unit IV: Applied Kinesiology in Yoga Therapy and Practice (15 Hours)

Kinesiological basis of therapeutic yoga; Muscle testing and palpation techniques; Kinesiological considerations in special populations (e.g., elderly, pregnant, injured); Integrating kinesiological analysis in yoga sequencing and instruction; Movement dysfunction and compensatory patterns; Ergonomics and daily functional movements; **Yoga Applications:** Designing personalized yoga sequences using kinesiological principles, Use of kinesiology in injury prevention and rehabilitation, Functional movement screening for yoga practitioners.

Suggested Readings:

Biel, A. (2014). *Trail guide to the body: How to locate muscles, bones, and more* (5th ed.). Books of Discovery.

Calais-Germain, B. (2007). *Anatomy of movement* (Revised ed.). Eastland Press.

Haas, B. M. (2015). *Yoga and kinesiology: Enhancing yoga practice through movement science*. Yoga Education Press.

Hutton, R. S., & McLatchie, G. R. (2020). *Functional anatomy: Musculoskeletal anatomy, kinesiology, and palpation for manual therapists* (4th ed.). Churchill Livingstone.

Kendall, F. P., McCreary, E. K., Provance, P. G., Rodgers, M. M., & Romani, W. A. (2005). *Muscles: Testing and function with posture and pain* (5th ed.). Lippincott Williams & Wilkins.

Kisner, C., & Colby, L. A. (2017). *Therapeutic exercise: Foundations and techniques* (7th ed.). F.A. Davis.

Long, R. (2010). *The key muscles of yoga: Scientific keys, Volume I*. Bandha Yoga.

Neumann, D. A. (2016). *Kinesiology of the musculoskeletal system: Foundations for rehabilitation* (3rd ed.). Elsevier.

Course Title: Advance Applications of Computer Applications

Course Code: YE-SEC-PGD-204

Credits: 4 (L 2 + T 1 + P 1)
Total Hours: 75
Course Type: Skill Enhancement Course
Level: Advance Applications of Computer Applications
Prerequisites: Any Graduate Degree

Program Specific Outcomes (PSOs)

PSO1: Demonstrate proficiency in advanced digital documentation and data management tools relevant to yoga education and research.
PSO2: Create visually appealing and ethically sound multimedia content to support yoga instruction and outreach.
PSO3: Utilize online platforms and collaborative tools for delivering and managing virtual yoga programs.
PSO4: Apply statistical and data visualization tools to assess and communicate the outcomes of yoga-based interventions.
PSO5: Integrate wearable device data into health analysis frameworks for yoga therapy applications.
PSO6: Uphold digital ethics, copyright awareness, and privacy standards in developing and sharing yoga-related content.
PSO7: Design and manage digital projects that combine yoga knowledge with modern information and communication technologies.

Course Specific Outcomes (CSOs)

CSO1: Utilize advanced features in Word and Excel, including referencing tools, macros, and data automation functions, to create structured yoga reports.
CSO2: Design educational and promotional yoga content using basic graphic design and multimedia editing tools.
CSO3: Deliver yoga instruction via online platforms and manage virtual classrooms using collaborative tools like Google Workspace and Moodle.
CSO4: Build simple web resources and online repositories to support yoga learning, documentation, and wellness tracking.
CSO5: Conduct basic statistical analysis of yoga therapy data using SPSS and spreadsheets, and visualize insights using dashboards.
CSO6: Integrate data from wearable devices into yoga wellness reports, and interpret health metrics (e.g., sleep, HR, stress) in therapeutic planning.
CSO7: Apply ethical practices in digital content development, including copyright respect, data privacy, and informed digital consent.

Unit I: Advanced Document & Spreadsheet Tools (15 Hours)

Reference management tools (Zotero, Mendeley, EndNote); Styles, tables of contents, cross-references in Word; **Data automation with Excel:** VLOOKUP, HLOOKUP, INDEX-MATCH; Pivot tables and dashboards; Conditional formatting and data validation; Introduction to Macros (recording tasks); **Practical Tasks:** Creating auto-updating yoga attendance and assessment reports, Generating formatted research reports and proposals.

Unit II: Multimedia & Content Development for Yoga Education (15 Hours)

Basics of graphic design (Canva, Adobe Express); Audio/video editing for yoga class recordings (Audacity, OpenShot); Creating interactive PDFs and ebooks; Image editing for posture illustrations; Copyright and ethical content use; **Practical Tasks:** Design a yoga therapy infographic or digital flyer, Record and edit a 3-minute yoga demo video, Create a digital booklet of asana sequences.

Unit III: Online Teaching Platforms & Collaboration Tools (15 Hours)

Google Workspace: Forms, Slides, Docs, Sheets (collaborative features); Hosting webinars and online yoga sessions (Zoom, Meet); Google Classroom and Moodle basics; Building simple educational websites with Google Sites; Calendar management and task integration; **Practical Tasks:** Conduct a mini-session online (Zoom/Meet) with interactive elements; Design a Google Form to collect wellness or therapy data; Organize a yoga resource hub using Google Sites.

Unit IV: Research Tools, Wearable Integration & Data Visualization (15 Hours)

Introduction to statistical tools: SPSS (basic level); Data entry, coding, frequency distribution, correlation; Visualizing yoga therapy outcomes (Google Data Studio/Tableau Public); Integrating data from fitness trackers (heart rate, sleep, stress); Data ethics, privacy and digital consent in wellness contexts. **Practical Tasks:** Analyze sample yoga therapy data in spreadsheet/SPSS, Create a basic dashboard visualizing health metrics, Map weekly progress of yoga practice from wearable logs.

Suggested Readings:

Bonk, C. J., & Khoo, E. (2014). *Adding some TEC-VARIETY: 100+ activities for motivating and retaining learners online*. OpenWorldBooks.

Gibaldi, J. (2021). *The MLA handbook* (9th ed.). Modern Language Association.

Klosowski, T. (2021). *Canva: From beginner to advanced design*. Kindle Direct Publishing.

MacBride, R., & Moser, M. (2019). *Microsoft Excel 2019 Bible*. Wiley.

Marr, B. (2016). *Big data in practice: How 45 successful companies used big data analytics to deliver extraordinary results*. Wiley.

S. B., & Salkind, N. J. (2016). *Using SPSS for Windows and Macintosh: Analyzing and understanding data* (8th ed.). Pearson.

Vanek, J., & Thoms, C. (2020). *Mastering Microsoft Word 2019: A Complete Guide*. Independently published.

Zettl, H. (2016). *Video basics* (8th ed.). Cengage Learning.

Course Title: Internship: Wellness Training

Course Code: YE-VA-PGD-205

Credits: 4 (L 1 + T 3 + P 0)
Total Hours: 60
Course Type: Value Added Course
Level: Wellness Training
Prerequisites: Any Graduate Degree

Program Specific Outcomes:

PSO1: Promote holistic well-being by integrating yogic principles with modern wellness science to address physical, mental, emotional, and lifestyle health.
PSO2: Equip students with skills in preventive and promotive health strategies rooted in traditional and contemporary wellness practices.
PSO3: Develop competency in designing and delivering wellness programs for diverse populations, including corporate, clinical, and community settings.
PSO4: Inculcate self-awareness and self-regulation through experiential learning in mindfulness, stress management, and conscious living practices.
PSO5: Integrate interdisciplinary knowledge from yoga, Ayurveda, nutrition, psychology, and exercise science to support sustainable wellness outcomes.

Course Specific Outcomes:

CSO1: Explain the components of wellness (physical, emotional, social, spiritual, intellectual, occupational, and environmental) and their interconnections.
CSO2: Apply yoga-based practices including asana, pranayama, meditation, and lifestyle ethics for stress management, energy balance, and emotional resilience.
CSO3: Design individualized and group wellness programs focused to specific needs (e.g., workplace wellness, women's health, chronic disease prevention).
CSO4: Use wellness assessment tools (e.g., stress scales, breath rate monitoring, lifestyle inventories) to track progress and guide interventions.
CSO5: Demonstrate effective communication and coaching skills for delivering wellness education and motivating behaviour change.

Wellness training is a dynamic and integrative discipline that fosters physical, mental, emotional, and spiritual well-being. Grounded in yogic philosophy and enriched with insights from Ayurveda, nutrition, psychology, naturopathy, and modern health sciences, it equips students with practical tools to lead and promote holistic health. Emphasizing the interconnection between body, breath, mind, and environment, the training encourages wellness as a sustainable lifestyle. Through yoga practices such as asana, pranayama, meditation, and ethical living, students develop self-awareness, emotional balance, and resilience to stress. The course also trains students to design wellness programs tailored to various populations, including workplaces, chronic illness care, and community outreach. Participants learn to assess wellness parameters and facilitate behavior change using effective communication and coaching techniques. Merging ancient wisdom with contemporary strategies, wellness training empowers learners to become catalysts of transformation—promoting vitality, mindfulness, and holistic living in today's rapidly evolving world.

There will be internship at “Patanjali wellness” of three months and a detailed assessment report to be submitted to the centre for fulfilling the 4 credit criteria and program.

Course Title: Yoga Practical-II

Course Code: YE-CP-PGD-206

Credits: 4 (L 0 + T 0 + P 8)
Total Hours: 120
Course Type: Core Practical
Level: Yoga Practical-II
Prerequisites: Master Degree

Program Specific Outcomes (PSOs)

PSO1: Understand and apply yogic practices for regulating the nervous system and promoting emotional resilience.
PSO2: Integrate breathwork, mindfulness, and meditation techniques into personal well-being and yoga instruction.
PSO3: Design personalized and group-specific yoga programs using lifestyle and psychological insights from yoga philosophy.
PSO4: Reflect deeply on internal experiences through journaling, conscious awareness, and witness-based practices.
PSO5: Apply trauma-informed, restorative, and therapeutic yoga techniques in real-world contexts to support diverse populations.
PSO6: Combine technology and creativity to develop yoga toolkits or resources tailored for modern life and well-being.
PSO7: Demonstrate leadership, empathy, and communication in teaching, peer-sharing, and community wellness settings.

Course Specific Outcomes (CSOs)

CSO1: Practice and explain the physiological and emotional effects of conscious breathing techniques such as Nadi Shodhana, Ujjayi, and Bhramari.
CSO2: Cultivate and demonstrate mindfulness and meditation practices drawn from multiple traditions (e.g., Vipassana, Heartfulness, Naad Yoga).
CSO3: Design and implement a personalized yogic lifestyle plan (Dinacharya) integrating breath, diet, sleep, and mindfulness principles.
CSO4: Apply integrative yoga routines for stress relief, postural support, screen fatigue, and cognitive reset in daily life or professional contexts.
CSO5: Demonstrate understanding of trauma sensitivity and restorative practices in the context of yoga therapy and emotional healing.
CSO6: Create and present a comprehensive Yoga Toolkit (digital, visual, or physical) addressing specific audience needs using breath, movement, and intention-setting tools.
CSO7: Reflect on the personal and societal impact of yoga through practice-teaching, journaling, peer feedback, and final presentations.

Unit I: Breath-work and Nervous System Regulation **(15 Hours)**

Cultivating awareness through pranayama and breath-centered practices: Introduction to conscious breathing, diaphragmatic breathing, and observing breath without control, Nadi Shodhana (alternate nostril breathing) – balancing hemispheres and calming the mind, Ujjayi & Bhramari pranayama – vagus nerve activation and emotional balance, Integrating breath with slow movement (asana + breath coordination), Practice + Reflection – students journal emotional and physiological observations, Breath awareness in daily tasks – conscious transitions, walking with breath.

Unit II: Meditation and Mindfulness Practices **(30 Hours)**

Training attention, self-observation, and inner silence: Body scan & Sakshi Bhava (witness consciousness) – developing internal awareness, Mindfulness meditation (Kabat-Zinn) – breath and sensation anchoring, Mantra meditation (Gayatri Mahamantra) – vibration and mental focus, Vipassana & Heartfulness techniques – inner observation and emotional release, Savita Dhyana & Naad Yoga (sound meditation with Pandit Sri Ram Sharma's approach), Preksha (Acharya Tulsi), Isha Yoga (Sadhguru), Sudarshan Kriya (Sri Sri Ravishankar) and reflection circle.

Unit III: Yogic Lifestyle & Integrative Yoga Practices **(30 Hours)**

Embedding yogic principles into daily life for emotional mastery and well-being: Dinacharya (daily routine) workshop – designing a personalized yogic day plan, Digital detox strategies and sattvic diet principles – lecture + practice challenge, Science of sleep and rest routines – breath before bed, night-time mindfulness, Journaling, Sankalpa (intentions), and emotional processing practices. **Integrative Yoga Practices for Modern Life Practical applications in diverse personal and professional settings:** Yoga for stress relief in students and professionals – short break routines, Yoga for posture correction and eye strain for screen users, Yoga Nidra session for deep relaxation and cognitive reset, Flow state practices – sequencing breath, movement, and focus, Trauma-sensitive and restorative yoga protocols (introductory), Teaching simulation – students lead short practices tailored to a specific group.

Unit IV: Capstone Practicum and Toolkit Development **(15 Hours)**

Application, creativity, and integration: Students design their Personal Sadhana Plan (based on prakriti and life stage), Small-group labs to present and refine components of a Yoga Engineering Toolkit. (2 hours), Practice-teaching and peer feedback, Final presentation of toolkit: slide deck, app prototype, or physical manual, Group reflection and feedback on applying yoga for societal well-being.

Suggested Readings:

Brown, R. P., & Gerbarg, P. L. (2012). *The healing power of the breath: Simple techniques to reduce stress and anxiety, enhance concentration, and balance your emotions.* Shambhala Publications.

Gard, T., Noggle, J. J., Park, C. L., Vago, D. R., & Wilson, A. (2014). *Potential self-regulatory mechanisms of yoga for psychological health.* Frontiers in Human Neuroscience, 8, 770. https://doi.org/10.3389/fnhum.2014.00770

Iyengar, B. K. S. (2001). *The art of yoga.* HarperCollins India.

Kabat-Zinn, J. (2013). *Full catastrophe living: Using the wisdom of your body and mind to face stress, pain, and illness* (Revised ed.). Bantam Books.

Ravindran, A. V., & da Silva, T. L. (2013). *Complementary and alternative therapies as add-on to pharmacotherapy for mood and anxiety disorders: A systematic review*. Journal of Affective Disorders, 150(3), 707–719. https://doi.org/10.1016/j.jad.2013.05.049

Sadhguru. (2016). *Inner engineering: A yogi's guide to joy.* Spiegel & Grau.

Saraswati, S. S. (1981). *Prana, pranayama, prana vidya.* Yoga Publications Trust. Bihar School of Yoga. Muger.

Saraswati, S. S. (2009). *Yoga Nidra* (6th ed.). Yoga Publications Trust. Bihar School of Yoga. Muger.