Curriculum for MD/ MS Ayurveda
(PRESCRIBED BY NCISM)

अभ्यासात्प्राप्यते दृष्टिः कर्मसिद्धिप्रकाशिनी।

Semester II
Applied Basics of Rachana Sharira
(Human Anatomy)
(SUBJECT CODE : AYPG-AB-RS)

(Applicable from 2024-25 batch, from the academic year 2024-25 onwards until further notification by NCISM)

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NATIONAL COMMISSION FOR INDIAN SYSTEM OF MEDICINE
NEW DELHI-110026

PREFACE

Knowledge of Sharir is foundational to both understanding and managing health and disease in Ayurveda. Among the various branches of Sharir, Rachana Sharir provides the anatomical framework upon which the principles of Dosha-Dhatu-Mala Siddhanta, Srotovijnana, and Marma Vijnana operate. From Garbhotpatti (embryology) to Anga-Pratyanga (regional anatomy), this discipline illuminates the structural basis of physiological processes and pathological changes. Just as Sharir Rachana informs diagnostic reasoning in Ayurveda, it also supports decision-making in Chikitsa, Panchakarma, and even Roga Marga analysis.

The postgraduate curriculum in Rachana Sharir is designed to expand the role of anatomical knowledge beyond the conventional. While classical concepts such as Pramana Sharir, Marma Sharir, and Garbha Sharir remain core to the curriculum, renewed emphasis is placed on their Chikitsopayogi (clinically relevant) applications. Topics like Vaikrit Sharir (pathological anatomy) are introduced to help students correlate anatomical derangements with Roga Nidan, prognosis, and treatment strategies. Innovations such as Anuvanshiki (Ayurvedic genetics) and Ayurvedic anthropometry are integrated to address evolving challenges in public health, personalized medicine (Prakriti-based), and predictive diagnostics.

In terms of pedagogy, the curriculum promotes immersive, experiential learning. Cadaveric and virtual dissection, case-based learning, clinical correlation exercises, and interdisciplinary exposure form the backbone of the learning experience. Students are encouraged to interpret classical texts in the light of applied anatomy and contribute to research that bridges Shastra and Anubhava. This transformative approach to Rachana Sharir aims not only to produce skilled educators and researchers but also to foster Ayurvedic anatomists capable of contributing meaningfully to diagnostics, Rogavijnana, surgical planning, Panchakarma, Yoga, and beyond. This curriculum aspires to bring Sharir Rachana into its rightful place at the heart of Ayurvedic clinical excellence

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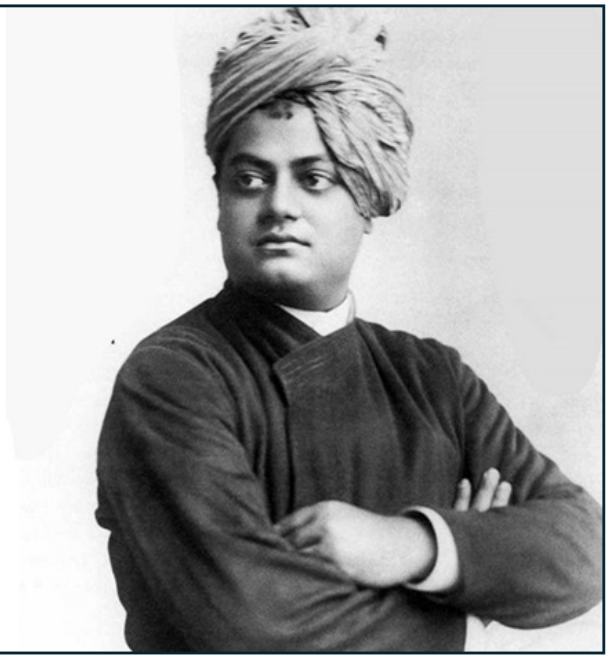
We want that education by which **character** is formed, **strength of mind** is increased, the **intellect** is expanded, and by which one can **stand on one's own feet.**

-Swami Vivekananda



NCISM

(NATIONAL COMMISSION FOR INDIAN SYSTEM OF MEDICINE)

Curriculum for MD/ MS Ayurveda

Applied Basics of Rachana Sharira (AYPG-AB-RS)

Summary & Credit Framework

Semester II

Module Number & Name	Credits	Notional Learning Hours	Maximum Marks of assessment of modules (Formative assessment)
M1. Introduction to Rachana Sharir, Sarvabhoota Sharir (subtle body), Fundamentals of Garbha Sharir and Anuvanshiki	3	90	75
M2. Fundamentals of Cytology and Histology	2	60	50
M3. Basic Skills in Mrita Sharir Sanshodhan and Anga Rekhankan	2	60	50
M4. Fundamentals of Sira, Dhamani, Srotas, Koshta, Koshtanga, Twacha, Kala and Aashaya Sharir	3	90	75
M5. Fundamentals of Asthi, Sandhi, Peshi, Snayu,Marma and Pramana Sharir	3	90	75
M6. Fundamentals of Indriya Sharir; Tantra Sharir; and pathological, prognostic and comparative anatomy.	3	90	75
	16	**480**	**400**

Credit frame work

AYPG-AB-RS consists of 6 modules totaling 16 credits, which correspond to 480 Notional Learning Hours. Each credit comprises 30 hours of learner engagement, distributed across teaching, practical, and experiential learning in the ratio of 1:2:3. Accordingly, one credit includes 5 hours of teaching, 10 hours of practical training, 13 hours of experiential learning, and 2 hours allocated for modular assessment, which carries 25 marks.

Important Note: The User Manual MD/MS Ayurveda is a valuable resource that provides comprehensive details about the curriculum file. It will help you understand and implement the curriculum. Please read the User Manual before reading this curriculum file. The curriculum file has been thoroughly reviewed and verified for accuracy. However, if you find any discrepancies, please note that the contents related to the MSE should be considered authentic. In case of difficulty and questions regarding the curriculum, write to syllabus24ayu@ncismindia.org.

Course Code and Name of Course

Course code	Name of Course
AYPG-AB-RS	Applied Basics of Rachana Sharira

Table 1 : Course learning outcomes and mapped Program learning outcomes

CO No	A1 Course learning Outcomes (CO) AYPG-AB-RS At the end of the course AYPG-AB-RS, the students should be able to-	B1 Course learning Outcomes mapped with program learning outcomes.
CO1	Analyze the principles of Rachana Sharir in relation to contemporary anatomical fundamentals, demonstrating the ability to integrate this knowledge into holistic patient care and contribute to research advancements.	PO1,PO3,PO5
CO2	Analyze and integrate the principles of Garbha Sharir with embryology and genetic principles to provide comprehensive counseling for maternal and child health, emphasizing wellness and preventive care.	PO1,PO3,PO8
CO3	Identify Marma points and evaluate their relevance in modern anatomy, while demonstrating critical application in Marma Chikitsa for therapeutic interventions.	PO2,PO3,PO8
CO4	Interpret Asthi, Sandhi, Peshi, Snayu,siradi Sharir and musculoskeletal anatomy to develop preventive and rehabilitation strategies for musculoskeletal disorders using Ayurveda.	PO1,PO3,PO4
CO5	Analyze systemic Anatomy and Neuroanatomy to understand clinical conditions, fostering critical clinical judgment and applications in Ayurveda.	PO1,PO6,PO8
CO6	Demonstrate expertise in cadaveric/virtual dissection and advanced preservation techniques, measuring respect for the cadaver as a teacher, while refining anatomical skills.	PO1,PO2,PO6
CO7	Demonstrate comprehensive knowledge of anga- pratyangadi surface markings and application in procedures like Viddhakarma, Siravedhan ensuring clinical relevance, precision, and safety in practice.	PO2,PO7,PO8
CO8	Develop proficiency in histological slide identification and anatomical interpretation through advanced imaging techniques, fostering self-directed learning.	PO1,PO2,PO7

CO9	Demonstrate professional leadership skills in the Ayurveda field by showing proficiency in academics, research, and entrepreneurship, while upholding ethical principles.	PO4,PO5,PO6

Table 2 : Course contents (Modules- Credits and Notional Learning Hours)

2A Module Number	2B Module & units	2C Number of Credits	Notional Learning hours			
			2D Lectures	2E Practical Training	2F Experiential Learning including modular assessment	2G Total
1	**M-1 Introduction to Rachana Sharir, Sarvabhoota Sharir (subtle body), Fundamentals of Garbha Sharir and Anuvanshiki** This module describes the evolution, application and fundamental concepts of Rachana Sharir; gross and subtle components of human body mentioned in Ayurveda; and constituents and mechanism of Garbha formation along with maintenance of lineage • **M1U1 Introduction to Rachana Sharir** 1.1.1. Scientific evolution and Application of Rachana Sharir and Human Anatomy 1.1.2. Dosha Dhatu Mala - the formative constituents of body and their Ashraya and Ashrayi bhava 1.1.3. Kaarana Sharir-concept of holistic body and Purusha in Indian philosophy and Ayurveda. • **M1U2 Sarvabhoota Sharir (subtle body)** 1.2.1. Mahat Buddhi - the subtlest component of body and Mana - the subtler component of body. 1.2.2. Panchamahabhuta - the gross components of body	3	15	30	45	90

	• **M1U3 Shukra shonit Siddhant, Ritukala and Garbhadhan** 1.3.1. Shukra Shonit Siddhant and Ritukala in relation with contemporary science (Sperm, Ovum ,Gametogenesis, menstrual and ovarian cycle) 1.3.2. Garbhadhan (Differentiation and Morphogenesis): Fertilization, Cleavage Blastocyst Formation, Implantation. • **M1U4 Gastrulation, Placenta and umblical cord formation, Garbhotpadkar bhava and Anuvanshiki** 1.4.1. Formation of Germ layers, Placenta and Umbilical cord 1.4.2. Garbhotpadaka bhava - primary components of embryonic constitution. 1.4.3. Anuvanshiki Siddhant – Genetic control in embryo development and propagation of genes					
2	**M-2 Fundamentals of Cytology and Histology** This module describes the fundamental concept of Cytology and Histology; fundamental aspects of equipments/instruments and materials used in histology laboratory; and fundamental concept of Histological Staining Techniques. • **M2U1 Fundamentals of Cells and tissues** 2.1.1. Structure of cell, cell membrane, membrane theory, cell organelles and its functions 2.1.2. Definition, types, structure and characteristics features of tissue	2	10	20	30	60

	• **M2U2 Histological Equipment / instrument and materials** 2.2.1. Introduction to Histological Equipment / instrument related to histology (Binocular, trinocular microscopes, etc.) 2.2.2. Introduction to different types of histological stains and other chemicals • **M2U3 Histological Staining Techniques** 2.3.1. Preparations of histological slides (Tissue fixation, tissue section, tissue staining, tissue mounting and observation)					
3	**M-3 Basic Skills in Mrita Sharir Sanshodhan and Anga Rekhankan** This module describes procurement,embalming and preservation technique of cadaver and its safety issues, legal issues and ethics related to an ideal embalming facility complex; and Angarekhankan (surface markings) on the cadaver and living body based on the classifications of Marma, Vedhya-Avedhya Sira, AngaPratyanga, Viddha Karma and dominance of Dosha. • **M3U1 Basic Skills in Embalming and Specimen preservation technique** 3.1.1.Embalming of the cadaver, purpose, techniques, procedures and health hazards and safety. 3.1.2. Embalming facility complex and bio-waste management. 3.1.3. Soft organs and Bone extraction and preservation techniques.	2	10	20	30	60

	• **M3U2 Pre-dissection procedures and Dissection Techniques** 3.2.1. Procurement of Human body for dissection, Legal rights, ethics and Acts (Body donation, organ donation and anatomy act) 3.2.2. Cadaver Dissection techniques 3.2.3. e-dissection technique - virtual dissection • **M3U3 Anga Rekhankan** 3.3.1. Marma. 3.3.2. Vedhya and Avedhya Sira. 3.3.3. Anga and Pratyang. 3.3.4. Viddha points mentioned in Viddha Karma. 3.3.5. Anga and Pratyanga on the basis of Dosha. 3.3.6. of whole body as per contemporary science.					
4	**M-4 Fundamentals of Sira, Dhamani, Srotas, Koshta, Koshtanga, Twacha, Kala and Aashaya Sharir** This module describes Sira, Dhamani and Srotas; Anga and Pratyanga as regions and organs of body; Koshtanga and Aashaya as important Pratyanga in Ayurvedic and modern perspective; and Twacha and Kala with their clinical understanding. • **M4U1 Fundamentals of Sira, Dhamani, Srotsa Sharir** 4.1.1. Definition, enumeration, types, classification, function and clinical application of Sira, Dhamani and Srotas 4.1.2. Sira, Dhamani and Srotas – Sadharmya and Vaidharmya with its clinical and surgical application.	3	15	30	45	90

	• **M4U2 Vascular components** 4.2.1. Structures of artery, vein, capillary and lymphatics with its clinical application • **M4U3 Koshtha, Koshthanga, and Aashaya Sharir** 4.3.1.Introduction to Kostha, Kosthanga and Ashaya Sharir 4.3.2. Explanation of Anga- Pratyanga Vibhaga as per various Acharyas • **M4U4 Twak, and Kala** 4.4.1. Twak, Sharir and Skin 4.4.2. Kala Sharir and its clinical application (limiting membrane /Fascia/Septa)					
5	**M-5 Fundamentals of Asthi, Sandhi, Peshi, Snayu,Marma and Pramana Sharir** This module describes the Ayurvedic and modern perspective of bones, muscles, joints and neuroconnective tissue component; location, constituent structures and clinical application of Marma; and qualitative and quantitative measurements in Ayurveda and use of modern scales of measurements. • **M5U1 Fundamentals of Asthi, Sandhi, Peshi, Snayu sharir**	3	15	30	45	90

5.1.1. Definition, enumeration, types, functions and applied aspects of Asthi, Sandhi, Peshi and Snayu as per ayurveda and contemporary science.

• **M5U2 Fundamental of Marma Sharir**

5.2.1. Definition, enumeration, classification of Marma based on Rachana, Parinama, Parimana, Shadanga and Guna
5.2.2. Marma of Sakthi.
5.2.3. Marma of Madhya Sharir.
5.2.4. Marma of Bahu.
5.2.5. Urdhvajatrugata Marma.

• **M5U3 Fundamental of Pramana Sharir**

5.3.1. Qualitative measurements : Consideration of Gurvadi and Paradi guna in Pramana Sharir to understand body measurements.
5.3.2. Quantitative measurements : Anjali and Anguli Pramana as standard scales of volumetric and linear measurement.
5.3.3. Anthropometric measurement Instruments, procedures and uses. (Like- vernier calliper, etc.)

• **M5U4 Measurement of environmental component**

5.4.1.Density and light - instruments, procedures and uses.
5.4.2. Humidity and temperature instruments, procedures and uses.

6	**M-6 Fundamentals of Indriya Sharir; Tantra Sharir; and pathological, prognostic and comparative anatomy.** This module describes the Indriya as mentioned in Ayurveda; and Tantra Sharir mentioned in Yoga tantra; Vaikrit Sharir (pathological anatomy) as Vikriti (signs), Vikretaha Sharir (symptoms) and Vyadhi sharir (diseases) mentioned in Ayurveda and pathological anatomy as described in modern contemporary science. This also describes Arishta Sharir (prognostic anatomy) mentioned in Ayurvedic texts; and association of prognosis with morphological features of signs, symptoms of diseases; and describes comparative anatomy as comparison of anatomical features among vertebrates and their relation with evolution. • **M6U1 Fundamentals of Indriya; Tantra Sharir** 6.1.1. Indriya Panchapanchak – inter-relation between Panchagyanendriya and Panchakarmendriya and its modern relevance. 6.1.2. Shadchakra – anatomical relations and applications. 6.1.3. Kundalini - anatomical considerations. • **M6U2 Vaikrit, Vikretah and Vikrit Vyadhi Vigyaniya Sharir** 6.2.1. Prakrit and Vaikrit Sharir The normal and observed pathological morphology of body. Vikretah Vigyaniya Sharir the morbid symptoms. 6.2.2. Vikrit Vyadhi Vigyaniya Sharir - Anatomical signs and symptoms of disease. • **M6U3 Pathological and prognostic anatomy** 6.3.1. Cellular basis of Morbid Anatomy/pathological morphology 6.3.2. Arishta Vigyaniya Sharir Predictive and Prognostic Anatomy.	3	15	30	45	90

	• **M6U4 Comparative anatomy** 6.4.1. Anatomical similarities and dissimilarities in different animals; and role of environment in shaping them. 6.4.2. Human embryo in relation to other vertebrates. 6.4.3. Human skin and appendages in relation to other vertebrates. 6.4.4. Human organ-systems/organs in relation to other vertebrates. 6.4.5. Philosophical and molecular basis of comparative anatomy.					
		16	**80**	**160**	**240**	**480**

Table 3 : Modules - Unit - Module Learning Objectives and Session Learning Objective- Notional Learning Hours- Domain-Level- TL Methods

3A Course Outcome	3B Learning Objective (At the end of the (lecture/practical training /experiential learning) session, the students should be able to)	3C Notional learning Hours	3D Lecture/ Practical Training/ Experiential Learning	3E Domain/ Sub Domain	3F Level (Does/Shows how/Knows how/Know)	3G Teaching Learning Methods
Module 1 : Introduction to Rachana Sharir, Sarvabhoota Sharir (subtle body), Fundamentals of Garbha Sharir and Anuvanshiki						
Module Learning Objectives **(At the end of the module, the students should be able to)** Analyze and identify the philosophical and scientific basis of Rachana Sharir and the role of Sharirsthan in integrating structural, functional and clinical applications of branches of anatomy; and evaluate comprehensive nature of Sharirsthana in forming basis for prevention and diagnosis of diseases. Analyze and demonstrate the fundamental aspects of Buddhi, Mana, Indriya and Panchamahabhuta in comparison to intellect, mind, senses and states of matter; evaluate and strategize impact of Buddhi, Mana, Indriya and Panchamahabhuta on health of individual. Analyze and demonstrate Shukra-Shonita Siddhanta, Ritukala and Garbhadhan in relation to processes of gametogenesis, menstrual cycle and ovarian cycle, fertilization, cleavage, blastocyst formation and implantation of embryo and also analyze differentiation and morphogenesis in embryo; evaluate Shukra-Shonit Dosha in relation to chromosomal genetic disorders and physical factors influencing reproductive health. Analyze, demonstrate and evaluate formation of germ layers, placenta and umbilical cord formation, influence of Garbhotpadaka Bhava in formation of ideal progeny, Ayurveda perspective of Anuvanshiki; and genetic control in embryo formation, growth of embryo and propagation of genes. Evaluate and explore the stem cell utility.						
Unit 1 Introduction to Rachana Sharir 1.1.1. Scientific evolution and Application of Rachana Sharir and Human Anatomy 1.1.2. Dosha Dhatu Mala - the formative constituents of body and their Ashraya and Ashrayi bhava 1.1.3. Kaarana Sharir-concept of holistic body and Purusha in Indian philosophy and Ayurveda.						

References: 293,294,295,296,297,298,299,300,301,302,303,304,305,306,307

3A	3B	3C	3D	3E	3F	3G
CO1	Analyze the evolution of Rachana Sharir as a discipline of Ashtanga Ayurveda.	1	Lecture	CAN	Knows-how	FC,L&GD
CO1	Identify the philosophical and scientific basis of Rachana Sharir	2	Practical Training 1.1	PSY-GUD	Shows-how	SY,W
CO1	Evaluate the unique features of Rachana Sharir in context of modern anatomy; and application of Rachana Sharir in different fields of Ayurveda.	2	Experiential-Learning 1.1	CE	Does	LS
CO1	Analyze the Sharir Shastra Vibhaga and classical branches of anatomy with concept of 'Dosh Dhatu Mala Moolam hi Shariram' in understanding structural components of the body,	2	Lecture	CAN	Knows-how	C_L
CO1	Appraise and evaluate the inclusion of Sharir Sthana as one of the important Sthana in Brihtrayi.	1	Lecture	CAN	Knows-how	L
CO1	Analyze the fundamental difference between Chaturvinshati and Panchavinshati Purusha.	1	Lecture	CAN	Knows-how	L&GD
CO1	Evaluate and demonstrate the role of Sharirsthan in integrating structural, functional and clinical applications of branches of anatomy.	3	Practical Training 1.2	PSY-MEC	Shows-how	D,LS
CO1	Validate the interdependence of Dosha, Dhatus and Mala in terms of; Dosha as micro components of Dhatu and; Mala as grossest components in formation of Sharir.	2	Experiential-Learning 1.2	CE	Does	DIS
CO1	Evaluate comprehensive nature of Sharir Sthana in forming basis for prevention and diagnosis of diseases	1	Experiential-Learning 1.3	CE	Does	BL,LS
CO1	Evaluate the concept of Avyakta and Vyakta human body as extention of universal body in context of Big bang theory.	4	Experiential-Learning 1.4	CE	Does	JC,LS,PL

Unit 2 Sarvabhoota Sharir (subtle body)

1.2.1. Mahat Buddhi - the subtlest component of body and Mana - the subtler component of body.
1.2.2. Panchamahabhuta - the gross components of body

References: 287,288,289,290,291,292,355,356,357,358,359,385,386,387,388,389,510,511,512

3A	3B	3C	3D	3E	3F	3G
CO1	Analyze the fundamental aspects by comparison of Buddhi with intellect, Mana with mind and Indriya with senses.	1	Lecture	CAN	Knows-how	PL,SDL
CO1	Demonstrate the difference between Mahat and Ahankar elements of universal body (Srishti) and human body.	1	Practical Training 1.3	PSY-GUD	Shows-how	D,IBL
CO1	Evaluate the concept of Buddhi (intelligence) as subtlest part of human body and its impact on health of individual.	6	Experiential-Learning 1.5	CE	Does	IBL
CO1	Analyze the fundamental aspects of Pancha-Mahabhuta and compare Panchamahabhuta with different states of matter.	1	Lecture	CAN	Knows-how	PL,SDL
CO1	Evaluate strategies to deal with different states of Mana.	2	Experiential-Learning 1.6	CE	Does	BS,Mnt
CO1	Evaluate and Interpret bodily structures, present in different states of matter, in terms of Panchamahabhuta.	2	Experiential-Learning 1.7	CE	Does	DIS
CO1	Explain the concept of Mana (mind) and Indriya (senses) as subtler part of gross body.	2	Practical Training 1.4	PSY-GUD	Shows-how	CBL,D-BED
CO2	Demonstrate the the contribution of Panchamahabhuta in constitution of Dosha, Dhatu and Mala.	1	Practical Training 1.5	PSY-GUD	Shows-how	D

Unit 3 Shukra shonit Siddhant, Ritukala and Garbhadhan

1.3.1. Shukra Shonit Siddhant and Ritukala in relation with contemporary science (Sperm, Ovum ,Gametogenesis, menstrual and ovarian cycle)
1.3.2. Garbhadhan (Differentiation and Morphogenesis): Fertilization, Cleavage Blastocyst Formation, Implantation.

References: 501,502,503,504,505,506,507

3A	3B	3C	3D	3E	3F	3G
CO1,CO2	Analyze Shukra Shonita Siddhanta, Ritukala and Garbhadhan in Ayurvedic perspective with relation to processes of gametogenesis, menstrual cycle and ovarion cycle mentioned in contemporary science.	2	Lecture	CAN	Knows-how	DIS,L&PPT
CO2	Demonstrate Ayurvedic concepts of Shukra (Semen) and Shonit (Ovum) with contemporary reproductive anatomy and physiology.	2	Practical Training 1.6	PSY-MEC	Shows-how	IBL,LRI
CO2	Evaluate Shukra-dosha and Shonit-dosha as per Samhita and discuss it on the basis of contemproray scientic studies with its clinical application.	3	Experiential-Learning 1.8	CE	Does	CBL,DIS,ECE
CO1,CO2	Analyze salient features of fertilization, cleavage, blastocyst formation and implantation of embryo.	1	Lecture	CAN	Knows-how	DIS,L
CO1,CO2	Analyze differentiation and morphogenesis as principle feature in growth of early embryo.	1	Lecture	CAN	Knows-how	DIS,L&GD
CO1,CO2	Evaluate and demonstrate knowledge of Ritukala (fertile period) in diagnosing and managing reproductive disorders.	2	Practical Training 1.7	PSY-MEC	Shows-how	CBL
CO1,CO2	Demonstrate the fertilization, cleavage, blastocyst formation and implantation from an Ayurvedic and modern perspective.	4	Practical Training 1.8	PSY-MEC	Shows-how	FV
CO1,CO2	Demonstrate early embryonic development stages.	3	Practical	PSY-	Shows-	D-M,SIM

			Training 1.9	MEC	how	
CO1,CO2	Evaluate concept of chromosomal genetic disorders in relation to progeny.	3	Experiential-Learning 1.9	CE	Does	JC,SDL
CO1,CO2	Evaluate physical factors influencing infertility through hormones.	1	Experiential-Learning 1.10	CE	Does	SY,W
CO1,CO2	Evaluate hypothalamus- pituitary gland-gonadal axes in reproductive health.	1	Experiential-Learning 1.11	CE	Does	DIS,W
CO1,CO2	Evaluate and discuss the Gabhadhana procedures.	2	Experiential-Learning 1.12	CE	Does	DIS

Unit 4 Gastrulation, Placenta and umblical cord formation, Garbhotpadkar bhava and Anuvanshiki

1.4.1. Formation of Germ layers, Placenta and Umbilical cord
1.4.2. Garbhotpadaka bhava - primary components of embryonic constitution.
1.4.3. Anuvanshiki Siddhant – Genetic control in embryo development and propagation of genes

References:
47,48,49,50,51,52,53,54,55,56,57,58,59,60,61,62,63,64,65,66,67,68,69,70,71,72,73,74,75,76,83,84,85,86,87,88,89,137,138,139,433,434,435,436,437,461,462,463,464,465,501,502,503,504,505,506,507,508,509,590,591

3A	3B	3C	3D	3E	3F	3G
CO2	Analyze the formation of germ layers, placenta and umbilical cord formation.	1	Lecture	CAN	Knows-how	BL,C_L
CO2	Demonstrate the embryonic development focussing on formation of germ layers and identify three primary germ layers.	2	Practical Training 1.10	PSY-GUD	Shows-how	D,DSN
CO2	Evaluate foetal anamolies in relation to various stages of development of germ layers.	2	Experiential-Learning 1.13	CAN	Knows-how	CBL,PL

CO2	Analyze the influence of Garbhotpadaka Bhava, the primary components of embryonic development, in formation of ideal progeny.	1	Lecture	CAN	Knows-how	BL,BS,C_L
CO2	Analyze Ayurveda perspective of Anuvanshiki (Ayurveda priciples of genetics and heredity) and its relavance as per contemporary science.	1	Lecture	CAN	Knows-how	L&GD,LS
CO2	Analyze genetic control in embryo formation, growth and development; and propogation of genes in the form of traits and characters.	1	Lecture	CAN	Knows-how	CD,CBL
CO2	Demonstrate the section and staining of placenta and umbilical cord	6	Practical Training 1.11	PSY-GUD	Shows-how	D
CO2	Demonstrate the Anuvanshiki Sidhanta.	2	Practical Training 1.12	PSY-GUD	Shows-how	CBL,D-BED
CO2	Evaluate the developmental disorders in foetus due to placenta and umbilical cord variations and explore the stem cell utility.	6	Experiential-Learning 1.14	CAN	Does	FV
CO2	Evaluate the role of Garbhotpadak Bhava in prenatal care.	2	Experiential-Learning 1.15	CAN	Does	PAL,PL

Practical Training Activity

Practical No	Name	Activity details
Practical Training 1.1	Philosophical and scientific basis of Rachana Sharir and role of Sharir Sthana.	Seminar Organise seminar to explore how Samkhya and Nyaya-Vaisheshika Darshanas form the structural and functional basis of Panchamahabhuta, Tridosha, Indriya, Dhatu, Srotas, and Marma—by logical categorization. Paramanu the smallest indivisible unit, forming the building blocks of matter. Panchamahabhuta as five elements shaping all bodily structures to identify philosophical and scientific basis of Rachana Sharir
Practical Training 1.2	Sharirsthan	Compilation and demonstration Comprehensive study of chapters of Sharir- sthana and branches of anatomy as per contemporary science. Sharirsthan forms basis of clinical practice, diagnostics, and surgical procedures while aligning with contemporary anatomical sciences; like, it enhances

		the scope of Garbha Sharira (Embryology) to developmental biology & genetics.conclude the finding and demonstrate it.
Practical Training 1.3	Neurophysiological Correlations.	Demonstration through neurophysiological correlation. Relate Mahat to higher cognitive functions (intelligence, judgment, decision-making). Correlate Ahankara with ego-driven emotions, stress responses, and personality disorders and conclude the findings. Demonstrate the role of human nervous system in regulation of Ahamkara on the scope assigned by teacher seperately to each student.
Practical Training 1.4	Disturbances of Indriya.	Case study Observe cases of Indriya disturbances (e.g., hearing loss, vision defects) affecting mental health. Study mental disorders like Anidra (insomnia), Unmada (psychosis), Chittodvega (anxiety) in relation to Mana imbalances. Conclude by discussing physical manifestation of mental disorders. Every student will be assigned seperate case by the teacher.
Practical Training 1.5	Comparative Study of Pancha Mahabhuta and States of Matter.	Demonstration and Comparative study of Panchamahabhuta and states of matter Prithvi Mahabhuta (Solid State) representing stability and rigidity, Prithvi Mahabhuta is found in bones, muscles, and solid organs. A bone density test using dry and calcium-immersed bones will demonstrate mineral absorption and strength. Students will analyze osteoporosis and structural degradation due to Prithvi Mahabhuta imbalance in this way. Students can observed the other Mahabhoota as Ap Mahabhuta (liquid state) found in plasma, lymph, intracellular fluids.Teja Mahabhuta (plasma/energy state) found in Metabolism, enzymatic reactions, temperature regulation. Vayu Mahabhuta (gaseous state) found in Movement, neural impulses, respiration. Akasha Mahabhuta (space field) found in Body cavities, cellular spacing, sound conduction through selective assignment by teacher.
Practical Training 1.6	Molecular Analysis of Gametes.	All practical activities are to be performed under guidence and instruction of teacher. Molecular analysis of gametes with Lab report Introduce Semen Analysis (using parameters count, motility, morphology) to discuss Ayurvedic seminal defects (Shukradushti) and their modern equivalents (oligospermia, azoospermia and oligospermia). Perform a hormonal assay interpretation (Testosterone, LH, FSH) to correlate with Ayurvedic doshic imbalances. Examine histological slides of testis and ovary (stages of spermatogenesis and oogenesis). Analyze sperm motility and morphology under a phase-contrast microscope.
Practical Training 1.7	Menstrual Disorders & Infertility.	Casebased discussion on menstrual disorders and infertility Teacher will provide the real-life case studies (PCOS, primary ovarian insufficiency, anovulation etc) Streerog OPD. Students will interpret hormonal profiles, ovarian ultrasound scans, and endometrial histology. Compare Rituchakra phases with the modern menstrual cycle and discuss Ayurvedic interventions (Shodhana, Rasayana, Aushadhi).

Practical Training 1.8	IVF Laboratory Visit & Embryo Culture Observation.	IVF laboratory visit & embryo culture observation Student shall be provided opportunities to observe working of IVF laboratory to Observe sperm preparation, oocyte retrieval, and embryo culture. student may be shown videos on the working of IVF laboratory. Discuss Ayurvedic Garbhadhan Sanskar in relation to preconception care & Assisted Reproductive Technology. Explore genetic screening of embryos and relate to Ayurvedic concepts of Ritu, Kshetra, Ambu and Beeja with Streerog expert.
Practical Training 1.9	Embryonic developmental stages	Embryonic developmental stages through 3D model and simulation Use 3D printed models or virtual simulations to study cleavage, blastocyst formation, and implantation. Assign groups to trace embryonic development (day-wise) and relate it to Ayurvedic concepts of fetal development.Cross-reference Ayurveda's Garbha Parivrudhi Krama (month-wise development) with modern embryology milestones.
Practical Training 1.10	Germ layers	DOAP on germ layers Students will observe the prepared slides on different stages of development of germ layers with the help of microscope and analyze the development of ectoderm, mesoderm, and endoderm correlating it with principles of Garbha Vikas (embryogenesis) in Ayurveda.
Practical Training 1.11	Section and staining of placenta and umbilical cord	Demonstration of Sectioning and staining of placenta and umbilical cord Observation and demonstration of placenta and umbilical cord will be done by students under guidance. Fresh or preserved human placenta and umbilical cord will be used as sample. Related videos may be shown. Student will observed the Placental Section and Identify chorionic villi, syncytiotrophoblasts , cytotrophoblasts and foetal blood vessels; and observe and demonstrtae the Umbilical Cord Section for two umbilical arteries, one umbilical vein, and Wharton's jelly.
Practical Training 1.12	Hereditary disorders (Anuvanshiki)	Case study on hereditary disorders Student will be assigned any one of the hereditary disorders case scenario (e.g., Down’s Syndrome, Thalassemia, Hemophilia) for study of findings and literature. student will correlate findings with Ayurvedic principles of inheritance and give their reflections.
Experiential learning Activity		
Experiential learning No	**Name**	**Activity details**
Experiential-Learning 1.1	Unique features of Rachana Sharir	Library session Refer to the comparison between Rachana Sharir and modern Anatomy done on the basis of literature from learning resources and

		prepare a class presentation on the topic assigned by the teacher separately to each student.
Experiential-Learning 1.2	Regulatory activity of Dosha	Discussion on regulatory activity of Dosha Students will find out the key points and discuss among them topic as to how Dosha regulates Dhatu metabolism and Mala elimination. For example Pitta Dosha (micro) contributes to Rakta Dhatu (macro) formation. Mala (stool, sweat, urine) are end-products of Dhatu metabolism. separate topic will be assigned to each student.
Experiential-Learning 1.3	Comprehensive nature of Sharir Sthana	Creative writing on comprehensive nature of Rachana Sharir Student will participate in the session of creative writing on topic of comprehensive nature of Sharir Sthana in forming basis for prevention and diagnosis of diseases progressively. every student will be assigned different scope of the topic by teacher.
Experiential-Learning 1.4	Ayurveda and modern cosmology	Concept mapping connecting Ayurveda and modern cosmology Students will prepare the concept map through literature search and critical evaluation connecting Ayurveda & Modern Cosmology, illustrating how Avyakta (unmanifest) transforms into Vyakta (manifest) through cosmic and biological evolution with help of Big Bang theory on the lines assigned by teacher seperately to each student.
Experiential-Learning 1.5	Comparison of Buddhi in different individuals.	Comparison of Buddhi in different individuals with questionnaire Separate topic to each student will be assigned by the teacher for every activity. With the help of questionnaire, compare two individual's Sattvic, Rajasic, and Tamasic Buddhi in terms of health and decision-making to assess their predominant Buddhi. Reflect on decisions-making by relating with Panchamahabhuta and Summarize key takeaways.
Experiential-Learning 1.6	Mana is purely an Ayurvedic entity	Debate Conduct debate on topic whether Mana is purely an Ayurvedic entity or it has modern psychological/ neuroscientific parallels?
Experiential-Learning 1.7	Bodily structures and Panchamahabhuta.	Group discussion Students can evaluate Ap Mahabhuta (liquid state) found in plasma, lymph, intracellular fluids.Teja Mahabhuta (plasma/energy state) found in Metabolism, enzymatic reactions, temperature regulation.Vayu Mahabhuta (gaseous state) found in Movement, neural impulses, respiration. Akasha Mahabhuta (space field) found in Body cavities, cellular spacing, sound conduction and discuss among peers.
Experiential-Learning 1.8	Shukra Dushti.	Every student will be assigned seperate topic related to each activity. Case study and presentation on Shukra Dushti Observe and prepare atleast 3 cases of Shukra Dushti through sperm analyses to relate with reproductive health for presentation in

		classroom. Discuss possible epigenetic correlates.
Experiential-Learning 1.9	Chromosomal aberrations.	Journal club on chromosomal aberrations Students are to be randomly assigned research articles on topic like Chromosomal aberrations in infertility, Genetic mutations affecting progeny and Ayurveda's perspective on heredity (Beeja, Beeja Bhaga). They will Analyze study objectives, methodology, results and clinical relevance.
Experiential-Learning 1.10	Genomics on Beej Beejbhaga.	Integrated seminar with Stree-Prasuti and Genomics departments. Teacher will organise seminar integrated verticaly with Stree-Prasuti and Genomics departments.Student shall seek expert Insights from; Streeroga & Prasuti Tantra expert regarding Ayurvedic view of Beeja, Beeja Bhaga, and genetic transmission; Genomic expert will explain chromosomal structure, inheritance patterns and modern genetic testing. Students will summarize atleast one key integration between Ayurveda and genetics. Experts will clarify doubts and discuss future research possibilities.
Experiential-Learning 1.11	Hormonal interaction	Presentation and discussion on hormonal interaction Student will search the literature and there will be presentation and discussion on the topic of impact of Hypothalamus - Pituitary gland - gonadal axes on health.
Experiential-Learning 1.12	Garbhadhana procedures.	Discuss and facilitate undergraduate students in classroom teaching on Garbhadhana procedures Prepare topic of Garbhadhana procedures in detail linking Ritu, Kshetra, Ambu and Beeja to modern reproductive and epigenetics concepts; and facilitate the undergraduate students in understanding the same concept (1hr).
Experiential-Learning 1.13	Developmental disorders	All activities are to be performed by the students on seperate topics allotted by the teacher. Case study on developmental disorders Teacher will assign the case studies related to developmental disorders like neural tube defects, congenital heart defect. Student will analyze critically and find out the association between germ layer development and its foetal anamolies..
Experiential-Learning 1.14	Stem cells and other aspects	Cord blood bank visit Visit the cord blood bank and explore the utility of stem cells and other aspects. Study placenta and umbilical cord and morphological features and developmental disorder.
Experiential-Learning 1.15	Garbhotpadak Bhava in prenatal care	Peer learning in prenatal care in Ayurveda Discuss importance of prenatal care in Ayurveda with special reference to Garbhotpadak Bhava. Open discussion on how Ayurveda and modern science complement each other in principle of prenatal care.
Modular Assessment		

Assessment method	Hour
Instructions—Conduct a structured modular assessment. The assessment will be for 75 marks. Keep a structured marking pattern. Use different assessment methods in each module for the semester. Keep a record of the structured pattern used for assessment. Calculate the Modular grade point as per Table 6C. 1) Creative writing (25Marks) Creative Writing Assessment Question Prepare a creative narrative or essay exploring the fundamental concepts, evolution, applications and philosophical depth of *Rachana Sharir*. Suggested Writing Styles "A metaphorical story depicting the evaluation, application and concept of *Sharir* ". The write-up should reflect integration of ancient Ayurvedic knowledge with modern anatomical science. Essential Elements to Include is Evolution through classical Samhitas and correlation with modern views. Elaboration of Sanskrit terminology and symbolic illustrations is encouraged. Word Limit is 700–900 words Assessment Criteria Conceptual understanding, Creativity, Integration of Ayurveda & Modern Science, Clarity & Organization, Originality 2) Structured Viva Assessment (25) Topic: Gross and subtle components of female/male body mentioned in Ayurveda. Viva Question "Imagine you are exploring architecture of the female/male body — described not just as a physical structure, but as a sacred blend of Sthoola (gross) and Sookshma (subtle) elements in Ayurveda. Can you explain these components and their role in shaping her/his Anatomical and physiological reproductive strength and uniqueness?" Guiding Sub-Questions What makes the physical framework (Sthoola Sharir) of Stree/Purusha Sharir special? (5Marks) What are the subtle (Sookshma) forces like Aartava/Shukra working within? (5Marks) What is the significance of Artava /Shukra, its types, and role in female/male health? (5Marks) What makes Stree Sharir different from Purusha Sharir beyond physical traits? (5Marks) Can you recall any Shlokas or references glorifying female/male anatomy? (5Marks) 3) Open Book Test – Rachana Sharir. (25Marks) Clinical Correlation Based Question "Constituents and mechanism of Garbha formation along with maintenance of lineage" Ayurveda explains Garbha (fetal formation) as a union of Shukra, Aartava, Atma in Garbhashaya. Based on these principles, describe how life originates and what essential factors are emphasized in Ayurveda for successful conception. Further, explore Anuvanshiki — the science of heredity — and explain how traits, qualities,and even family resemblance travel through generations. Apply this wisdom to answer:	6

a) Why might a healthy couple still struggle to conceive? b) Why does a newborn sometimes resemble a grandparent more than parents? Instructions: Use your textbook & Samhita references to Structure your answer.Use Sanskrit terms and shlokas to enrich your response. Recommended Book- Gray's Anatomy ,Sushruta Samhita or Any practical is converted form can be taken for assessment. (45 Marks) And Any of the experiential as portfolio/ reflections/ presentation can be taken for assessment. (30 Marks)	

Module 2 : Fundamentals of Cytology and Histology

Module Learning Objectives
(At the end of the module, the students should be able to)

Analyze, identify, differentiate and demonstrate the components of human cell (nucleus as well as cytoplasmic organelles) and tissues; and uses of different types of microscopes and instruments/equipment related to preparation of histological slide. Describe, collect and prepare the materials needed for preparation of histological slides; the procedure of preparation of histological slides. Prepare the histological slides in a step wise manner and demonstrate using any of the imaging technique.

Unit 1 Fundamentals of Cells and tissues

2.1.1. Structure of cell, cell membrane, membrane theory, cell organelles and its functions
2.1.2. Definition, types, structure and characteristics features of tissue

References: 90,91,92,93,94,95,96,97

3A	3B	3C	3D	3E	3F	3G
CO1	Analyze the human cell as key structural organizer of body.	2	Lecture	CAN	Knows-how	BS,L&GD
CO1,CO8	Identify structure of Cell and differentiate cellular organelles. Identify and differentiate structural features of different tissues.	4	Practical Training 2.1	PSY-GUD	Shows-how	D
CO1	Evaluate the different cell organelles.	1	Experiential-Learning 2.1	CE	Does	DIS
CO1	Demonstrate the structure of cell, cell membrane, Membrane theory, Cell organelles and its function.	4	Experiential-Learning 2.2	PSY-GUD	Shows-how	FV,PT

CO1	Demonstrate the structure of nucleus and nuclear components.	1	Experiential-Learning 2.3	PSY-GUD	Shows-how	D

Unit 2 Histological Equipment / instrument and materials

2.2.1. Introduction to Histological Equipment / instrument related to histology (Binocular, trinocular microscopes, etc.)
2.2.2. Introduction to different types of histological stains and other chemicals

References: 77,79,83,84,625,626,627,628,629

3A	3B	3C	3D	3E	3F	3G
CO1,CO8	Describe the instruments and equipments related to five-fold procedure of histological slide preparation with basic types of microscopes and their high resolution variants.	4	Lecture	CK	Know	L&PPT
CO1,CO8	Enlist and demonstrate the equipments and instruments needed in histology laboratory with their use.	3	Practical Training 2.2	PSY-GUD	Shows-how	BL,DL,Mnt,PT
CO1,CO8	Identify the basic infrastructure needed to develop histology laboratory.	5	Experiential-Learning 2.4	PSY-GUD	Shows-how	FV
CO1,CO8	Demonstrate the use of compound microscopes and stereo microscope.	3	Practical Training 2.3	PSY-GUD	Shows-how	DL,Mnt
CO1,CO8	Identify and demonstrate the basic materials in preparation of histological specific slides under Stereo Microscope.	2	Practical Training 2.4	PSY-GUD	Shows-how	DL,PAL
CO1,CO8	Identify and differentiate between different types of microscopes used in pathology laboratory along with their specific uses also demonstrate the usages of microtome in preparation of slides.	5	Experiential-Learning 2.5	PSY-GUD	Shows-how	D

Unit 3 Histological Staining Techniques

2.3.1. Preparations of histological slides (Tissue fixation, tissue section, tissue staining, tissue mounting and observation)

References:

3A	3B	3C	3D	3E	3F	3G
CO1,CO8	Describe the materials needed for prepration of histological slides; and the procedure of prepration of histological slides.	4	Lecture	CC	Knows-how	L&PPT ,Mnt,PER
CO1,CO8	Select the materials needed for preparation of histology slides and prepare the histological slides in a step wise manner.	8	Practical Training 2.5	PSY-GUD	Shows-how	D,PT
CO1,CO8	Collect tissue sample and perform the processing, fixation, embeding, staining and mounting procedures, Observe the slides under microscope and demonstrate using any of the imaging technique. Demonstrate its utilization.	10	Experiential-Learning 2.6	PSY-ORG	Does	DL,PT,PrBL,TBL

Practical Training Activity

Practical No	Name	Activity details
Practical Training 2.1	Identification of structure of Cell and tissues in slides.	Identification and Differentiate of tissue slides under microscope All practical activities are to be performed by students under supervision and guidence of teacher. Identify structural features of the human cell under high resolution microscope with the help of atlas of histology.Differentiate different slides of tissues on the basis of their structure, organization, and characteristic features under microscope with the help of Atlas of histology. (3 Hrs)
Practical Training 2.2	Instruments and equipments used in preparation of slide	Demonstartion of instruments and chemicals used in preparation of slide Every student will be assigned a topic related to each of the practical by the teacher. student will prepare/perform the under supervision of teacher. Identify all instruments and equipments, like; microtome, cryostats, tissue processors, embedding centres, slide stainer etc. Identify chemicals used in histology laboratory for fixation, dehydration, embedding and staining etc, those are required for preparation and identification of slides.
Practical	Compond microscope.	Demonstration of the use of compound microscope

Training 2.3		Study the prepared slides under the compound microscope and take photograph with trinocular microscope.
Practical Training 2.4	Stereo Microscope.	Demonstration of prepared slide under stereo microscope Choose the appropriate specimen for study under stereo microscope and demonstrate the surface feature of the studied specimen.
Practical Training 2.5	Histological slides Preparation	Student will Collect the materials and learn to prepare the specific slide, as assigned by the teacher, under the guidence of teacher. Demonstration of preparation of slides Students will prepare the histological slides under the guidance of teacher in step wise manner after collection of the materials related to fixation, processing, embedding, sectioning and staining. 1. Demonstration of fixation of specimen for preservation by the use of formalin. (2hr) 2. Demonstration of processing and dehydration by using ethanol solutions in varying degree of concentration.(2 hrs) 3. Demonstration of Embedding and sectioning (2hr) Student will perform the procedure of Embeding of the specimen in media like paraffin wax or plastic resin. Perform sectioning of specimen using microtome by taking series of thin ribbon-like sections 4. Staining and mounting (2hr) Stain the collected thin section in hematoxylin/eosin stains to enhance contrast and visibility and observe the slide. Rinse the specimen with water or buffer solution, apply mounting medium to the slide and place the specimen on slide ensuring center and secure by placing cover slip over specimen by ensuring that the slides is free of air bubbles. Project the slides under microscope and observe the architecture
Experiential learning Activity		
Experiential learning No	**Name**	**Activity details**
Experiential-Learning 2.1	Structure of cell.	Assignments on structure of cell Discuss and write an assignment on the Cell Membrane Chemistry, Anatomy and Physiology with function of Membrane protein and gylcoproteins that reflect their functions. Give examples from day-to-day life for simple diffusion, osmosis, filteration fecilitated diffusion, primary and secondary active transport, phagocytosis, pinocytosis and receptor mediated endocytosis.
Experiential-Learning 2.2	Functioning of Genomic lab.	Genomic lab visit Visit to Nearby genome labs/ DNA test centres to understand the structure of cell and cell orgenelles with help of various types of genetic tests like diagnostic testing, presymptomatic testing, carrier testing, pharmacogenetics, prenatal, newborn screening, preimplantation testing, DNA sequencing etc,student will summarise finding and reflect on it.

Experiential-Learning 2.3	Nucleus and nuclear components	Demonstration of nucleus and nuclear components Demonstrate the Chromosome structure /Gene structure and Action that include transcription, translation, DNA Replication, Nuclear divisions : Mitosis and Meiosis with duration of cell cycle .
Experiential-Learning 2.4	Histology laboratory and its working.	Visit to histology lab to know its working Organize visit to histopathology laboratory to identify the basic instruments. Students will observe the basic set up and understand the basic requirements of a histopathology lab, including essential equipment like microtomes, tissue processors, embedding stations, and staining units. Students will observe the process of tissue processing, sectioning and staining under expert guidance.
Experiential-Learning 2.5	Comparative analysis of differrent microscopes and equipments and Usage of microtome.	Comparative analysis of different microscopes and equipments and usage of microtome Differentiate between bright/dark microscope, florescence microscope , confocal micro-scope, scanning/ transmission electronic microscopes, monocular/binocular/trinocular microscope, phase contrast microscope & their Utility. Demonstration of the trinocular microscope with a camera attachment. Explore its usage in live imaging, digital documentation and teaching. Compare clarity, magnification, and field of view with the binocular microscope. Demonstration on usage of microtome
Experiential-Learning 2.6	Tissue sample collection and processing,fixation, embeding, staining and mounting procedures.	Teacher will assign a seperate topic to each of the student from every activity. student will perform the activity and demonstrate the outcome with facts in the class. Tissue sample collection and processing Project based learning Demonstrate for collection of tissue sample and its processing. Demonstrate the procedure of fixation and dehydration of tissue. Demonstrate the procedure of paraffin embedding. Demonstrate sectioning of tissue and staining procedure. Train students for microscopic and imaging technique, then student will take a project on any one of the following topics; Tissue sample processing and analysis, histological staining & analysis or microscopic observation of specimen under different microscopes and demonstrate its utilization.

Modular Assessment

Assessment method	**Hour**
Instructions—Conduct a structured modular assessment. The assessment will be for 75 marks. Keep a structured marking pattern. Use different assessment methods in each module for the semester. Keep a record of the structured pattern used for assessment. Calculate the Modular grade point as per Table 6C. 1) Report Writing on histology lab visit (25Marks) Details to Cover	4

1. Introduction 2. Lab Layout & Functioning 3. Instruments and Equipment 4. Tissue Processing Techniques 5. Slide Observation 6. Safety and Ethics 7. Relevance to Diagnosis 8. Interaction with lab technician. 9. Personal Reflection 10. Conclusion Summary of overall learning experience 2) DOPS (Direct Observation of Procedural Skills) Assessment: Preparation of a Histological Slide (25Marks) Perform DOPS assessment with help of following checklist. Collection of tissue sample, Fixation of tissue, Dehydration through graded alcohol series, Clearing with xylene or substitute, Embedding in paraffin wax, Sectioning using microtome, Transferring section to water bath and slide, Drying/adhesion of section to slide, Staining procedure, Mounting with coverslip, Labelling the slide correctly and Disposal of waste and glass safety. Assessor will do the performance rating. Assessor will give feedback on strength and suggest the **a**reas for Improvement or Any practical in converted form can be taken for assessment. (25 Marks) and Any of the experiential as portfolio/ reflections/ presentation can be taken for assessment. (25 Marks)	

Module 3 : Basic Skills in Mrita Sharir Sanshodhan and Anga Rekhankan

Module Learning Objectives
(At the end of the module, the students should be able to)

Analyze the role of proper embalming and upgrading of embalming techniques for preservation of cadaver in an ideal embalming complex; and analyze, demonstrate and evaluate the techniques for extraction of bones from cadaver.
Identify, demonstrate and evaluate the role of embalming techniques and reduction of bio-medical waste in Strategizing against the health hazards during embalming of the cadaver. Evaluate the different embalming techniques on the basis of safety, durability, economy, sustainability and executability.
Evaluate and practice the embalmer's legal rights and responsibilities under Anatomy act of 1959 and transplantation of human organ act 1994. Compare and perform different cadaver dissection techniques, e- dissection techniques, virtual dissection. identify bottle necks and remedial strategies for popularizing body donation.
Analyze and identify and demonstrate the positions of Marma, Avedhya-vedhya Siras, Pratyanga, Viddha points and Dosha / types of Dosha in various regions of body described in Ayurveda.
Evaluate the clinical relevance of Angarekhankan (surface anatomy) of Marmas in relation to Marmabhighata; points for Sira Vedhan in procedure of Sira Vedhan; surface marking of Pratyanga; Viddha points in Kshara or Agni Karma; Marma points in Marma Chikitsa and surface anatomy of Doshas in clinical evaluation.

Unit 1 Basic Skills in Embalming and Specimen preservation technique

3.1.1.Embalming of the cadaver, purpose, techniques, procedures and health hazards and safety.
3.1.2. Embalming facility complex and bio-waste management.
3.1.3. Soft organs and Bone extraction and preservation techniques.

References: 213,214,215,438,439,440,441,442,443,444,445,446,447,481,482,483,484,485,486,487,488,489,490,491,492,493,494,495,594

3A	3B	3C	3D	3E	3F	3G
CO6	Analyze the role of proper embalming process for prolonged preservation of cadaver in a well equipped embalming facility complex.	1	Lecture	CAN	Knows-how	L&PPT ,SDL

CO6	Identify and demonstrtate the health hazards during embalming of the cadaver.	1	Practical Training 3.1	PSY-GUD	Shows-how	DL,PSN
CO6	Evaluate the different embalming techniques on the basis of safety, durability, economy, sustainability and executability.	3	Experiential-Learning 3.1	CE	Does	PER,PSN, RLE
CO6	Analyze the bone maceration principles for extraction of bones from cadaver.	1	Lecture	CAN	Knows-how	L&PPT
CO6	Analyze progressive upgrading of embalming techniques by discussing history of embalming techniques.	1	Lecture	CAN	Knows-how	L&GD
CO6	Demonstrate the importance of reduction and removal of biomedical waste from the embalming room.	2	Practical Training 3.2	PSY-GUD	Shows-how	DL,PSN
CO6	Demonstrate and perform the procedure of cleaning and decontaminating bones from flesh for study of bony landmarks.	2	Practical Training 3.3	PSY-GUD	Shows-how	DL,PSN
CO6	Demonstrate the evolution of embalming techniques over the period of time with its advantages and disadvantages.	1	Practical Training 3.4	PSY-GUD	Shows-how	DL,DIS,PER
CO6	Evaluate specific strategies to dispose different types of medical wastes.	2	Experiential-Learning 3.2	CE	Does	DL,RLE
CO6	Evaluate Compare and different techniques of bone cleaning for anatomical studies; and suggest the best bone cleaning technique.	3	Experiential-Learning 3.3	CE	Does	DL,TBL
CO6	Evaluate and compare the different embalming procedures on the basis of potentiality to cause health hazards.	2	Experiential-Learning 3.4	CE	Does	D,PSN

Unit 2 Pre-dissection procedures and Dissection Techniques

3.2.1. Procurement of Human body for dissection, Legal rights, ethics and Acts (Body donation, organ donation and anatomy act)
3.2.2. Cadaver Dissection techniques
3.2.3. e-dissection technique - virtual dissection

References: 561,562,563,564

3A	3B	3C	3D	3E	3F	3G
CO6,CO9	Evaluate the embalmer’s legal rights and responsibilities under Anatomy act of 1959 and transplantation of human organ act 1994. Compare cadaver dissection technqiues, e-dissection techniques, virtual dissection.	2	Lecture	AFT-VAL	Knows-how	BS,PL,PER
CO6,CO9	Internalise the ethical and legal practices of human body procurement for education purpose.	4	Practical Training 3.5	AFT-CHR	Does	DIS,PL,PSM,PrBL
CO6,CO9	Reflect on emotional issues behind the donation of human body and identify bottle necks and remedial strategies for popularizing body donation.	4	Experiential-Learning 3.5	AFT-CHR	Does	IBL,PrBL,RLE
CO6,CO9	Perform and internalise the cadaveric and virtual dissection techniques.	2	Practical Training 3.6	PSY-ORG	Does	DSN
CO6,CO9	Manipulate cadaveric and virtual dissection techniques.	4	Experiential-Learning 3.6	AFT-CHR	Does	L&GD,RLE

Unit 3 Anga Rekhankan

3.3.1. Marma.
3.3.2. Vedhya and Avedhya Sira.
3.3.3. Anga and Pratyang.
3.3.4. Viddha points mentioned in Viddha Karma.
3.3.5. Anga and Pratyanga on the basis of Dosha.
3.3.6. of whole body as per contemporary science.

References: 390,391,392,393,394,395,396,397,398,399,400,401,402,403,404,405,406,407,408,409,444,445,446,447,466,467,468,469,470,472,473,474,475

3A	3B	3C	3D	3E	3F	3G
CO3	Analyze the positions of Marma described in Ayurveda.	1	Lecture	CAN	Knows-how	C_L,L&GD,PL
CO3,CO4,CO7	Demonstrate the Marma location as concept of surface anatomy.	1	Practical Training 3.7	PSY-GUD	Shows-how	D-BED,SIM
CO3,CO7	Evaluate the clinical relevance of knowledge of surface anatomy of Marmas in relation to Marmabhighata.	1	Experiential-Learning 3.7	CE	Does	CBL,D-BED
CO4	Analyze the Avedhya-vedhya Siras and identify Avedhya Siras.	1	Lecture	CAN	Knows-how	L
CO7	Analyze Pratyanga in context of surface anatomy;	1	Lecture	CAN	Knows-how	L&GD
CO3,CO7	Analyze Viddha points in relation to Agni Karma/ Kshara Karma/ Marma Chikitsa.	1	Lecture	CAN	Knows-how	BL,Mnt
CO7	Analyze dominance of Dosha / types of Dosha in various regions of body described in Ayurveda as per Anga-vibhaga.	1	Lecture	CAN	Knows-how	L&PPT
CO3	Identify and demonstrate Avedhya as well as Vedhya Sira in comtemporary anatomy.	1	Practical Training 3.8	PSY-GUD	Shows-how	D,ECE
CO7	Demonstrate the surface anatomy of Pratyanga.	2	Practical Training 3.9	PSY-GUD	Shows-how	D-BED
CO3,CO7	Demonstrate the similarity and dissimalarity of Viddha points, Agnikarma points and Marma points.	3	Practical Training 3.10	PSY-GUD	Shows-how	DL
CO7	Identify and demonstrate the relation of anatomical structures (organs etc.) with Dosha.	1	Practical Training 3.11	PSY-GUD	Shows-how	D

CO7	Evaluate the clinical relevance of points for Sira Vedhan in procedure of Sira Vedhan.	1	Experiential-Learning 3.8	CE	Does	CBL,ECE
CO7	Evaluate the clinical relevance of surface marking of Pratyanga.	2	Experiential-Learning 3.9	CE	Does	CD,PSM
CO3,CO7	Evaluate the clinical significance of Viddha points in Kshara or Agni Karma/Marma points in Marma Chikitsa.	2	Experiential-Learning 3.10	CE	Does	CBL,D-BED
CO7	Evaluate the relevance of surface anatomy of Doshas in clinical evaluation.	2	Experiential-Learning 3.11	CE	Does	CBL

Practical Training Activity

Practical No	Name	Activity details
Practical Training 3.1	Health hazards related to embalming procedure.	Health hazards related to embalming procedure All activities will be performed by the students under the supervision of teacher. Observe the embalming procedure in dissection hall. Observe the exposure of different chemicals used in the process of embalming. Explore the properties of chemicals to identify their useful/harmful effects. Prepare a comparative chart of advantages and disadvantages. Demonstrate the chart through presentation.
Practical Training 3.2	Biomedical wastes guidelines.	Hands on training on bio-medical waste guidelines Analyze the salient features of Biomedical Waste Management Act 2016. Refer to already prepared checklist of chemical used during embalming. Prepare a checklist of biomedical wastes produced during the process of embalming. Identify and evaluate the types of biomedical wastes generated in dissection hall/embalming room and follow different strategies for reduction and disposal of medical waste from the dissection hall / AYUSH
Practical Training 3.3	Bone Extraction by the process of maceration.	Bone extraction by the process of maceration Collect the chemicals, instruments/equipment required for maceration. Separate bones from cadaver. Treat the bones following procedure of maceration. Extract the bones and share the procedure in the form of presentation.
Practical Training 3.4	Advantages and disadvantages of	Assessment of advantages and disadvantages of different embalmimg techniques Consult the tabulated list of different embalming techniques. Analyze the use of different chemicals used in process of

	different embalming techniques.	embalming. Assess the advantage of new systems over the old systems. Present the findings for discussion in class room.
Practical Training 3.5	Anatomy act and procurement of cadaver.	Do's and Dont's for the procurement of cadaver Prepare a document on relevant contents of State Anatomy Act. Carefully study legal procedure for the procurement of cadavers. Prepare list of ethical consideration in behavior towards cadaver/ donors. Share the prepared list of ethics. Student will carryout activities as assigned under the guidence and supervision of the teacher.
Practical Training 3.6	Cadaveric and virtual dissection.	Perform cadaveric and virtual dissection Perform Cadaveric dissection and virtual dissection with advance technqiues under supervision.
Practical Training 3.7	Position of Different Marmas; Avedhya and Vedhya Sira; Pratyanga; Dosha, and Viddha points mentioned in relation to Kshara Karma, Agni Karma and Marma Chikista.	Surface markings of position of Marmas Mark Marmas on mummified cadaver / Simulated patient body (volunteer) in laboratory. Assess their position in relation to anatomical structures present in that region. Discuss importance of structures underlying Marmas. Student will perform all practical activity under the guidence and supervision of teacher on specifically designed topics
Practical Training 3.8	Avedhya, Vedhya Sira	Surface markings of the positions of Avedhya and Vedhya Siras Refer to the Collected literature on Vedhya as well as Avedhya Sira separately. Identify the Avedhya/ Vedhya Sira on surface of body with the help of clues in description. Mark the position of Avedhya and Vedhya Sira separately on surface of mummified cadavers or living subject. Identify the Avedhya as well as Vedhya Sira (blood vessels) in terms of modern anatomical description.
Practical Training 3.9	Pratyanga.	Surface markings of positions of various Pratyangas Refer to the analysis of Pratyangas done already. Mark position of various Pratyanga on the surface of mummified body/body of live volunteers with the help of description available in Ayurvedic text. Identify and pin-point the position of Pratyangas on the surface of body. Compare the position of Pratyanga with related organ in modern anatomy. Choose one suitable Pratyanga and discuss detailed surface anatomy on basis of Ayurvedic literature.
Practical Training 3.10	Similarity and dissimalarity of Viddha points, Agnikarma	Surface markings of Viddha points Refer to the literature related to description of Viddha points and Marma Chikitsa from classical books/references. Justify the position of Viddha points by analyses of the literature; and points/areas of manipulation mentioned in Marma Chikitsa. Perform

	points and Marma points.	marking of the Viddha points; Marma manipulation areas on the surface of body in relation to specific diseases.
Practical Training 3.11	Dosha Site	Surface markings of Dosha sites Refer to the Analysis of Dosha dominance in human body. Mark the location of Dosha/types of Doshas on the surface of body. Relate Doshas present in specific areas with the anatomical structures present in those areas. Emphasize role of anatomical structures, as above, in maintenance of related Doshas.
Experiential learning Activity		
Experiential learning No	**Name**	**Activity details**
Experiential-Learning 3.1	Ideal technique for preservation of cadaver.	Ideal technique for preservation of cadaver Refer to already prepared list of embalming techniques. Short list few embalming techniques from already prepared list of embalming techniques on the basis of safety, economic viability, easy execution, short-term and long-term sustainability. Discuss pros and cons of different techniques in the class room. Propose the best/better techniques.
Experiential-Learning 3.2	Strategies for reduction of biomedical wastes.	Strategies for reduction of biomedical waste Refer to the prepared checklist of biomedical wastes generated in the embalming room/dissection hall. Analyze the use of specific chemicals generating specific biomedical waste in terms of advantages over disadvantages. Develop specific strategies for reduction of specific biomedical wastes. Prepare a protocol for disposal of medical wastes of all categories within norms of existing law (Biowaste management act 2016)
Experiential-Learning 3.3	Ideal Bone cleaning technique.	Ideal bone cleaning technique Explore different bone cleaning procedures from the literature. Identify the best method by comparing pros and cons. Mention the reason for selecting particular method for cleaning of bones. Discuss the outcome in peer group.
Experiential-Learning 3.4	Health hazards related to embalming procedures.	Health hazards related to embalming procedures Observe the procedures of embalming in dissection hall.Observe the use of different chemicals used in the process of embalming.Explore the properties of chemicals to ientify their effect.Prepare comparative chart of advantages and disadvantages of chemical used in the process with health hazards and present in classroom.
Experiential-Learning 3.5	Body/organ donation and its importance	Highlight the concept of body/ organ donation Get familiarized with the documents and procedures for Voluntary donations of dead body. Engage in the procedure of body

		procurement. Prepare a project on interactions with family members of recently concluded body donation during campus visit or as per convenience of the family identify the problems,needs to popularizing body donation. Students will carry out the specific tasks related to every activity as assigned by the teacher.
Experiential-Learning 3.6	Future scope of dissection.	Highlight the future scope of dissection Students will teach the Dissection techniques to undergraduates. Compile and experiment with new softwares related to dissection techniques.
Experiential-Learning 3.7	Types of deformities due to Abhighata on Marma regions.	Evaluate the types of deformities due to Abhighata on Marma regions Teacher will assign topics selectively from each activity to the student. Select suitable Marma for study. Evaluate signs and symptoms of Marmabhighat on Marma from classical references. Consult literature or visit to Shalya Tantra OPD/ IPD for Case based study of causes of Marmabhighat. Take a comparative review of concepts of Marma Chikitsa and Marmabhigata. Identify strategies to prevent specific Marma from potential causes of Marmabhighat.
Experiential-Learning 3.8	Clinical relevance and saftey aspect of Sira Vedhan.	Clinical relevance and safety aspects of Sira Vedhan Observe Sira Vedhana in patient of Shalya OPD/OT. Identify relation between Vedhya Siras and indicated disorder. Assess the reason behind sparing certain blood vessels (Avedhya Sira) for Vedhana. Suggest safer means of Sira Vedhan on the basis of anatomical position of Sira.
Experiential-Learning 3.9	Strategies to diagnose diseases related to specific Pratyangas.	Strategies to diagnose diseases related to specific Pratyangas Evaluate and assess literature related to selected Pratyanga in different diseases. Observe signs and symptoms of those diseases in OPD/IPD in context of selected Pratyanga. Assess the role of knowledge of surface anatomy of Pratyanga in diagnosis of diseases. Suggest strategies in diagnosis.
Experiential-Learning 3.10	SOP's for Viddha Karma/Marma Chikitsa.	SOP's for Viddha Karma/ Marma Chikitsa Evaluate Viddha points/Marma points in relevance to the anatomical structures present in the vicinity. Select a suitable Viddha point/ Marma point for assessment. Observe the procedure of Viddha Karma/Marma Chikitsa related to the selected point in related OPD/IPD/OT. Assess the possible effect of procedure on curability of the diseases. Suggest SOP to perform the selected Karma.
Experiential-Learning 3.11	Relevance of surface anatomy of Doshas	Relevance of surface anatomy of Doshas Refer to the analysis on dominance of Dosha in various Anga (parts of body). Select a suitable disease from a region for observation of Dosha.

		Identify the dominant Dosha of the region. Observe signs and symptoms of the disease. Suggest/confirm the nature of disease in terms of Tridosha.

Modular Assessment

Assessment method	Hour
Instructions—Conduct a structured modular assessment. The assessment will be for 50 marks. Keep a structured marking pattern. Use different assessment methods in each module for the semester. Keep a record of the structured pattern used for assessment. Calculate the Modular grade point as per Table 6C. 1) Simulation based assessment on surface marking of different Marma (25 marks) Simulation based assessment will be performed by teacher with the help of following steps on Simulator or mummified body 1. Identification of Anatomical Landmarks 2. Surface Marking of Marma Points 3. Classification Knowledge based on Mamsa, Asthi, Snayu, Dhamani, Sandhi Marma 4. Clinical Significance 5. Accuracy in surface marking skill 6. Ask 2–3 short viva questions on locations, use in therapy 2) SOP for preservation of cadaver (25 marks) Students will prepare the SOP for preservation of cadaver with use of following points. -Purpose, Scope, Responsibility, Materials and Equipment, Stepwise procedure (e.g., external cleaning, embalming fluid preparation, injection method, storage), Safety Precautions, Waste Disposal and Decontamination, Documentation and Log Entry, References / Related Documents or Any practical in converted form can be taken for assessment. (25 Marks) And Any of the experiential as portfolio/ reflections/ presentation can be taken for assessment. (25 Marks)	4

Module 4 : Fundamentals of Sira, Dhamani, Srotas, Koshta, Koshtanga, Twacha, Kala and Aashaya Sharir

Module Learning Objectives
(At the end of the module, the students should be able to)

Analyze and demonstrate and evaluate the embryological concept of Mula Siras; similarity and Dissimilarity of Sira and Dhamani in modern anatomical parlance; and clinical and surgical anatomy of Srotas/Srotomula and Srotodushti/ Srotas Viddha.
Analyze, compare and demonstrate the structure, branching pattern and distribution of Siras/Dhamanis/arteries/ veins in the body. Correlate Dhamanis with arteries/nerves.
Demonstrate the concept of channels as corridors for the movement of ions and evaluate the channelopathies as obstruction in the movement of ions.
Analyze and classify the Pratyanga, Koshtha/Koshthanga and Aashaya on the basis of comprehension of their definition, Utpati, enumeration given in different Samhita.
Evaluate the role of Doshas in shaping structure of different classes of Pratyanga; the concept of Pratyanga and Koshthanga as Splanchnology in Ayurveda; and Aashayas as reservoirs/spaces for gross food, gross wastes and Garbha
Analyze and demonstrate the formation of Twacha and investigate seven layers of Twacha; and structure of Kala as separator of the tissues/organs (Dhatu/Ashaya).
Explain the applied aspects of Twacha and evaluate the concept of Kala beyond classical description.

Unit 1 Fundamentals of Sira, Dhamani, Srotsa Sharir

4.1.1. Definition, enumeration, types, classification, function and clinical application of Sira, Dhamani and Srotas
4.1.2. Sira, Dhamani and Srotas – Sadharmya and Vaidharmya with its clinical and surgical application.

References: 252,253,254,255,256,257,258,270,271,272,273,274,275,276,277,278,279,280,281,282,283,284,285,286,452,453,454,455,553,554,555,556

3A	3B	3C	3D	3E	3F	3G
CO1,CO4	Analyze the concept of Mula Siras and their origin from Nabhi in context of blood vessels. Analyze the similarity of Sira and Dhamani on the basis of concepts of Vyanjananyatavata, Mulasanniyamata, Karmavaisheshyata and Aagama. Analyze the	2	Lecture	CAN	Knows-how	FC,L,SDL

	dissimarity of Sira and Dhamani on the basis of concepts of Paraspara Sannikarshata, Sadrishagama-karmatvata, Saukshamya.					
CO1,CO4	Demonstrate the embryological considerations of Moola Sira and correlate the structural aspects of Sira and Dhamani with modern counterparts.	4	Practical Training 4.1	PSY-GUD	Shows-how	D,PER,RLE,SDL
CO1,CO4	Evaluate and Interpret the concept of Nabhi as source origin of blood vessels in embryological life.	1	Experiential-Learning 4.1	PSY-ORG	Does	Mnt,PER
CO1,CO4	Analyze the relation of Srotas and Srotomula as mentioned in Ayurvedic texts, Analyze the use of terms Srotodushti and Srotas Viddha in different classical texts and the concept that 'number of Srotas in the body is equal to as many structural entities.	3	Lecture	CAN	Knows-how	FC,L
CO1,CO4	Demonstrate the Srotas as channels of continuous interaction between Dhatus of body and its ecosystem, the Srotas Mula in relation with contemporary scientific advance anatomy and the clinical anatomy and surgical anatomy of Srotas Mula.	4	Practical Training 4.2	PSY-GUD	Shows-how	D,DIS,LS
CO1	Demonstrate the concept that every cell has channels, which connect them to the channels outside the cell.	2	Practical Training 4.3	PSY-GUD	Shows-how	D,DIS
CO1,CO4	Evaluate the uniqueness of Sira/vein.	3	Experiential-Learning 4.2	CE	Does	CBL,PBL,PrBL
CO1	Evaluate and demonstrate the transition in epithelial lining of channels of diiferent tissues.	1	Experiential-Learning 4.3	CE	Does	JC,LS
CO1,CO4	Evaluate the physiological relation between Srotas and its Mula and the different symptoms of Srotodushti and Srotas Viddha as clinical or surgical aspect.	2	Experiential-Learning 4.4	CE	Does	CBL,DIS,SDL,W
CO1	Evaluate and create the channels as unifying entity for every cell of the body.	3	Experiential-Learning 4.5	CE	Does	PrBL,TPW
CO1,CO4	Demonstrate the concept of Dhamanis through various definations mentioned in Ayurvedic text and correlate Dhamanis mentioned in Ayurvedic text with arteries of	1	Practical Training 4.4	PSY-ORG	Does	D,DSN

	contemparory advance sciences.					
CO1,CO4	Demonstrate the blood distribution in animal is in accordence with bulk of the body.	1	Practical Training 4.5	PSY-MEC	Shows-how	JC,LS
CO1	Demonstrate the concept of channels as corridors for the movement of ions.	2	Practical Training 4.6	PSY-MEC	Shows-how	LS,PER
CO1	Analyze structure of Aashaya on the basis of comprehension of their definition, Utpati, enumeration given in different Samhita.	2	Lecture	CAN	Knows-how	LS,Mnt

Unit 2 Vascular components

4.2.1. Structures of artery, vein, capillary and lymphatics with its clinical application

References: 259,260,261,262,263,264,265,266,267,268,269,549,550,551,552,553,554,555,556,557,558,559,560

3A	3B	3C	3D	3E	3F	3G
CO1,CO4	Analyze and compare the branching pattern and distribution of Siras with branching pattern and distribution of blood vessels in body. Analyze distribution of Dhamanis mentioned in Ayurvedic text with the pattern of distribution of arteries in the body also the difference in thickness of wall, diameter of lumen and musculature of arteries and veins; and their effect on distribution of blood to tissue system. Determine the Srotas as micro channels of the body.	2	Lecture	CAN	Knows-how	BL,C_L,FC,L
CO1,CO4	Demonstrate the concept of distribution of Siras from Ayurvedic and modern perspective.	1	Practical Training 4.7	PSY-MEC	Shows-how	D,EDU,KL,L&GD,PL,PBL
CO1,CO4	Assess and differentiate Sira on the basis of Dosha and study them with perspective of blood vessels.	2	Experiential-Learning 4.6	CE	Does	LS,Mnt,SDL

CO1,CO4	Assess the nervous functions through Dhamani description.	2	Experiential-Learning 4.7	CE	Does	LS,Mnt
CO1	Assess and relate the physiological and clinical significance of micro structure of different blood vessels and evaluate the channelopathies as obstruction in the movement of ions.	6	Experiential-Learning 4.8	CE	Does	LS,SDL

Unit 3 Koshtha, Koshthanga, and Aashaya Sharir

4.3.1.Introduction to Kostha, Kosthanga and Ashaya Sharir
4.3.2. Explanation of Anga- Pratyanga Vibhaga as per various Acharyas

References: 360,361,362,363,364,365,366,380,381,382,383,384,471

3A	3B	3C	3D	3E	3F	3G
CO1	Analyze and classify the Pratyanga on the basis of prominent anatomical features.	2	Lecture	CAN	Knows-how	L&PPT ,PL,SDL
CO1	Demonstrate the role of Doshas in shaping structure of different classes of Pratyanga.	3	Practical Training 4.8	PSY-MEC	Shows-how	PER
CO1	Evaluate and demonstrate the structural basis of function of Pratyanga.	3	Experiential-Learning 4.9	PSY-ADT	Does	LS,PL
CO1	Analyze the concept of Koshtha and Koshthanga as description of organs in trunk region.	2	Lecture	CAN	Knows-how	L&GD,L_ VC
CO1,CO7	Demonstrate the concept of Pratyanga and Koshthanga as Splanchnology in Ayurveda and Aashayas as reserviors/spaces for gross food, gross wastes and Garbha.	6	Practical Training 4.9	PSY-GUD	Shows-how	D
CO1	Evaluate the special importance of Koshthanga among other Pratyanga.	3	Experiential-Learning 4.10	PSY-ADT	Does	KL,PrBL

CO1	Evaluate structure of Aashayas in relation to their vulnerability to diseases.	4	Experiential-Learning 4.11	PSY-ADT	Does	CBL,ECE

Unit 4 Twak, and Kala

4.4.1. Twak, Sharir and Skin
4.4.2. Kala Sharir and its clinical application (limiting membrane /Fascia/Septa)

References: 367,368,369,370,371,372,373,374,375,376,377,378,379

3A	3B	3C	3D	3E	3F	3G
CO1	Analyze formation of Twacha in body as cream on the surface of hot milk; and investigate seven layers of Twacha and the Structure of Kala as separater of the tissues/organs (Dhatu/Ashaya) of the body.	2	Lecture	CAN	Knows-how	FC,L&PPT ,PL
CO1	Demonstrate different layers of Twacha in modern parlance.	3	Practical Training 4.10	PSY-MEC	Shows-how	D,DIS,LS
CO1	Evaluate the applied aspects of Twacha.	6	Experiential-Learning 4.12	CE	Does	CBL,IBL,Mnt
CO1	Demonstrate the Kala as concept of partition at macro as well as micro level.	3	Practical Training 4.11	PSY-MEC	Shows-how	D,PER
CO1	Evaluate the concept of Kala beyond classical description.	3	Experiential-Learning 4.13	CE	Does	LS,SDL

Practical Training Activity

Practical No	Name	Activity details
Practical Training 4.1	Concept of Nabhi and Structural parameters of	Teacher will assign the topics selectively to each student and student will prepare/demonstrate the practical work under the guidence of teacher.

	Sira and Dhamani.	1.Classroom presentation on concept of Nabhi as the origin of Mula Sira (2hr) Explore and compile the literature on description of Mula Sira as per Ayurvedic concept. Explore and compile the modern literature on formation of umbilical cord and its further association within foetal body. Demonstrate distribution of blood vessels of umbilical chord in foetal stage with the help of power point presentation. 2. Classroom Presentation on structural parameters of Sira and Dhamani (2hr) Explore Ayurvedic literature to collect structural parameters of Sira and Dhamani. Explore literature of human histology to collect parameters of artery and vein. Relate Ayurvedic and modern description. repare a presentation and discuss in the class.
Practical Training 4.2	Number and method of classification of Srotas,Srotomula,Srotodushti and Srotas Viddha Lakshana.	1. Tabulation of number and methods of classification of Srotas (2 hr) Tabulate different Srotas as mentioned in Samhita. Categorize them as; Srotas intrinsic to the body and Srotas connecting body with ecosystem. Align intrinsic Srotas in sequence of progressively advance Dhatu. Prepare an assignment and discuss in the class. 2. Demonstration of Srotomula (1hr) Explore Ayurvedic literature to collect references of Srotomula. Identify the anatomical structures in parlance on the basis of description of structures of Srotomula. Justify the comparison. Demonstrate these structures on anatomical models and cadaver. 3. Demonstration of Srotodushti and Srotoviddha Lakshana (1hr) Tabulate the signs and symptoms of different Srotas in Srotodushti and Srotoviddha. Compare both of them to understand the context. Prepare the differences and demonstrate.
Practical Training 4.3	Cellular nature of the Srotas.	Demonstrate cellular nature of the Srotas Explore and study cell structure from advance literature on cytology. Identify the channels connecting cell organelles in cytoplasm and nucleus. Observe the relation of these intra-cellular channels with extra-cellular space too. Justify the importance of this connectivity. Prepare a presentation /model and discuss.
Practical Training 4.4	Dhamanis/ arteries.	Identify and demonstrateDhamanis as arteries Demonstrate arteries on model or during time of dissection. Evaluate the significance of direction of Dhamanis/ arteries.
Practical Training 4.5	Measurement of parameters of blood vessels.	Measurement of different parameters of blood vessels Consult research articles and texts related to measurements of different parameters of blood vessels in adults and children. Evaluate the ratio of thickness and diameter of wall of blood vessels in adults as well as children. Calculate the average blood carrying capacity of largest blood vessel and smallest blood vessels. Refer to the parameters of larger and smaller blood vessels; and compare those parameters in adults and children. Prepare a document to present and discuss in class. Compare it with similar literature on other animals too.

Practical Training 4.6	Molecular basis of channels.	Power point presentation on molecular basis of channels Explore literature related to microchannels in applied anatomy. Understand various classifications of microchannels. Assess the role of structure of channels in selective permeability for movement of ions. Give power point presentation on microchannels to discuss its features.
Practical Training 4.7	Distribution of Siras / blood vessels.	Demonstration of the distribution of Siras Refer to the comparison of distribution of Siras and blood vessels. Collect the references on distribution of Sira from Ayurvedic text and distribution of blood vessels from text of scientific advances. Identify and demonstrate blood vessels on cadaver or relevant models.
Practical Training 4.8	Classification of Pratyanga.	Presentation on classification of Pratyanga on the basis of Dosha Refer to the prepared table of classification of Pratyanga. Identify the structural/ functional similarities among Pratyanga of the same classification. Propose relative dominance of Doshas in different classes of Pratyanga. Justify the role of Doshas in shaping structure of Pratyangas through power point presentation. Student will perform practical activity under the guidence of teacher on assigned topic and submit the outcome.
Practical Training 4.9	Anga/ Pratyanga and Koshtha/ Koshthanga and Aashaya.	1.Demonstrate on Anga/Pratyanga and Koshtha/Koshthanga (3hr) Explore Ayurvedic literature to collect the references related to Koshtha and Koshthanga. Tabulate Koshtha and Koshthanga as mentioned in different Ayurvedic texts. Demonstrate the difference in number and description of Koshthanga among peers. 2.Demonstrate on structural and functional importance of Ashaya (3hr) Explore Ayurvedic literature of Aashayas mentioned in Ayurvedic texts. Identify the features, location, contents and physiological importance of different Aashaya. Discuss relation of Aashaya with their contents and justify them as a special class different from Koshtha. Demonstrate the features of Aashaya on models.
Practical Training 4.10	Sructure of Twacha and skin.	Compare the structure of Twacha with skin Tabulate seven layers of Twacha depicting features and applied anatomy. Explore the structures of Twacha in modern anatomy for wider perspective. Compare various structural and applied parameters of skin and Twacha. Demonstrate the findings with power point presentation. Discuss to build a comprehensive view of Twacha. Teacher will assign the specific topic from each practical activity to the student. student will complete the assignment under the guidence of teacher.
Practical	Kala concept	Demonstration of Kala concept

Training 4.11		Tabulate seven layers of Kala depicting features and applied anatomy. Explore the structures of Kala in contemporary anatomy for wider perspective. Compare various structural and applied parameters Kala. Demonstrate the findings with power point presentation. Discuss to build a comprehensive view of Kala as concept of partition at macro as well as micro level.
Experiential learning Activity		
Experiential learning No	**Name**	**Activity details**
Experiential-Learning 4.1	Moola Sira as embryological concept.	Presentation of the concept of Moola Sira as embryological concept Refer to the distribution of blood vessels from umbilical blood vessels. Analyze the branching pattern of Sira from Nabhi with the help of Ayurvedic literature. Relate the branching pattern of blood vessels with description of Mula Siras. Interpret the usefulness of this exercise.
Experiential-Learning 4.2	Role of structure and position of Sira	Case study on defining role of structure and position of Sira Explore the modern literature on venous disorders. Identify the causes related to specific venous disorders. Select a suitable disorder and the patient suffering from that disorder from the IPD/OPD. Observe signs and symptoms of that disorder. Evaluate the role of structure and position of vein in causation of disease. Correlate the structure of vein and sira.
Experiential-Learning 4.3	Structure of channels	Exploration and evaluation of research articles on structure of channels Collect the material from texts of contemporary sciences and research articles on structure of channels. Assess the micro structure of channels in different connective tissues. Identify the similarities and dissimilarities in the structure. Assess the causes behind similarities and dissimilarities.
Experiential-Learning 4.4	Structural and functional aspects of Srotomula and Deformity of Srotas	1.Discussion on structural and functional aspects of Srotomula (1hr) Tabulate Srotomula opposite the related modern anatomical structures. Select a suitable Srotomula to discuss its functions. Assess normal functions of related modern anatomical structure. Justify that Srotomula is a structure having functional relation with Srotas. 2. Development of framework to differentiate deformity of Srotas for clinical or surgical case (1hr) Refer to the prepared table of Lakshana of Srotodushti and Srotoviddha. Select a suitable Srotomula Dushti or Viddha Lakshana. Follow atleast two patients in clinical/ surgical OPD to understand Srotodushti and Srotoviddha. Compare prevalence and causes of Srotodushti and Srotoviddha patients in OPD's. Justify their inclusion in clinical/surgical OPD/IPD
Experiential-	Aggregation of cells.	Creation of a model of human body as aggregation of cells unified by channels

Learning 4.5		Select suitable organ-system for the study. Refer to the micro-structure (histological structure) of any organ of the organ-system in terms of arrangement of cells and their inter-connections. Emphasize the importance of inter-connecting channels. Propose the extension of model in the whole organ-system and consequently all organ systems together as single large unit (the body)
Experiential-Learning 4.6	Division of Siras.	Teacher will assign seperate topic related to each activity to every student. Evaluate division of Siras Identify the regions of body dominated by specific Dosha with the help of Ayurvedic literature. Classify the blood vessels distributing those regions as Vatvaha, Pittavaha or Kaphavaha Siras. Classify the blood vessels supplying to Yakrit and Pleeha as Raktavaha Siras. Reflect on parallel views if any.
Experiential-Learning 4.7	Functions of Dhamani.	Comrehensive study of functions of Dhamani related to artery and nerve Refer to the collected literature related to position and distribution of Dhamanis. Refer to the specific functions assigned to Dhamanis. Analyze the basis of functions assigned to specific Dhamanis. Reflect on the distribution of nerves in Ayurvedic literature.
Experiential-Learning 4.8	Vulnerability of blood vessels and Mechanism of channelopathies.	1. Assessment of the relative vulnerability of blood vessels (3hr) Collect the data of structural morbidity of blood vessels from research articles and related literature. Identify the kinds of vessels that are more vulnerable to structural morbidity. Select a suitable type of blood vessel for study. Identify the specific cause behind vulnerability of vessel. Suggest means to save the vessels from structural morbidity. 2. Evaluating mechanism of channelopathies as obstruction in movement of ions (3hr) Refer to the classification of channels. Tabulate major channelopathies related to all systems of body. Identify channelopathies as genetic and acquired. Mention major disorders due to channelopathies. Select a suitable acquired channelopathy and propose its major causes.
Experiential-Learning 4.9	Physiological relevance of Pratyanga.	Teacher will assign one topic each from all listed experiential activities. Student will do the research and submit the result to teacher. Presentation on physiological relevance of Pratyanga through study of classification of Pratyanga (3hr) Select a suitable Pratyanga for the study from the table of classification of Pratyanga. Refer to the proposed dominance of Dosha in the selected Pratyanga. Assess the physiological function in accordance with associated Dosha. Justify the finding by comparing with actual function of that Pratyanga share with peers..
Experiential-Learning 4.10	Composite model of organs (Pratyanga/Koshthanga)	Prepare a composite model of organs (Pratyanga/Koshthanga) (3hr) Refer to the tabulated list of Koshthanga and Pratyanga mentioned in Charak Samhita / Sushrut Samhita. Assess the mention of Koshthanga as separate group in comparison to Pratyanga by Charak Samhita. Assess the mention of Pratyanga only by Sushrut

	.	Samhita. Compare the two and propose a composite model.
Experiential-Learning 4.11	Vulnerability of Aashaya.	Case study of vulnerability of Aashaya (4hr) Refer to the table prepared on Aashaya to further discuss direct relation of Aashayas with exterior of the body. Identify important diseases related to Aashaya by consulting Ayurvedic and modern texts. Select a suitable Aashaya for the purpose of study. Select a suitable patient with disease related to selected Aashaya from OPD/IPD. Follow the patient to understand structural accommodations in Aashaya to counter diseases.
Experiential-Learning 4.12	Application of Twacha Sharir in modern parlance.	A topic as per activity details will be assigned to each student seperately. student will submit the experience in the form of report in a format desired by teacher. Application of Twacha Sharir in modern parlance Refer to the tabulated description of Twacha and skin. Select a suitable disease of Twacha from the collected literature. Identify and observe the disease on volunteer or patient in OPD/IPD to prepare a Report. Follow the treatment regimen to understand Twacha. Further develop the concept of Twacha on the basis of modern description of skin.
Experiential-Learning 4.13	Epithelial lining as concept of Kala.	Critical evaluation of epithelial lining as concept of Kala (3hr) Collect the literature related to lining epithelial and fasciae and enlist them as Kala. Selsect a suitable Pratyanga to explore its histology. Identify spaces/channels inside the organ and epithelial lining separating those paces/channels from cells. Propose epithelial lining as Kala.

Modular Assessment

Assessment method	**Hour**
Instructions—Conduct a structured modular assessment. The assessment will be for 75 marks. Keep a structured marking pattern. Use different assessment methods in each module for the semester. Keep a record of the structured pattern used for assessment. Calculate the Modular grade point as per Table 6C. 1) OSPE (Objective Structured Practical Examination) (25 marks) Teacher will assess the Demonstration of Srotomula given by student with the help following check list. Identifies Srotomula/organ/system of origin, Points out Srotomula Sthana accurately, Refers to Samhita as a source, Uses proper terminology in explanation. 2) Practical Demonstration (25Marks) Topic - Identify and demonstrate Sira, Dhamani. Students will be asked to identify an artery on a cadaver/dissection model/chart. Students must explain its origin, course, branches, and termination accurately. 1. Identification (Visual Recognition), 2. Anatomical Course and Relation, 3. Branches & Termination, 4. Surface Marking, 5. Correlates the artery with Sira	6

description (e.g., Sira – Dhamani – Snayu differentiation) 3) Critical Reading of a Research Paper on Twacha/Kala (25 Marks) Teacher will provide 5-10 research articles to students on Twacha/Kala. Purpose of Assessment - To evaluate the student's ability to critically analyze, interpret, and discuss key concepts from classical and contemporary literature on *Twacha* (skin) or *Kala* (membranes), including correlations with modern anatomy/dermatology or histology. Use the following criteria for analysis 1. Comprehension of Paper 2. Critical Analysis 3. Correlation with Samhita References 4. Interpretation with Modern Anatomy/Histology 5. Conceptual Clarity & Use of Terminology 6. Original Thought/Reflections 7. Communication & Presentation or Any practical in converted form can be taken for assessment. (35 Marks) And Any of the experiential as portfolio/ reflections/ presentation can be taken for assessment. (40 Marks)	

Module 5 : Fundamentals of Asthi, Sandhi, Peshi, Snayu,Marma and Pramana Sharir

Module Learning Objectives
(At the end of the module, the students should be able to)

Analyze, demonstrate and evaluate the concept of Asthi, Asthi-sandhi, Peshi and Snayu mentioned in Ayurveda and modern contemporary science in terms of kinds, structure and number.
Demonstrate and evaluate the role of ligaments in stabilizing and strengthening the joints. Analyze the intimate relation of bones, joints, ligaments and muscles in movement of body.
Demonstrate the relation between structure of bones and stress exerted on the bones; and assess the common fractures, dislocations and soft tissue injuries with diagnostic tools.
Analyze and demonstrate and evaluate the general structure, important constituents and clinical/surgical perspective of Marmas of Sakthi, Bahu, Udara, Vaksha, Prishtha, Shir and Griva from description in Ayurvedic text.
Analyze and estimate Gurvadi and Paradi Guna as tools of anthropometric measurement. Analyze and evaluate the Swa-Anjali and Swa-Anguli Pramana as the means to measure volume and length parameters in human body.
Distinguish and demonstrate the use of anthropometric instruments like; anthropometric rod, sliding calipers, spreading calipers, skinfold calipers, anthropometric tape and personal scale to measure height, thickness/breadth and weight parameters.
Demonstrate the role of anthropometric landmarks. Demonstrate the techniques to measure volume of Dhatus and length of various body parts and formulate the anthropometric Standard Operating Procedure (SOP) as per scientific parameters.
Unit 4 - Illustrate the use of instruments like; photometer, hydrometer and pycnometer to measure light, density and volume; and hygrometer, thermometer and hygrothermometer in measurement of humidity and temperature.
Demonstrate and estimate the use of measurement of light, density and volume in research scenario; and effect of humidity and temperature on human body.

Unit 1 Fundamentals of Asthi, Sandhi, Peshi, Snayu sharir

5.1.1. Definition, enumeration, types, functions and applied aspects of Asthi, Sandhi, Peshi and Snayu as per ayurveda and contemporary science.

References:

86,87,88,89,98,99,100,101,102,103,104,105,106,107,108,109,110,111,112,113,114,115,116,182,183,184,185,186,187,188,189,190,191,192,236,237,238,239,240,241,242,243,244,476,477,478,479,480,531,532,533,534,535,536,537,592,593,595,596,597,598,599,600,601,602,603						
3A	**3B**	**3C**	**3D**	**3E**	**3F**	**3G**
CO4	Analyze the concept of Asthi and compare the kinds of Asthi mentioned in different Samhita.	1	Lecture	CAN	Knows-how	L_VC,PBL,REC
CO4	Demonstrate Asthi in comparison to Bones; and Ayurvedic diagnostic techniques in Asthi-sandhi Bhagna.	2	Practical Training 5.1	PSY-MEC	Shows-how	LS,PER
CO4,CO8	Demonstrate the relation between structure of bones and stress exerted on the bones; and assess the common fractures, dislocations and soft tissue injuries with diagnostic tools with the number and structure of Asthi-sandhi in context of modern anatomy.	6	Experiential-Learning 5.1	PSY-MEC	Shows-how	CBL,ECE,LS,X-Ray
CO4	Analyze concept of Asthi-sandhi in Ayurveda mentioning kinds, structure and number of Sandhis. Evaluate the role of ligaments in stablizing the joint.	1	Lecture	CAN	Knows-how	PBL,REC
CO4	Analyze the Swarupa (structure), Bheda (types) and Sankhya (number) of Peshi mentioned in Ayurveda. Analyze the intimate relation of bones, joints, ligaments and muscles in movement of body.	1	Lecture	CAN	Knows-how	L_VC,ML
CO4	Demonstrate the concept of Snayu by justifying its division and number; and concept of Peshi in relation with muscles.	2	Practical Training 5.2	PSY-MEC	Shows-how	D,DIS,LS,Mnt
CO4	Demonstrate components of co-ordinated movement in joints.	1	Practical Training 5.3	PSY-MEC	Shows-how	D,KL,PrBL
CO4	Demonstrate the structural concept of Snayu and Assess the role of Snayu in determining strength of Peshi (muscle).	4	Experiential-Learning 5.2	PSY-ORG	Does	KL,ML
CO1	Analyze the Swa-Anjali and Swa-Anguli Pramana as the means to measure volume and	1	Lecture	CAN	Knows-	BS,L&G

	length parameters in human body.				how	D
CO1	Distinguish the use of anthropometric instruments like; antropomeric rod, sliding calipers, spreading calipers, skinfold calipers, anthropometric tape and personal scale to measure height, thickness/bredth and weight parameters.	1	Lecture	CAP	Knows-how	BL,EDU

Unit 2 Fundamental of Marma Sharir

5.2.1. Definition, enumeration, classification of Marma based on Rachana, Parinama, Parimana, Shadanga and Guna
5.2.2. Marma of Sakthi.
5.2.3. Marma of Madhya Sharir.
5.2.4. Marma of Bahu.
5.2.5. Urdhvajatrugata Marma.

References: 193,194,195,196,197,198,199,200,201,202,203,204,205,206,207,208,209,210,211,212,245,246,247,248,249,250,251,604,605,606,607,608,609,610,611,612,613

3A	3B	3C	3D	3E	3F	3G
CO3	Analyze general structure of Marmas of Sakthi, Bahu, Udara, Vaksha, Prishtha, Shir and Griva from description in Ayurvedic text.	7	Lecture	CAN	Knows-how	L&GD,PL,REC,SDL,TUT
CO3	Demonstrate the important anatomical constituents of Marmas of Sakthi, Madhya Sharir, Bahu and Urdhvajatrugata regions and relative importance of constituent structures of Marmas in different regions of body.	10	Practical Training 5.4	PSY-MEC	Shows-how	D-M,DIS,GBL,PER
CO3	Validate the clinical/surgical importance of structural classification of Marma and evaluate clinical/surgical perspective of Marmas of Sakthi, Madhya Sharir, Bahu and Urdhvajatrugata regions.	10	Experiential-Learning 5.3	CE	Does	LS,PL,SIM

Unit 3 Fundamental of Pramana Sharir

5.3.1. Qualitative measurements : Consideration of Gurvadi and Paradi guna in Pramana Sharir to understand body measurements.
5.3.2. Quantitative measurements : Anjali and Anguli Pramana as standard scales of volumetric and linear measurement.
5.3.3. Anthropometric measurement Instruments, procedures and uses. (Like- vernier calliper, etc.)

References: 26,27,28,29,30,31,32,216,217,218,219,220,221,222,223,224,225,226,227,228,456,457,458,459,460,513,514,515,516,517,518,519,520,521,522,523,524,525,624

3A	3B	3C	3D	3E	3F	3G
CO1	Analyze Gurvadi and Paradi Guna as tools of anthropometric measurement.	1	Lecture	CAN	Knows-how	EDU,L&GD,TUT
CO1	Demonstrate the scope of Gurvadi and Paradi Gunas in anthropometry.	3	Practical Training 5.5	PSY-GUD	Shows-how	D-M,Mnt,PBL
CO1,CO9	Estimate the Measurement of qualitative Gurvadi Guna quantitatively and Swa-angul Pramana.Formulate the anthropometric Standard Operating Procedure (SOP) as per scientific parameters for anthropometric measurement.	9	Experiential-Learning 5.4	PSY-ORG	Does	Mnt,PT,PrBL,TPW,W
CO1	Demonstrate the techniques to measure volume of Dhatus and length of various body parts.	2	Practical Training 5.6	PSY-GUD	Shows-how	JC,LS,Mnt
CO1	Demonstrate the role of anthropometric landmarks.	2	Practical Training 5.7	PSY-GUD	Shows-how	D,PT

Unit 4 Measurement of environmental component

5.4.1.Density and light - instruments, procedures and uses.
5.4.2. Humidity and temperature instruments, procedures and uses.

References: 229,230,231,232,233,234,235,526,527,528,529,530

3A	3B	3C	3D	3E	3F	3G

CO1,CO9	Illustrate the use of instruments like; photometer, hydrometer and pycnometer to measure light, density and volume.	1	Lecture	CK	Know	BL,C_L,L&GD,PAL
CO1	Demonstrate the use of measurement of light, density and volume in research scenario.	4	Practical Training 5.8	PSY-MEC	Shows-how	DL,DIS,L&PPT ,L_VC,LS,PBL,RLE,TPW
CO1,CO9	Display parlance between life cycle of human body and diurnal cycle; and relate the role of Sunlight in forming different climates.	5	Experiential-Learning 5.5	PSY-ORG	Does	PER,RLE
CO1,CO9	Illustrate the use of instruments like; hygrometer, thermometer and hygrothermometer in measurement of humidity and temperature.	1	Lecture	CK	Know	BL,C_L,L&GD
CO1	Demonstrate the role of humidity and temperature on human body.	4	Practical Training 5.9	PSY-MEC	Shows-how	D,PT,W
CO1,CO9	Measure the role of humidity and temperature in identification of climate on different times of a day.	5	Experiential-Learning 5.6	PSY-ORG	Does	Mnt,RLE,TBL

Practical Training Activity

Practical No	Name	Activity details
Practical Training 5.1	Concept of Asthi, Asthi Sandhis.	Teacher will guide the execution of each practical activity separately to each student on any component of the activity for presentation in the class. 1. Presentation on concept of Asthi in relation to bones (1hr) Refer to the prepared table of Asthi on numbers. Prepare a table of bones mentioned in modern anatomy. Compare the two tables and identify the excess Asthis mentioned in Ayurveda. Justify the concept of Asthi in relation to bones. Assess the structural and functional causes of difference in number of Asthi and bone. Prepare a presentation for discussion in class. 2. Presentation on Asthi-sandhi mentioned in Ayurveda and modern anatomy (1hr)

		Explore the literature to tabulate Asthi-sandhi mentioned in Ayurveda and mark them on the skeleton. Likewise make a table of bony joints from the description in modern anatomy. Compare the two and evaluate similarities/ dissimilarity in number and concept. Prepare a presentation for discussion in class.
Practical Training 5.2	Antagonism in attachments of muscles and ligaments.	Model/video preparation demonstrating the antagonism in attachments of muscles and ligaments in specific joint Select a suitable large joint. Identify important landmarks of bones, muscles and ligaments around it. Evaluate their application in relation to movement.co-ordinated movement of the body where; bone is the moving structure, muscle is cause of movement, ligaments is restrictor of the movement and joint is place of movement. Present with model /Video preparation antagonism in attachments of muscles and ligaments.
Practical Training 5.3	Concept of Snayu, Peshi.	1. Panel discussion on concept of Snayu (1hr) Tabulate categories of ligaments with the help of Ayurvedic text and research papers. Identify the location of 900 Snayu mentioned in ayurvedic text.Compare Ayurvedic description with available literature from modern anatomy. Expand the concept of Snayu in current scenario. Prepare group of 4 to 5 students and conduct the panel discussion and ask them to place opinion in the discussion. 2. Demonstration of the concept of Peshi by comparing with muscles (1hr) Explore the literature to collect and enlist Peshis and corresponding muscle groups. Compare the two in terms of number, structure and location of muscles. Enrich the description of Peshis in light of knowledge of muscles. Prepare an assignment for group discussion.
Practical Training 5.4	Shakha bheda Marmas and Structural classification	Students will perform practical activities under guidence of teacher on specific topic assigned from listed practical activities. 1. Demonstration of Marmas on the basis of structural classification (2hr) Tabulate Marmas in primary five categories on the basis of structural classification. Analyze the importance of each of those five structures in case of trauma. Justify and discuss the mention of only five categories in classification on the basis of structure. 2. Class room presentation on the structures of Sakthi region Marma (2hr) Refer to the description of Marmas of Sakthi region. Consult the literature to identify Muscles/organs, blood vessels, Fasciae, bones and articulations/networks in the region of Sakthi Marma. Consult the literature on injuries related to Sakthi region from books on trauma and research papers. Identify the most important anatomical structure in terms of susceptibility to injuries. Present the findings in the class. 3. Class room presentation on structures corresponding to marma of Madhya Sharir (2hr) Refer to description of Marmas of Madhya Sharir. Consult the literature to identify Siras (blood vessels), Snayu (fasciae), Maans (organs/muscles), Asthi (bones), Sandhi (bony joints/networks of vessels and nerves). Consult literature on injuries related to Madhya Sharir from description in books and research article on trauma. Identify most important structures in terms of susceptibility to injuries. Discuss the results with the help of power point presentation.

		4. Group discussion on structures of Marmas of bahu region (2hr) Refer to the description of Marmas of Bahu region. Consult the literature to identify organs/muscles/ blood vessels, fasciae, bones and bone articulations/networks in the Bahu region. Explore the literature to collect references related to injuries of Bahu. Identify most important structures in terms of susceptibility to injury. Evaluate the results in group discussion. 5. Group discussion in the class on Urdhvajatrugata Marmas (2hr) Refer to the description of urdhvajatrugata Marma. Consult the literature to identify muscles/organs, blood vessels, fasciae, bones and bony articulations/networks in urdhvajatrugata region. Consult the literature on injuries of head region from books on trauma and relevant research papers. Identify the most important anatomical structures in terms of susceptibility to injuries. Present the opinion in a group discussion in the class.
Practical Training 5.5	Anthropometrical aspect of Gurvadi and Paradi Gunas.	Discussion on Anthropometric aspects of Gurvadi and Paradi Gunas Explore Ayurvedic text to collect references of 20 Gurvadi and 10 Paradi Gunas. list other Gunas apart from them too. Interpret these Gunas to nearest modern terminology used in contemporary science. Enlist different instruments/techniques to measure these Gunas. Discuss protocols of usage in few selected instruments. Students will perform each pratical activity as assigned under the guidence of teacher.
Practical Training 5.6	Measurement of lengths and volume of body parts.	Journal club on the techniques to measure lengths and volume of body parts Explore Ayurvedic text to collect references on Anguli and Anjali Pramana. Make a region wise list of body measurements in Angula with the help of references. Make list of Dhatvadi Pramana in Anjali. Discuss any one research paper each on Angula and Anjali Pramana in the journal club.
Practical Training 5.7	Anthropometric landmarks in linear accurate measurement.	Discussion on the role of anthropometric landmarks in linear accurate measurement of various body parts Explore the literature on anthropometry. Prepare a region wise list of anthropometric landmarks of body. Discuss the importance of anthropometric landmarks in accurate measurement. Discuss with the help of power point presentation.
Practical Training 5.8	Instruments to measure light, density and volume.	Demonstration of the use of instruments to measure light, density and volume Explore the literature to identify different conditions/scenarios where light, density and volume can be measured to study consequent effect on the body. Make a list of those scenarios along with instrument/instruments to be used for measurement. Demonstrate the use of instruments; to measure the intensity of light using a photometer; Measure volume and density of solid object by using pycnometer; and measure density of liquids by using hydrometer. Student will learn to operate all listed instruments under guidence of expert.
Practical Training 5.9	Instruments to measure humidity and	Demonstration of the use of instruments to measure humidity and temperature Identify the research/clinical scenarios where measurement of atmospheric humidity and temperature is required. Identify the

	temperature.	appropriate instrument for measurement of atmospheric humidity and temperature like; hygrometer, thermometer or thermohygrometer. Demonstrate the use of instruments for measurement of humidity and temperature.
Experiential learning Activity		
Experiential learning No	**Name**	**Activity details**
Experiential-Learning 5.1	Clinical application of structure of Asthi, Asthi- sandhi and diagnostic tool	Students will work on the specific topics assigned by teacher on each activity and submit the result to teacher. 1. Case study on structure of Asthi (bone) in Asthi-bhagna (2hr) Collect the references of Asthibhagna from Ayurvedic literature to identify unique features for diagnosis of the Asthibhagna. Compare features of Asthibhagna mentioned in Ayurveda and modern anatomy. Select at least five suitable cases of different type of Asthibhagna (fracture of bones) from OPD/IPD. Follow the cases to understand causes, diagnosis and diagnostic techniques. Justify the importance of bone structure in causation of Asthibhagna by identifying vulnerable areas. 2. Case study of Asthi-sandhi Bhagna with the help of x-ray (2hr) Classify and tabulate kinds of Bhagna in bony joints. Assess and compare the diagnostic methods and techniques in Bhagna of joints with the help of Ayurvedic and modern literature and research articles. Select five suitable cases of Asthi-sandhi Bhagna from OPD/IPD with x-ray. Follow the cases to observe the features of diagnosis mentioned in Ayurvedic text. Evaluate the results. 3.Assessment of injuries related to bones, joints and ligaments (2hr) Select at least 5 cases of common injuries related to bones, joints, ligaments and muscles in OPD/IPD of hospital. Figure out and interpret the injuries with the help of CT, X-ray and MRI from the patient's record.
Experiential-Learning 5.2	Snayu (Ligaments)injury, range of movement and strength of muscle	1.Assessment of role of ligaments in defining limitations range of movement (2hr) Select at least two joints of the body. Explore the literature related to ligaments of those joints from books on arthrology and research papers. Analyze structure, function and attachments of ligaments in formation of joint. Predict the permissible range and direction of the movement at those joints. Endorse the prediction by comparing with actual range and direction of movement. 2. Assessment of connective tissue/muscle interface in defining strength of muscle (2hr) Explore the literature to categorize the structures/features responsible for strength of a muscle and identify the close relation of muscular fascia with muscles. Select a suitable muscle group and study all attachments (bony, fascial) of muscles. Evaluate the role of muscular fascia in strengthening muscle apart from other factors. Observe the results and reflect on it.
Experiential-Learning 5.3	Structural classification of Marma and	Teacher will assign one topic from each of the listed activity. student will explore on the topic and share the results/experience in the class.

	Cliinical/surgical importance of Marma.	1. Validation of structural classification of Marma (2hr) Select at least one Marma from; Maansa, Sira, Snayu, Asthi or Sandhi Marmas. Assess broader importance of Maansa, Sira, Snayu, Asthi or Sandhi in the context of that Marma. Validate the classification of that Marma on the basis of structure in relation with scientific advancement. 2. Assess clinical/surgical importance of Marmas of Sakth region (2hr) Select a suitable Marma of Sakthi region for observational study. Collect detailed references of injury to the selected Marma. Study injury with variety of perspectives like; intensity of trauma, difficulties in carrying out management. Further extend the knowledge of Marma. 3. Observational study of clinical/surgical importance of marmas of Madhya Sharir (2hr) Select a suitable Marma of Madhya Sharir for observational study. Explore the modern literature to collect references related to injury of the Marma. Assess the injuries from perspective of extent of injury and difficulty in management. 4. Observational study of injuries of Bahu region Marma from perspective of intensity and management (2hr) Select a suitable Marma of Bahu region for observational study. Collect references related to injuries of selected Marma from books of trauma or research papers. Study injuries from perspective of intensity and management. Enhance the knowledge of Marma. 5. Assess clinical/surgical importance of Urdhvajatrugata Marma (2hr) Select a suitable Urdhvajatrugata Marma for observational study. Collect detailed references of injuries related to selected Marma. Study injuries from the perspective of extent and management. Further enhance the knowledge of Marma.
Experiential-Learning 5.4	Measurement of Gurvadi Gunas. Measurement of swa -Angul Pramana. Standard Operating Procedure (SOP) for anthropometric measurement.	Teacher will assign a seperate topic from each experiential activity to every student. student will submit the report to teacher for presentation and discussion in class. 1. Measurement of Gurvadi Guna (3hr) Select a suitable Gurvadi/Paradi Guna for observational study. Few examples are; Skin parameters like skin moisture, oiliness, thickness, colour etc. with the help of appropriate instruments orparameters for measuring levels of pain, stress with the help of different scales. Measure the selected Guna on qualitative scale as well as quantitative scale on at least ten volunteers. Match the qualitative and quantitative results. 2. Measurement of Swa-angul Pramana (3hr) Refer to the literature collected on Angul Pramana. Select at least two suitable parts of the body from the list. Measure length of the selected body parts on atleast five volunteers in Swa-angul Pramana and centimeter scale. Compare the two measurements and discuss the results. 3. Preparation of Standard Operating Procedure (SOP) for antropometric measurements (3hr) Select a region of the body to measure length/breadth/girth with consideration of anthropometric points. Select the appropriate

		anthropometric instrument for measurement. Select at least five suitable volunteers for measurement of selected body part. Record the procedure in a stepwise manner by taking precautions for accurate measurement to develop SOP.
Experiential-Learning 5.5	Measurement of variability in humidity and temperature.	Variability in humidity and temperature in different times of the day Refer to the list of different case scenarios to select a case scenario where measurement of humidity and temperature is required. Select the suitable and appropriate instrument/instruments to measure humidity and temperature. Measure the Humidity at different times in a day for few days. Evaluate the variability in humidity and temperature at different times on a day. Discuss and reflect on the results.
Experiential-Learning 5.6	Measurment of intensity of light.	Measurement of intensity of light on different times of the day Refer to the list of different case scenarios to select a case scenario for measurement of Sunlight. Measure of intensity of light with the help of Photometer/pyranometer following appropriate procedure. Measure intensity of light on different times during a day. Compare and assess the variation in intensity of sunlight during different different times in a day. Discuss the results in relation to climatic conditions in perspective of research in Ayurveda. Teacher will assign specific topic to each student from every listed experiential activity. student will submi the results for presentation in class.

Modular Assessment

Assessment method	**Hour**
Instructions—Conduct a structured modular assessment. The assessment will be for 75 marks. Keep a structured marking pattern. Use different assessment methods in each module for the semester. Keep a record of the structured pattern used for assessment. Calculate the Modular grade point as per Table 6C. 1) Model-Making on Asthi, Sandhi,Snayu,peshi and Asthi Bhagna (25marks) Student will prepare the 3D model on any of above topics. Assessment will be done on the basis of following points 1)Accuracy of Structures 2) Anatomical and Ayurvedic Labelling 3) Innovation & Creativity, 4) Functional Explanation, 5) Correlation with Textual References, 6) Teamwork/ Individual Effort Provide feedback to help them understand practical significance (especially clinical or surgical relevance 2) Quiz (25marks) Teacher will conduct Quiz using traditional method or any online platform. Evaluation & Feedback Finalise the scores and analyze which Marma concepts were well understood and which need reinforcement. Give personalized or group feedback to the students based on responses. 3) Log book (25marks)	6

Teacher will use the log book as Criteria for assessment of qualitative and quantitative measurements in Ayurveda and use of modern scales of measurements with help of following checklist Regularity- all Entries are made on time, Completeness-All columns are filled appropriately, Understanding of Concepts-Accurate use of Ayurvedic and modern scales, Reflective Thinking-Shows interpretation Entries are signed or verified or Any practical in converted form can be taken for assessment. (40 Marks) and Any of the experiential as portfolio/ reflections/ presentation can be taken for assessment. (30 Marks)	

Module 6 : Fundamentals of Indriya Sharir; Tantra Sharir; and pathological, prognostic and comparative anatomy.

Module Learning Objectives
(At the end of the module, the students should be able to)

Evaluate Indriya Sharir on the basis Panchamahabhutic Sanghatana; mutual importance of Indriya and Indriya-adhishthana in performing normal function; importance of Gyanendriya-buddhi in sensory perceptions; and anatomical basis of Shadchakra and clinical use of concept of Kundalini.
Analyze and demonstrate concept of Indriya Pancha-panchak; and concept of Shadchakra and Kundalini in Ayurveda and current scientific advances.
Describe and demonstrate Vikrit Sharir (pathological anatomy); Vikretaha Sharir (symptoms associated with pathological anatomy); and Vikrit Vyadhi Sharir.
Analyze similarity and dissimilarity between symptoms and signs; and Demonstrate the variability in intensity of signs/symptoms during progression of disease.
Analyze Purvarupa of disease as the primary pathological morphology in a disease.
Analyze, demonstrate and evaluate reversible, irreversible and chronic cell injury leading to cellular adaptation and growth disturbances in response to environment.
Analyze Arishta Vigyan (science of prognosis) in Ayurveda. Explore, categorize and predict various prognostic models in different disease conditions and analyse the role of accurate knowledge of anatomy in predicting a prognosis.
Describe fundamentals of comparative anatomy and evaluate their applications in Ayurveda and contemporary sciences; and development of human embryo in comparison to other vertebrates.
Enlist and compare various structures constituting animal body and describe common basis of development of organ-systems in different animal species. Demonstrate molecular basis of comparative anatomy and its utility in understanding human anatomy; and contribution of habits/ habitat in formation and development of an organ/ organ-system.
Evaluate adaptability of animals to their environment in relation to development of their body. Evaluate and identify scientific basis of physiognomy.

Unit 1 Fundamentals of Indriya; Tantra Sharir

6.1.1. Indriya Panchapanchak – inter-relation between Panchagyanendriya and Panchakarmendriya and its modern relevance.
6.1.2. Shadchakra – anatomical relations and applications.
6.1.3. Kundalini - anatomical considerations.

References: 410,411,412,413,414,415,416,417,418,419,420,421,422,423,424,425,426,448,449,450,451,538,539,540,541,542,543,544,545,546,547,548,614,615,616,617

3A	3B	3C	3D	3E	3F	3G
CO5	Analyze concept of Indriya Pancha-panchak, the anatomical position of Gyanendriya in relation to Gyanendriya Adhishthana with respect to Ashrayi-Ashraya Bhava,the relation between Gynendriya and Gyanendriya-buddhi.	4	Lecture	CAN	Knows-how	L&PPT ,SDL,TUT
CO5	Demonstrate the concept of Indriya Panchapanchaka.	2	Practical Training 6.1	PSY-MEC	Shows-how	DIS,EDU, KL,LS,PBL
CO5	Evaluate Indriya Sharir on the basis Panchamahabhutic Sanghatana. Evaluate mutual importance of Indriya and Indriya-adhishthana in performing normal function. Evaluate importance of Gyanendriya-buddhi in sensory perceptions. Evaluate anatomical basis of Shadchakra and clinical use of concept of Kundalini.	10	Experiential-Learning 6.1	CE	Does	CBL,DIS, RLE
CO5	Distinguish between Gyanendriya and Gyanendriya-adhishthana; and Gyanendriya and Gyanendriya-buddhi.	2	Practical Training 6.2	PSY-MEC	Shows-how	LS
CO5	Identify and demonstrate the Shadchakra in terms of current scientific advances and the anatomical basis of Kundalini.	4	Practical Training 6.3	PSY-MEC	Shows-how	D
CO5	Analyze the concept of Shadchakra and Kundalini.	1	Lecture	CC	Knows-how	DIS,L

Unit 2 Vaikrit, Vikretah and Vikrit Vyadhi Vigyaniya Sharir

6.2.1. Prakrit and Vaikrit Sharir The normal and observed pathological morphology of body. Vikretah Vigyaniya Sharir the morbid symptoms.
6.2.2. Vikrit Vyadhi Vigyaniya Sharir - Anatomical signs and symptoms of disease.

References: 128,129,130,131,132,133,134,135,136,565,566,567,568,569,570,571,572,573,574

3A	3B	3C	3D	3E	3F	3G
CO1	Describe Vikrit Sharir (pathological anatomy) in relation to Prakrit Sharir (normal anatomy) in Ayurveda.	1	Lecture	CC	Know	L&GD,TUT
CO1	Demonstrate the Vikriti is deviation of Prakriti from normality; and it is individual specific.	2	Practical Training 6.4	PSY-GUD	Shows-how	D,PER
CO1	Differentiate between Prakrit and Vikrit anatomical features.	1	Experiential-Learning 6.2	CAN	Knows-how	CBL,DIS,PL
CO1	Describe Vikretaha Sharir (symptoms associated with pathological anatomy) in Ayurvedic literature. Discuss the tell-tale symptoms presented by patient in support of pathology.	2	Lecture	CC	Knows-how	L&GD
CO1	Describe Vikrit Vyadhi Sharir on the basis Ayurvedic literature.	2	Lecture	CC	Knows-how	L&GD,TUT
CO1	Differentiate symptoms from signs; and understand symptoms as resultant of underlying pathological anatomy.	3	Practical Training 6.5	PSY-GUD	Shows-how	D,IBL
CO1	Demonstrate the variability in intensity of signs/symptoms during progression of disease with protocol.	3	Practical Training 6.6	PSY-ORG	Does	CBL,D-BED
CO1	Evaluate the interdependence of signs and symptoms in a disease.	3	Experiential-Learning 6.3	CE	Does	CBL,SIM
CO1	Estimate the Purvarupa of disease as the primary pathological morphology in a disease.	6	Experiential-Learning 6.4	PSY-ORG	Does	ECE,KL,PrBL

Unit 3 Pathological and prognostic anatomy

6.3.1. Cellular basis of Morbid Anatomy/pathological morphology
6.3.2. Arishta Vigyaniya Sharir Predictive and Prognostic Anatomy.

References: 117,118,119,120,121,122,123,124,125,126,127,575,576,577,578,579,580,581,582,583,584,585,586,587,588,618,619,620,621

3A	3B	3C	3D	3E	3F	3G
CO1	Analyze reversible, irreversible and chronic cell injury leading to cellular adaptation and growth disturbances in response to environment.	1	Lecture	CAN	Knows-how	L&PPT ,SDL
CO1	Demonstrate the growth patterns of cells in response to cell injury.	2	Practical Training 6.7	PSY-GUD	Shows-how	DIS
CO1	Evaluate factors that decide fate of cell after injury.	4	Experiential-Learning 6.5	CE	Does	DIS,LS,PL
CO1	Analyze Arishta Vigyan (science of prognosis) in Ayurveda. Explore and categorize prognostic models in different disease conditions and analyse the role of accurate knowledge of anatomy in predicting a prognosis.	1	Lecture	CAN	Knows-how	BS,L&GD
CO1	Elaborate the relation between severity of symptoms and prognosis.	4	Practical Training 6.8	PSY-GUD	Shows-how	DIS,IBL, PAL
CO1,CO9	Predict the prognosis on the basis of pathological morphology.	5	Experiential-Learning 6.6	PSY-ORG	Does	CBL,RLE

Unit 4 Comparative anatomy

6.4.1. Anatomical similarities and dissimilarities in different animals; and role of environment in shaping them.
6.4.2. Human embryo in relation to other vertebrates.
6.4.3. Human skin and appendages in relation to other vertebrates.
6.4.4. Human organ-systems/organs in relation to other vertebrates.

6.4.5. Philosophical and molecular basis of comparative anatomy.

References: 140,141,142,143,144,145,146,147,148,149,150,151,152,153,154,155,156,157,158,159,160,161,162,163,164,165,166,167,168,169,170,171,172,173,174,175,176,177,17

3A	3B	3C	3D	3E	3F	3G
CO1,CO2	Describe fundamentals of comparative anatomy in Ayurveda and contemporary sciences; and development of human embryo in comparison to other vertebrates.	1	Lecture	CC	Know	L&GD,L &PPT ,PE R,PBL,S DL,TUT
CO1	Demonstrate the utility of comparative anatomy in understanding human anatomy.	1	Practical Training 6.9	PSY-MEC	Shows-how	D,EDU,G BL,KL,SI M
CO1,CO9	Evaluate adaptability of animals to their environment in relation to body develpoment.	2	Experiential-Learning 6.7	CE	Does	PER,SDL
CO1	Compare and enlist various structures constituting skin and skin appendeges in humans and other animal species; and describe common basis of development of organ-systems in different animal species.	1	Lecture	CC	Know	L&GD
CO1	Describe the application of comparative anatomy in medical science with special emphasis on evolution.	1	Lecture	CC	Know	L&PPT ,Mnt
CO1	Identify and demonstrate the difference in structure of embryos at various stages of development in different animals.	1	Practical Training 6.10	PSY-GUD	Shows-how	D,EDU,P ER
CO1	Demonstrate the contribution of habits/ habitat in formation of skin/skin appendages in different animal species.	2	Practical Training 6.11	PSY-GUD	Shows-how	D,DIS
CO1	Demonstrate the development of an organ-system/organ as continuous evolution process.	2	Practical Training 6.12	PSY-GUD	Shows-how	DL,DIS,L S,PER

CO1,CO9	Demonstrate the molecular basis of comparative anatomy.	2	Practical Training 6.13	PSY-GUD	Shows-how	D,LS,W
CO1,CO2	Evaluate structural difference in organs, as adaptations in response to environmental conditions.	2	Experiential-Learning 6.8	CE	Does	DIS,LS,SDL
CO1	Evaluate habits/habitat of animal species by observation of their skin/skin appendages.	2	Experiential-Learning 6.9	CE	Does	PAL,PER
CO1	Evaluate and identify scientific basis of physiognomy.	2	Experiential-Learning 6.10	CE	Does	DIS,PL
CO1	Evaluate and Deduce philosophical basis of evolution through Ayurveda.	2	Experiential-Learning 6.11	CE	Does	LS,SDL,TBL

Practical Training Activity

Practical No	Name	Activity details
Practical Training 6.1	Indriya Panchapanchaka.	Teacher will seperately assign one practical from each of the list practical activities. student will perform practical under guidence of teacher. Discussion on the Indriya Panchapanchak in modern anatomical parlance Explore the Ayurvedic text to prepare a list of Indriya Panchapanchaka. Define and understand all 25 components of Indriya Panchapanchaka. Identify the similar anatomical concept in modern sciences. Assess Indriya Panchapanchaka with the help of modern literature. Enhance the concept of Indriya Panchapanchaka. Discuss with the help of power point presentation.
Practical Training 6.2	Panchagyanendriya, Gyanendriya-adhishthana and Gyanendriya- buddhi	1.Demonstration on position of Panchagyanendriya in Gyanendriya Adhishthana (1hr) Explore the literature on gross anatomy of five sense organs. Study micro-anatomy to identify primary sensory areas located in sense organs. Compare primary sensory areas with Gyanendriya and sense organs with Gynendiya-adhishthana. Demonstrate primary sensory areas on a model. 2. Demonstrate the relation between Gyanendriya and Gyanendriya Buddhi (1hr) Refer to the gross and micro-anatomy of Gyanendriya (sense organs). Explore the course of sensory nerves to identify the

		corresponding sensory areas in the brain. Understand the nuclei related to sensory nerve in the brain as Gyanendriya-buddhi. Demonstrate the relevant nuclei of brain on a model.
Practical Training 6.3	Anatomical correlation of Shadchakra and formation of Kundalini.	1.Demonstrate anatomical correlates of Shadchakra (2hr) Refer to the description of Shadchakra from the literature to make a list of important features of each Chakra. Identify location of Chakras on the basis of structural and functional description. Refer to the anatomical structure matching the description of Chakras. Compare description of Chakra with modern anatomical description. Demonstrate Chakra with the help of chart / model 2.Demonstrate structures involved in formation of Kundalini (2hr) Refer to the description of Shadchakra from the literature to make a list of important features of each Chakra. Identify location of Chakras on the basis of structural and functional description. Refer to the anatomical structure matching the description of Chakras. Compare description of Chakra with modern anatomical description. Demonstrate Chakra with the help of chart / model
Practical Training 6.4	Vikriti as deviation of Prakriti.	Demonstration on the concept of Vikriti as deviation from Prakriti Categorize the anatomical traits mentioned about Prakriti from description in Ayurvedic literature. Categorize the similar traits of Vikriti opposite them to make a chart. Compare the normal and abnormal anatomical traits to understand Vikriti. Justify that Vikriti is individual specific like Prakriti with the help of power point presentation.
Practical Training 6.5	Role of symptoms in assessment of pathological anatomy.	Discussion on role of symptoms in assessment of pathological anatomy Refer to the prepared list of Prakriti and Vikriti to select few traits of morbid physiology (symptoms). Identify corresponding symptoms in modern pathology. Assess the pathological anatomy behind the symptoms. Discuss the prognosis in relation to pathological anatomy. Justify the findings with the help of power point presentation.
Practical Training 6.6	protocol on prognosis of a disease.	Preparation of protocol on prognosis of disease Select a suitable disease and related patient from OPD/IPD. Tabulate Purvarupa (premonitory symptoms) and Rupa (sign and symptoms) of the disease. Carefully study the inter-relation of signs and symptoms. Follow the disease over a period of time while observing signs and symptoms. Propose a prognosis on the basis of severity of signs/symptoms of disease. Prepare protocol to propose the finding.
Practical Training 6.7	Mechanism of growth disturbences.	Assessment of mechanism of growth disturbances in the cell by evaluation of acute and chronic inflammation with their chemical mediators Discuss cell regeneration and repair as resultant of reversible cell injury. Discuss cell death as resultant of irreversible cell injury. Discuss cell adaptations as resultant of chronic cell injury. Tabulate the findings for a power point presentation. Student will be assigned specific topic from each of the listed practical activity to be performed under the guidence of teacher.

Practical Training 6.8	Relation of severity of pathological morphology with prognosis.	Discussion on assessment of the relation of severity of pathological morphology with prognosis Select suitable disease for the study of prognosis. Carefully study the pathological morphology of disease from the literature. Relate severity of pathological morphology to relatively bad prognosis. Deduce prognosis at various stages of progression of disease. Discuss the findings in group discussion with peers.
Practical Training 6.9	Methodology of study in comparative anatomy.	Demonstration on methodology of study in comparative anatomy Categorize various branches of comparative anatomy. Explore references on comparative anatomy particularly in vertebrates. Select a suitable branch of comparative anatomy to discuss methodology of comparative anatomy. Assess the utility of comparative anatomy. conclude the findings and place the opinions. Teacher will assign and guide the specific topics to students from each of the listed activities.
Practical Training 6.10	Stages of development in human embryo in comparison with other vertebrates.	Class room presentation on various stages of development in human embryo in comparison with other vertebrates Prepare a power point presentation to place the opinions. Select important stages of development in human embryo. Compare selected stages of development with other vertebrates. Identify and record the differences in course of development. Discuss the causes of difference with the help of power point presentation.
Practical Training 6.11	Skin and skin-derivatives among different animal species.	Discussion on skin and skin derivatives among different animal species Refer to the prepared list of structures constituting skin and skin appendages. Find and record differences in the structure of skin/skin appendages among different animal species. Relate the development of specific structures of skin with habits/habitats of animal species. Analyze the role of habits/habitat in development of skin/skin appendages. Discuss the findings in a group discussion with peers.
Practical Training 6.12	Comparative anatomy of an organ-system/organ in humans.	Presentation and discussion on comparative anatomy of an organ-system/organ in humans Refer to structural components of the organ-system/organ. (say respiratory system). Consult literature on the comparative anatomy of that organ-system/organ of the system. Deduce and discuss various stages of development of that organ-system/organ. Compile the findings and present with the help of power point presentation in classroom.
Practical Training 6.13	Comparative genomics.	Preparation of and demonstration of assignment on comparative genomics Explore literature on comparative genomics. Identify the similarity in genes and gene sequences in different organisms closely related to humans. Assess implication of similarity in genes and gene sequences. Prepare an assignment and discuss their application in modern medical science with peers in class room.
Experiential learning Activity		

Experiential learning No	Name	Activity details
Experiential-Learning 6.1	Panchagyanendriya and Panchamahabhuta relation. Panchagyanendriya. Gyanendriya-buddhi. Shadchakra. Kundalini.	Teacher will assign topic from each experiential activity to every student. student will submit the result in class for presentation. 1. Group discussion on relation of Panchagyanendriya and Panchamahabhuta (2hr) Refer to the prepared list of Panchapanchaka and relate Panchagyanendriya with corresponding Panchamahabhuta (Dravya). Assess mutual relation of Gyanendriya from subtle to gross and discuss successive evolution of Panchagyanendriya. Enroll at least five cases to assess dominance of any one or codominance of more Mahabhutas in Gyanendriya. Assess the dominance of Gyanendriya from the result to present opinion in group discussion. 2. Presentation on clinical application of Panchagyanendriya (2Hr) Select a suitable Gyanendriya/Gyanendriya-adhishthana. Explore the literature on injuries related to selected Gyanendriya. Classify and tabulate them as injuries of Gyanendriya or Gyanendriya-adhishthana along with impact on function. Emphasize mutual importance of Indriya as well as Indriya-adhishthana in maintenance of normal function. Present the findings in the class room. 3. Discussion on clinical importance of Gyanendriya Buddhi (2hr) Refer to the collected literature on sense organs, primary sensory areas of sense organs and nuclei related to sensory organs in the brain. Explore and collect few cases of brain injury causing loss of sensory perception. Discuss loss of sensory perception in the presence of normal healthy sense organ. Emphasize on separate entity of Gyanendriya-buddhi. 4. discussion on clinical application of Shadchakra (2hr) Refer to the list of Shadchakras. Select a suitable Chakra to review its anatomical description and normal functions. Select at least three suitable volunteer from Yoga OPD/classes and follow the procedure for awakening of that Chakra. Discuss results to evaluate anatomical basis of Chakra. 5. Discussion on clinical application of Kundalini (2hr) Review prepared literature on Kundalini. Select suitable volunteers from Yoga classes/OPD. Observe/follow the procedure of Kundalini awakening mentioned in Yoga text. Observe and discuss the result after practicing Kundalini awakening and assess the clinical use.
Experiential-Learning 6.2	Extent of pathology and prognosis.	Teacher will assign selective topics from each of the listed activity to every student. student will submit the result for presentation and discussion in class. Group discussion on relation of extent of pathology and prognosis Refer to the prepared list of comparison between Prakriti and Vikriti. Select suitable Vikriti (sign) from the list with clear anatomical feature. Select relevant Patients in OPD/IPD to observe selected Vikriti. Discuss the importance of observed pathology

		in relation to prognosis of disease in group discussion with peers in class room.
Experiential-Learning 6.3	Interdependence of the signs and symptoms.	Case study on Interdependence of signs and symptoms in a disease Select a suitable patient /simulated patient and take history of the Vikriti (disease). Tabulate all symptoms separately as Vikretaha (symptoms) Sharir. Assess the interdependence of the signs and symptoms. Identify the most important symptom by assessing underlying pathological morphology/anatomy. Propose a prognosis.
Experiential-Learning 6.4	Progression of disease in relation to Purvarupa.	Preparation of a Model /SOP for prognosis on the basis observation of progression of disease in relation to Purvarupa Consult the self prepared disease progression chart for a specific disease during practical learning. Identify the change in severity of signs and symptoms during the progression of disease. Tabulate the sequence of appearance of signs/symptoms. Understand earliest sign/symptom as Purvarupa. Keep an eye on the primary signs/symptoms through out the observation of disease. Relate persistence of primary signs/symptoms with bad prognosis as per Ayurvedic concept and justify results to prove it. Prepare Model/SOP on basis of findings.
Experiential-Learning 6.5	Discussion on cellular responses those determine fate of cell after injury.	Discussion on cellular responses those determine fate of cell after injury Refer to the discussed literature on cell repair, cellular regeneration, cell death and cell adaptations. Select few diseases for study of cell regeneration, cell repair, cell death and cell adaptations. Discuss cellular responses that determine fate of cell. Student will perform the activity as assigned by the teacher and submit the results.
Experiential-Learning 6.6	Predicted prognosis of a disease.	Predicted prognosis of a disease Refer to the selected disease for the study of prognosis and maintained data during the practical. Select the suitable case from the OPD/IPD. Follow the patient to observe pathological structural features till the final outcome. Compare the outcome with the predicted outcome as per literature. Justify the prognosis. Suggest any new finding or new diagnostic tool if observed through process.
Experiential-Learning 6.7	Role of environment/ecosystem in development of body.	Presentation on role of environment/ecosystem in development of body Select a suitable animal from each class of vertebrate like; pisces, reptiles, amphibian, aves and mammals. Carefully study their environment. Identify major adaptations that are specific to their environment. Evaluate the role of environment in shaping the body of animals. Present the findings in class room. Teacher will assign the topics to every student from each of the listed activity. Student will submit the result for presentation and discussion in the class.
Experiential-	Role of environment in	Discussion on the role of environment in determining the course of embryological development

Learning 6.8	determining the course of embryological development.	Select a suitable organ/organ system of human embryo. Compare its development with any other suitable vertebrate to identify differences. Make careful assessment of the environment/habitat of the species. Relate the differences to environmental compulsions / adaptations. Discuss and putforth suggestion for further research and development.
Experiential-Learning 6.9	Specific structures of skin/skin appendages in humans.	Presentation on assessment of specific structures of skin /skin appendeges in humans Refer to the previously prepared monograph on relation of skin appendages with habits/habitats of animal species. Assess the relation of skin/skin appendages with habits/habitat in humans. Derive the habits and habitat of humans and justify the finding. Present the findings.
Experiential-Learning 6.10	Shapes of facial features through comparative anatomy.	Discussion on shapes of facial features through comparative anatomy Prepare list of important facial structures in humans. Prepare another list of shapes of those facial structures with the help of literature on physiognomy. Compare the shapes of facial structures with other animal species. Discuss the similarity and cause of similarity of facial features with peers.
Experiential-Learning 6.11	Concept of Srishti Vikas Krama and evolution.	Relate the concept of Srishti Vikas Krama and evolution Refer to the description on Srishti Vikas Krama in Ayurvedic text. Prepare chart of Srishti Vikas Krama depicting various levels of evolution. Relate the sequence of stages in Srishti Vikas Krama with various stages of evolution. Discuss the role of stimulus in guiding evolution.

Modular Assessment

Assessment method	**Hour**
Instructions—Conduct a structured modular assessment. The assessment will be for 75 marks. Keep a structured marking pattern. Use different assessment methods in each module for the semester. Keep a record of the structured pattern used for assessment. Calculate the Modular grade point as per Table 6C. 1) Compilation (25 marks) Teacher will assign the compilation to students on topic Indriya as mentioned in Ayurveda Tantra Sharir as described in Yoga Tantra and Ayurveda. Student will describe the concept of Indriya Panchaka. Enumerate types of Indriya, their locations, and functions. Understand the prognostic importance of Indriya Sthana in Ayurveda. Explain the concept of Tantra Sharir (psychoneurological framework) as per Yoga Tantra. Correlate with modern anatomy and neurology (nervous system, special senses, reflexes, chakras) and discuss among the peers. 2) Structured LAQ (25 Marks) Teacher will assign the structured Long Answer Question on topic as describe in Vaikrit Sharir in terms of; Vikriti (structural abnormalities) (5marks) Vikretaha Sharir (symptoms) (5marks)	6

and Vyadhi Sharir (disease states) (5marks) as explained in Ayurveda. Correlate this with the concept of pathological anatomy in modern medical science.(5marks) Describes Arishta Sharir (prognostic anatomy) mentioned in Ayurvedic texts; and association of prognosis with morphological features of signs, symptoms of diseases.(5marks) 3) Self Assessment (25 Marks) Teacher will give individual task for self assessment on topic Comparative Anatomy and Evolution among vertebrates using reflective questions for students 1. Describes what comparative anatomy is and its significance in biological studies. (5 Marks) 2. Mentions and explains homologous structures with examples (e.g., forelimbs of vertebrates), analogous structures or adaptations (e.g., differences in locomotion or function). (5 Marks) 3. Clearly connects the anatomical observations to evolution explains how similarities indicate common ancestry. Chooses one relevant feature (e.g., coccyx, arm bones, pharyngeal arches) and compares it to that of other animals. (5 Marks) 4 .Explains what this feature reveals about human evolutionary origin or development.(5 Marks) 5.Shows critical thinking, personal engagement with the topic, and thoughtful conclusions.(5 Marks) Student will give reflection on what has been learnt about comparative anatomy, including the similarities and differences among vertebrates, and how these relate to evolutionary biology. They will Identify areas where they are confident or need improvement. or Any practical in converted form can be taken for assessment. (40 Marks) and Any of the experiential as portfolio/ reflections/ presentation can be taken for assessment. (35 Marks)	

Table 4 : Practical Training Activity

Practical No	Practical name	Hours
1.1	Philosophical and scientific basis of Rachana Sharir and role of Sharir Sthana.	2
1.2	Sharirsthan	3
1.3	Neurophysiological Correlations.	1
1.4	Disturbances of Indriya.	2
1.5	Comparative Study of Pancha Mahabhuta and States of Matter.	1
1.6	Molecular Analysis of Gametes.	2
1.7	Menstrual Disorders & Infertility.	2
1.8	IVF Laboratory Visit & Embryo Culture Observation.	4
1.9	Embryonic developmental stages	3
1.10	Germ layers	2
1.11	Section and staining of placenta and umbilical cord	6
1.12	Hereditary disorders (Anuvanshiki)	2
2.1	Identification of structure of Cell and tissues in slides.	4
2.2	Instruments and equipments used in preparation of slide	3
2.3	Compond microscope.	3

2.4	Stereo Microscope.	2
2.5	Histological slides Preparation	8
3.1	Health hazards related to embalming procedure.	1
3.2	Biomedical wastes guidelines.	2
3.3	Bone Extraction by the process of maceration.	2
3.4	Advantages and disadvantages of different embalming techniques.	1
3.5	Anatomy act and procurement of cadaver.	4
3.6	Cadaveric and virtual dissection.	2
3.7	Position of Different Marmas; Avedhya and Vedhya Sira; Pratyanga; Dosha, and Viddha points mentioned in relation to Kshara Karma, Agni Karma and Marma Chikista.	1
3.8	Avedhya, Vedhya Sira	1
3.9	Pratyanga.	2
3.10	Similarity and dissimalarity of Viddha points, Agnikarma points and Marma points.	3
3.11	Dosha Site	1
4.1	Concept of Nabhi and Structural parameters of Sira and Dhamani.	4
4.2	Number and method of classification of Srotas,Srotomula,Srotodushti and Srotas Viddha Lakshana.	4
4.3	Cellular nature of the Srotas.	2
4.4	Dhamanis/ arteries.	1
4.5	Measurement of parameters of blood vessels.	1
4.6	Molecular basis of channels.	2
4.7	Distribution of Siras / blood vessels.	1

4.8	Classification of Pratyanga.	3
4.9	Anga/ Pratyanga and Koshtha/ Koshthanga and Aashaya.	6
4.10	Sructure of Twacha and skin.	3
4.11	Kala concept	3
5.1	Concept of Asthi, Asthi Sandhis.	2
5.2	Antagonism in attachments of muscles and ligaments.	1
5.3	Concept of Snayu, Peshi.	2
5.4	Shakha bheda Marmas and Structural classification	10
5.5	Anthropometrical aspect of Gurvadi and Paradi Gunas.	3
5.6	Measurement of lengths and volume of body parts.	2
5.7	Anthropometric landmarks in linear accurate measurement.	2
5.8	Instruments to measure light, density and volume.	4
5.9	Instruments to measure humidity and temperature.	4
6.1	Indriya Panchapanchaka.	2
6.2	Panchagyanendriya, Gyanendriya-adhishthana and Gyanendriya- buddhi	2
6.3	Anatomical correlation of Shadchakra and formation of Kundalini.	4
6.4	Vikriti as deviation of Prakriti.	2
6.5	Role of symptoms in assessment of pathological anatomy.	3
6.6	protocol on prognosis of a disease.	3
6.7	Mechanism of growth disturbences.	2

6.8	Relation of severity of pathological morphology with prognosis.	4
6.9	Methodology of study in comparative anatomy.	1
6.10	Stages of development in human embryo in comparison with other vertebrates.	1
6.11	Skin and skin- derivatives among different animal species.	2
6.12	Comparative anatomy of an organ-system/organ in humans.	2
6.13	Comparative genomics.	2

Table 5 : Experiential learning Activity

Experiential learning No	Experiential name	Hours
1.1	Unique features of Rachana Sharir	2
1.2	Regulatory activity of Dosha	2
1.3	Comprehensive nature of Sharir Sthana	1
1.4	Ayurveda and modern cosmology	4
1.5	Comparison of Buddhi in different individuals.	6
1.6	Mana is purely an Ayurvedic entity	2
1.7	Bodily structures and Panchamahabhuta.	2
1.8	Shukra Dushti.	3
1.9	Chromosomal aberrations.	3
1.10	Genomics on Beej Beejbhaga.	1
1.11	Hormonal interaction	1
1.12	Garbhadhana procedures.	2
1.13	Developmental disorders	2
1.14	Stem cells and other aspects	6
1.15	Garbhotpadak Bhava in prenatal care	2
2.1	Structure of cell.	1
2.2	Functioning of Genomic lab.	4
2.3	Nucleus and nuclear components	1

2.4	Histology laboratory and its working.	5
2.5	Comparative analysis of differrent microscopes and equipments and Usage of microtome.	5
2.6	Tissue sample collection and processing,fixation, embeding, staining and mounting procedures.	10
3.1	Ideal technique for preservation of cadaver.	3
3.2	Strategies for reduction of biomedical wastes.	2
3.3	Ideal Bone cleaning technique.	3
3.4	Health hazards related to embalming procedures.	2
3.5	Body/organ donation and its importance	4
3.6	Future scope of dissection.	4
3.7	Types of deformities due to Abhighata on Marma regions.	1
3.8	Clinical relevance and saftey aspect of Sira Vedhan.	1
3.9	Strategies to diagnose diseases related to specific Pratyangas.	2
3.10	SOP's for Viddha Karma/Marma Chikitsa.	2
3.11	Relevance of surface anatomy of Doshas	2
4.1	Moola Sira as embryological concept.	1
4.2	Role of structure and position of Sira	3
4.3	Structure of channels	1
4.4	Structural and functional aspects of Srotomula and Deformity of Srotas	2
4.5	Aggregation of cells.	3

4.6	Division of Siras.	2
4.7	Functions of Dhamani.	2
4.8	Vulnerability of blood vessels and Mechanism of channelopathies.	6
4.9	Physiological relevance of Pratyanga.	3
4.10	Composite model of organs (Pratyanga/Koshthanga).	3
4.11	Vulnerability of Aashaya.	4
4.12	Application of Twacha Sharir in modern parlance.	6
4.13	Epithelial lining as concept of Kala.	3
5.1	Clinical application of structure of Asthi, Asthi- sandhi and diagnostic tool	6
5.2	Snayu (Ligaments)injury, range of movement and strength of muscle	4
5.3	Structural classification of Marma and Cliinical/surgical importance of Marma.	10
5.4	Measurement of Gurvadi Gunas. Measurement of swa -Angul Pramana. Standard Operating Procedure (SOP) for anthropometric measurement.	9
5.5	Measurement of variability in humidity and temperature.	5
5.6	Measurment of intensity of light.	5
6.1	Panchagyanendriya and Panchamahabhuta relation. Panchagyanendriya. Gyanendriya-buddhi. Shadchakra. Kundalini.	10
6.2	Extent of pathology and prognosis.	1
6.3	Interdependence of the signs and symptoms.	3
6.4	Progression of disease in relation to Purvarupa.	6
6.5	Discussion on cellular responses those determine fate of cell after injury.	4
6.6	Predicted prognosis of a disease.	5

6.7	Role of environment/ecosystem in development of body.	2
6.8	Role of environment in determining the course of embryological development.	2
6.9	Specific structures of skin/skin appendages in humans.	2
6.10	Shapes of facial features through comparative anatomy.	2
6.11	Concept of Srishti Vikas Krama and evolution.	2

Table 6 : Assessment Summary: Assessment is subdivided in A to H points

6 A : Number of Papers and Marks Distribution

Subject Code	Paper	Theory	Practical	Total
AYPG-AB-RS	1	100	200	300

6 B : Scheme of Assessment (Formative and Summative Assessment)

Credit frame work

AYPG-AB-RS consists of 6 modules totaling 16 credits, which correspond to 480 Notional Learning Hours. Each credit comprises 30 Hours of learner engagement, distributed across teaching, practical, and experiential learning in the ratio of 1:2:3. Accordingly, one credit includes 5 hours of teaching, 10 hours of practical training, 13 hours of experiential learning, and 2 hours allocated for modular assessment, which carries 25 marks.

Formative Assessment : Module wise Assessment:will be done at the end of each module. Evaluation includes learners active participation to get Credits and Marks. Each Module may contain one or more credits.
Summative Assessment: Summative Assessment (University examination) will be carried out at the end of Semester II.

6 C : Semester 2 Calculation Method for Modular Grade Points (MGP)

Module Number & Name (a)	Credits (b)	Actual No. of Notional Learning Hours (c)	Attended Number of notional Learning hours (d)	Maximum Marks of assessment of modules (e)	Obtained Marks per module (f)	MGP =d* f/c*e*100
M1. Introduction to Rachana Sharir, Sarvabhoota Sharir (subtle body), Fundamentals of Garbha Sharir and Anuvanshiki	3	90		75		
M2. Fundamentals of Cytology and Histology	2	60		50		
M3. Basic Skills in Mrita Sharir Sanshodhan and Anga Rekhankan	2	60		50		
M4. Fundamentals of Sira, Dhamani, Srotas, Koshta, Koshtanga, Twacha, Kala and Aashaya Sharir	3	90		75		
M5. Fundamentals of Asthi, Sandhi, Peshi, Snayu,Marma and Pramana Sharir	3	90		75		
M6. Fundamentals of Indriya Sharir; Tantra Sharir; and pathological, prognostic and comparative anatomy.	3	90		75		

MGP = ((Number of Notional learning hours attended in a module) X (Marks obtained in the modular assessment) / (Total number of Notional learning hours in the module) X (Maximum marks of the module)) X 100

6 D : Semester Evaluation Methods for Semester Grade point Average (SGPA)

SGPA will be calculated at the end of the semester as an average of all Module MGPs. Average of MGPS of the Semester For becoming eligible for Summative assessment of the semester, student should get minimum of 60% of SGPA

SGPA = Average of MGP of all modules of all papers = add all MGPs in the semester/ no. of modules in the semester

Evaluation Methods for Modular Assessment

A S.No	B Module number and Name	C MGP
1	M1.Introduction to Rachana Sharir, Sarvabhoota Sharir (subtle body), Fundamentals of Garbha Sharir and Anuvanshiki	C1
2	M2.Fundamentals of Cytology and Histology	C2
3	M3.Basic Skills in Mrita Sharir Sanshodhan and Anga Rekhankan	C3
4	M4.Fundamentals of Sira, Dhamani, Srotas, Koshta, Koshtanga, Twacha, Kala and Aashaya Sharir	C4
5	M5.Fundamentals of Asthi, Sandhi, Peshi, Snayu,Marma and Pramana Sharir	C5
6	M6.Fundamentals of Indriya Sharir; Tantra Sharir; and pathological, prognostic and comparative anatomy.	C6
	Semester Grade point Average (SGPA)	(C1+C2+C3+C4+C5 +C6) / Number of modules(6)

S. No	Evaluation Methods
1.	Method explained in the Assessment of the module or similar to the objectives of the module.

6 E : Question Paper Pattern

MD/MS Ayurveda Examination
AYPG-AB-RS
Sem II

Time: 3 Hours ,**Maximum Marks:** 100
INSTRUCTIONS: All questions compulsory

		Number of Questions	Marks per question	Total Marks
Q 1	Application-based Questions (ABQ)	1	20	20
Q 2	Short answer questions (SAQ)	8	5	40
Q 3	Analytical based structured Long answer question (LAQ)	4	10	40

				100

6 F : Distribution for summative assessment (University examination)

S.No	List of Module/Unit	ABQ	SAQ	LAQ
(M-1)Introduction to Rachana Sharir, Sarvabhoota Sharir (subtle body), Fundamentals of Garbha Sharir and Anuvanshiki (Marks: Range 5-20)				
1	**(U-1)** Introduction to Rachana Sharir	No	Yes	No
2	**(U-2)** Sarvabhoota Sharir (subtle body)	No	Yes	No
3	**(U-3)** Shukra shonit Siddhant, Ritukala and Garbhadhan	Yes	Yes	Yes
4	**(U-4)** Gastrulation, Placenta and umblical cord formation, Garbhotpadkar bhava and Anuvanshiki	Yes	Yes	Yes
(M-2)Fundamentals of Cytology and Histology (Marks: Range 5-10)				
1	**(U-1)** Fundamentals of Cells and tissues	No	Yes	Yes
2	**(U-2)** Histological Equipment / instrument and materials	No	Yes	No
3	**(U-3)** Histological Staining Techniques	No	Yes	Yes
(M-3)Basic Skills in Mrita Sharir Sanshodhan and Anga Rekhankan (Marks: Range 5-20)				
1	**(U-1)** Basic Skills in Embalming and Specimen preservation technique	No	Yes	Yes
2	**(U-2)** Pre-dissection procedures and Dissection Techniques	Yes	Yes	Yes
3	**(U-3)** Anga Rekhankan	No	Yes	Yes
(M-4)Fundamentals of Sira, Dhamani, Srotas, Koshta, Koshtanga, Twacha, Kala and Aashaya Sharir (Marks: Range 5-20)				
1	**(U-1)** Fundamentals of Sira, Dhamani, Srotsa Sharir	Yes	Yes	Yes
2	**(U-2)** Vascular components	No	Yes	Yes
3	**(U-3)** Koshtha, Koshthanga, and Aashaya Sharir	Yes	Yes	Yes
4	**(U-4)** Twak, and Kala	No	Yes	Yes
(M-5)Fundamentals of Asthi, Sandhi, Peshi, Snayu,Marma and Pramana Sharir (Marks: Range 5-20)				
1	**(U-1)** Fundamentals of Asthi, Sandhi, Peshi, Snayu sharir	Yes	Yes	Yes
2	**(U-2)** Fundamental of Marma Sharir	Yes	Yes	Yes
3	**(U-3)** Fundamental of Pramana Sharir	No	Yes	Yes
4	**(U-4)** Measurement of environmental component	No	Yes	No
(M-6)Fundamentals of Indriya Sharir; Tantra Sharir; and pathological, prognostic and comparative anatomy. (Marks: Range 5-10)				
1	**(U-1)** Fundamentals of Indriya; Tantra Sharir	No	Yes	Yes
2	**(U-2)** Vaikrit, Vikretah and Vikrit Vyadhi Vigyaniya Sharir	No	Yes	No

3	**(U-3)** Pathological and prognostic anatomy	No	Yes	Yes
4	**(U-4)** Comparative anatomy	No	Yes	Yes

6 G : Instruction for the paper setting & Blue Print for Summative assessment (University Examination)

Instructions for the paper setting.

1. 100 marks question paper shall contain:-
• Application Based Question: 1 No (carries 20 marks)
• Short Answer Questions: 8 Nos (each question carries 05 marks)
• Long Answer Questions: 4 Nos (each question carries 10 marks)
2. Questions should be drawn based on the table 6F.
3. Marks assigned for the module in 6F should be considered as the maximum marks. No question shall be asked beyond the maximum marks.
4. Refer table 6F before setting the questions. Questions should not be framed on the particular unit if indicated “NO”.
5. There will be a single application-based question (ABQ) worth 20 marks. No other questions should be asked from the same module where the ABQ is framed.
6. Except the module on which ABQ is framed, at least one Short Answer Question should be framed from each module.
7. Long Answer Question should be analytical based structured questions assessing the higher cognitive ability.
8. Use the Blueprint provided in 6G or similar Blueprint created based on instructions 1 to 7

6 H : Distribution of Practical Exam (University Examination)

S.No	Heads	Marks
1	**Dissection of Cadaver** 1. Embalming and Biowaste management (use of instruments and preservation material) (20 marks) 2. Dissection techniques (Cadaveric and virtual) (30 marks) 3.Surface anatomy (Marma, Pratyanga, Dosha region, Viddha points) (30 marks)	80
2	**Histology, Anthropometry and General spotting** 1. Identification and preparation of Histological Slide (20 marks) 2. Anthropometry (usage of instruments) (20 marks) 3. Spotting (models/specimen of Bones and organs) (20 marks)	60
3	**Viva** Module 1 --- 10 marks Module 4 --- 10 marks Modele 5 --- 10 marks Module 6 --- 10 marks	40
4	**Logbook (activity record)**	10
5	**Practical record**	10
Total Marks		**200**

Reference Books/ Resources

02_Rachana

Click here to access References and Resources

Abbreviations

Domain		T L Method		Level	
CK	Cognitive/Knowledge	L	Lecture	K	Know
CC	Cognitive/Comprehension	L&PPT	Lecture with PowerPoint presentation	KH	Knows how
CAP	Cognitive/Application	L&GD	Lecture & Group Discussion	SH	Shows how
CAN	Cognitive/Analysis	L_VC	Lecture with Video clips	D	Does
CS	Cognitive/Synthesis	REC	Recitation		
CE	Cognitive/Evaluation	SY	Symposium		
PSY-SET	Psychomotor/Set	TUT	Tutorial		
PSY-GUD	Psychomotor/Guided response	DIS	Discussions		
PSY-MEC	Psychomotor/Mechanism	BS	Brainstorming		
PSY-ADT	Psychomotor Adaptation	IBL	Inquiry-Based Learning		
PSY-ORG	Psychomotor/Origination	PBL	Problem-Based Learning		
AFT-REC	Affective/ Receiving	CBL	Case-Based Learning		
AFT-RES	Affective/Responding	PrBL	Project-Based Learning		
AFT-VAL	Affective/Valuing	TBL	Team-Based Learning		
AFT-SET	Affective/Organization	TPW	Team Project Work		
AFT-CHR	Affective/ characterization	FC	Flipped Classroom		
		BL	Blended Learning		
		EDU	Edutainment		
		ML	Mobile Learning		
		ECE	Early Clinical Exposure		
		SIM	Simulation		
		RP	Role Plays		
		SDL	Self-directed learning		
		PSM	Problem-Solving Method		
		KL	Kinaesthetic Learning		
		W	Workshops		
		GBL	Game-Based Learning		
		LS	Library Session		
		PL	Peer Learning		
		RLE	Real-Life Experience		
		PER	Presentations		
		D-M	Demonstration on Model		
		PT	Practical		
		X-Ray	X-ray Identification		
		CD	Case Diagnosis		
		LRI	Lab Report Interpretation		

		DA	Drug Analysis		
		D	Demonstration		
		D-BED	Demonstration Bedside		
		DL	Demonstration Lab		
		DG	Demonstration Garden		
		FV	Field Visit		
		JC	Journal Club		
		Mnt	Mentoring		
		PAL	Peer Assisted Learning		
		C_L	Co Learning		
		DSN	Dissection		
		PSN	Prosection		

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