COURSE CURRICULUM FOR THIRD PROFESSIONAL B.S.M.S (PRESCRIBED BY NCISM)

Research Methodology and Medical statistics

(SUBJECT CODE : SIDUG-RM)

(Applicable from 2021-22 batch, from the academic year 2024-25 onwards for 5 batches or until further notification by NCISM, whichever is earlier)

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BOARD OF UNANI, SIDDHA AND SOWA-RIGPA
NATIONAL COMMISSION FOR INDIAN SYSTEM OF MEDICINE
NEW DELHI-110026

NCISM

III Professional SIDDHA MARUTHUVA ARIGNAR
(Bachelor of Siddha Medicine and Surgery (B.S.M.S))
Subject Code : SIDUG-RM

Research Methodology and Medical statistics

Summary

Total number of Teaching hours: 150			
Lecture (LH) - Theory		**60**	**60(LH)**
Paper I	60		
Non-Lecture (NLHT)		**90**	**90(NLH)**
Paper I	90		
Non-Lecture (NLHP)		**0**	
Paper I	0		

Examination (Papers & Mark Distribution)					
Item	**Theory Component Marks**	**Practical Component Marks**			
		Practical	**Viva**	**Elective**	**IA**
Paper I	100	-	30	-	20
Sub-Total	100	50			
Total marks	150				

Important Note :- The User Manual III B.S.M.S 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 III 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 curriculum write to **syllabus24sid@ncismindia.org**

PREFACE

Research and statistics play a crucial role in advancing the scientific understanding of Siddha medicine. In today's world, traditional medical systems must be explored through rigorous scientific methods to establish their credibility as evidence-based medicine. There is an urgent need to validate the efficacy and safety of Siddha treatments using well-structured research methodologies. Understanding research methods and statistical analysis equips students with the skills to evaluate treatment efficacy, analyze data, and support Siddha medicine with scientific evidence. Additionally, these skills enhance logical thinking, problem-solving, and ultimately improve patient care.

This syllabus covers essential research topics, including types of research, study designs, research ethics, intellectual property rights (IPR), data collection and analysis techniques, evidence-based medicine, clinical trials, and scientific writing. Students will also learn to follow internationally recognized research guidelines such as PRISMA, CARE, CONSORT, and STROBE, ensuring the reliability and credibility of their studies. The teaching-learning (TL) methods include lectures, hands-on training, discussions, and the use of research tools and databases.

By integrating research and statistics into the Siddha curriculum, students will be better equipped to publish scientific papers, contribute to medical advancements, and support the globalization of Siddha medicine. Furthermore, applying modern research methodologies to traditional Siddha concepts, diagnostics, and therapeutics ensures that this time-tested system continues to evolve as a scientifically validated and evidence-based medical discipline.

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Course Code and Name of Course

Course code	Name of Course
SIDUG-RM	Research Methodology and Medical-statistics

Table 1 : Course learning outcomes and mapped PO

SR1 CO No	A1 Course learning Outcomes (CO) SIDUG-RM At the end of the course SIDUG-RM, the students should be able to-	B1 Course learning Outcomes mapped with program learning outcomes.
CO1	Explain and utilize basic research methods and statistical concepts.Explain and utilize basic research methods and statistical concepts.	PO6,PO8
CO2	Distinguish, analyse and apply basic research types. Recognize their application in Siddha.	PO6,PO8
CO3	Explore and utilize various databases and guidelines.	PO6,PO8
CO4	Distinguish, analyse and apply basic statistical tests. Recognize their application in Siddha.	PO4,PO6,PO8
CO5	Apply ethical aspect in conducting quality research.	PO6,PO7

Table 2 : Contents of Course

Paper 1 (RESEARCH METHODOLOGY AND MEDICAL STATISTICS)						
Sr. No	**A2 List of Topics**	**B2 Term**	**C2 Marks**	**D2 Lecture hours**	**E2 Non-Lecture hours Theory**	**F2 Non-Lecture hours Practical**
1	**Introduction to Research** This topic explains the definition, objectives and scope of research and its historical evolution. The topic also enables the students to have deeper understanding on the concepts of research in Siddha system (*Alavaikal*) Objectives Scope Historical background of research a. Classical (Siddha research concepts-*Alavaikal*) b. Contemporary science	1	12	3	5	0
2	**Evidence Based Medicine and Integrative Medicine** This topic elaborates on Evidence based medicine, Levels of evidence and integrative medicine Contents and principles Levels of Evidence Integrative medicine	1		2	2	0
3	**Types of Research** This topic enables the student to understand and distinguish between various types of research - Basic, Applied and Translational,Qualitaive, Quantitative, Mixed, Observational , Interventional, Descriptive and Analytical research a. Basic, Applied and Translational b. Qualitative,Quantitative and Mixed c. Descriptive, Analytical d. Observational, Interventional	1		4	4	0
4	**Research Designs** This topic describes various type of study designs with suitable examples, Clinical trial phases,	1	12	10	10	0

	Prerequisites for a clinical trial , Preclinical methods, Systematic review and meta analysis. a.Case Reports Case series Cross sectional Cohort study Case Control b.Clinical trial Pilot trials Phases of Clinical trial Randomized Controlled Trial Prerequisites for Clinical trial Research protocol Case report form Informed consent form Preclinical methods Systematic review and meta-analysis					
5	**Research Ethics** This topic enables the student to understand the composition and roles of Ethics committee, Publication ethics -Plagiarism and Orientation to various research Regulatory Bodies • Need and significance • Informed consent form • IEC and IAEC • Publication ethics – Plagiarism • Orientation to Research regulatory bodies CDSCO, ICMR, CCSEA, ICH	1	10	2	4	0
6	**Research Process** The present topic provides a step by step approach from selection of research topic , conduction of literature review, process of research, data collection methods and tools, data interpretation and Reporting of research, Scientific writing and stepwise preparation for conference presentations (Oral/Poster) a. Identifying a problem & Selection of topic b. Review of literature. c. Literature search & use of MeSH, boolean	2	15	8	12	0

	terms d. Formulation of Hypothesis e. Framing Aims and Objectives. f. Conducting the research (data collection methods, analysis method, interpretation and conclusion) g. Error, bias and confounding h. Validity and reliability studies --*En vagai thervu, Yakkai ilakkanam* a. Reporting of research ,Scientific writing, j. Encourage the student to Conference presentation (Oral/Poster) /participation* & publication in journal,scientific magazines,newsletters.					
7	**Various database and Portals** This topic orients the students to various research portals, databases and guidelines such as AYUSH Research Portal, NAMASTE Portal, Siddha I-ABC, SEARCHi, A-HMIS PubMed, SCOPUS, Web of science, UGC CARE, CTRI • AYUSH Research Portal, • PubMed, • SCOPUS, • Web of science, • UGC CARE • CTRI • Siddha YI-ABC, • SEARCHi • NAMASTE Portal, • A-HMIS	2	1	4	2	0
8	**Various Guidelines to report research** This topic explains various guidelines to report research like CARE, PRISMA, ARRIVE, CONSORT, STROBE and equips the student for conference presentations GCP-AYUSH, EQUATOR Network- CARE,	2	1	2	3	0

	PRISMA, ARRIVE, CONSORT, STROBE					
9	**Intellectual Property Right (IPR) /Patent/Copyright** This topic enables student to understand Intellectual property rights, Traditional knowledge digital library and appraise the importance of Intellectual property right Intellectual Property Right (IPR) Patent/Copyright TKDL	2	9	2	1	0
10	**Research Critique** This topic enables the student to critically appraise a published research work and to be aware of journal metrics and Predatory journals a. Concept b. Definition c. Steps d. Bibliometrics (impact factor,citescore,(WOS,SCOPUS) i-10 index,H-index e. different types of reference formats f. differentiate between predatory and quality journal	2		3	7	0
11	**Introduction to Medical Statistics** The topic Basics of statistics introduces the objectives and scopes of statistics in medical research and its relevance in Siddha system 1. Objectives and Scope 2. Relevance in Siddha Medicine	2	2	1	1	0
12	**Data** The current topic describes and classifies different types of Data and scales Concept of data in medical statistics Sources of data Type of Data: Quantitative, Qualitative (categorical), Discrete, Continuous, Discontinuous, Open end.	3	2	1	2	0

	Types of Scales: Ordinal, Nominal, Interval, Ratio					
13	**Basic Statistical terms** The topic provides a basic introduction on statistical terms such as population, sample, variables and attribute a. Population b. Sample c. Variable (Dependent and Independent) d. Attribute	3	1	1	2	0
14	**Collection and Presentation of Data** This topic differentiates the types of data collection and data presentation a.Types of Data Collection [Primary, Secondary, Observation, Survey, Focus Group, Interview] b.Types of Presentation of data Textual Tabular Graphical	3	10	2	4	0
15	**Measures of Central Tendency** This topic introduces the learners about the Measures of Central tendency (Mean, Median, Mode) and its calculations a. Qualities of Good measure of central tendency b. Arithmetic Mean c. Median d. Mode	3	5	2	4	0
16	**Measures of Deviation / Dispersion / Variability** This topic explains the measures of Deviation and dispersion, Qualities of Good measure of variability Variance and its coefficient, Standard Error and its calculations. a. Qualities of Good measure of variability b. Range c. Quartile Deviation d. Mean Deviation e. Standard deviation f. Variance and its co-efficient	3		3	6	0

	g. Standard Error					
17	**Probability** The topic of probability explains its significance in research, Normal and assymetric distribution and its identifications a. Concept of Probability b. Normal Probability Curve c. Asymmetric Distribution	3	10	2	4	0
18	**Hypothesis, Test of Significance and Sampling** The present topic introduces hypothesis testing , sampling types and sample size a. Hypothesis b. Test of Significance c. Sampling and its Type d. Sample Size	3		3	5	0
19	**Parametric and non-parametric tests** The topic explains the Parametric and Non parametric tests and their application in research a. Parametric tests and their relevance in research b. Non Parametric tests and their application in research	3	8	2	4	0
20	**Correlation and regression** This topic provides a preliminary understanding on various scenarios for application of correlation and regression in medical research a. Correlation and regression	3		2	4	0
21	**Commonly used statistical software** This topic outlines the different Software used for Statistical Analysis and provides knowledge on the application of Statistical softwares.	3	2	1	4	0

	a. Statistical softwares and their applications in research					
Total Marks			**100**	**60**	**90**	**0**

Table 3 : Learning objectives of Course

Paper 1 (RESEARCH METHODOLOGY AND MEDICAL STATISTICS)										
A3 Course outcome	**B3 Learning Objective (At the end of the session, the students should be able to)**	**C3 Domain/sub**	**D3 MK / DK / NK**	**E3 Level**	**F3 T-L method**	**G3 Assessment**	**H3 Assessment Type**	**I3 Term**	**J3 Integration**	**K3 Type**
Topic 1 Introduction to Research (LH :3 NLHT: 5 NLHP: 0)										
A3	**B3**	**C3**	**D3**	**E3**	**F3**	**G3**	**H3**	**I3**	**J3**	**K3**
CO1	Define Research, goals of research and scope of research in Siddha	CK	MK	K	L&PPT,L,L&GD	M-CHT,M-POS,INT,P-ID	F&S	1	-	LH
CO1	Discuss historical development of Contemporary research and evidence of research in Classical Literature-*Alavaigal*	CK	MK	K	DIS,PBL,L&GD,EDU,D	DEB,INT,P-REC,P-RP,P-VIVA	F&S	1	-	NLHT1.1
CO1, CO2	Discuss on the importance of logical reasoning in research and research concepts of Siddha system	CC	MK	KH	DIS,BS,TBL,PBL	P-PRF,P-PS,P-ID	F&S	1	-	NLHT1.2

Non Lecture Hour Theory

S.No	**Name of Activity**	**Description of Theory Activity**
NLHT 1.1	Role play / discussion the history and evolution of research	**Small group discussions/ Role play** **Purpose**: This activity helps students to think about the importance of scientific research and the necessity for research ethics and gudelines. After several hours of preparation time in groups (during independent study/online resources), followed by up to 20 minutes of role play or group activity for each group can be done on the historical events on the evolution of research such as (Nazi camp, Thalidomide tragedy, Tuskegee syphilis study etc)

		Time duration : 3 Hours
NLHT 1.2	Game based learning on the importance of logical reasoning in research and research concepts of Siddha system	**Game based Learning** **Purpose**: This activity helps students to understand about the importance of logical reasoning in research and research concepts of Siddha system **Activity**: Students may be divided into small groups and they may be given sufficient time to study and recall the Siddha concepts of *Alavaikal*. Each group may be motivated to frame particular scenario/story/visual picture that will involve critical thinking and ask the other groups to identify the problem/flaws/to provide a logical conclusion to the scenario. The correct identifier will be the winning group. The teacher may conclude the session by comparing *Alavaikal* concepts with logical reasoning, induction, deduction, abduction etc. **Time duration : 2 Hours**
Non Lecture Hour Practical		
S.No	**Name of Practical**	**Description of Practical Activity**

Topic 2 Evidence Based Medicine and Integrative Medicine (LH :2 NLHT: 2 NLHP: 0)

A3	B3	C3	D3	E3	F3	G3	H3	I3	J3	K3
CO1	Explain contents, principles and levels of Evidence based Medicine	CK	MK	K	BS,L&PPT ,FC, L_VC	PRN,T-CS, INT,P-ID,DEB	F	1	-	LH
CO1	Describe Integrative Medicine and uses an evidence-based approach	CK	MK	K	L&PPT ,BS,FC, EDU	COM,P-CASE,PRN,M-POS	F	1	-	LH
CO1	Identify the level of Evidence and concept of Evidence Based	CAP	MK	K	SY,CBL	P-POS,PR	F	1	-	NLHT2.1

	Medicine and Integrative Medicine				,DIS,FV ,RP	N,P-EN,DEB				

Non Lecture Hour Theory

S.No	Name of Activity	Description of Theory Activity
NLHT 2.1	Debate on Interdisciplinary Collaboration- Group activity	**Group activity** **Purpose** : Student will be able to identify the levels of evidence and the hierarchy of evidence based medicine and its necessity in AYUSH systems. **Activity**: Students will be divided into groups and each group will be priorly informed to collect published manuscripts , reports , systemic review, case reports, research articles etc on Siddha system. In the class hour, the teacher will draw levels of evidence pyramid and each group will identify the levels of evidence of their manuscripts and mark it in the pyramid on board. Through this the students will be able to identify the research lacunae and the need of evidence based medicine Make students discuss on the need for collaboration and the possibilities with various disciplines of health sciences **Time duration : 1 Hour**

Non Lecture Hour Practical

S.No	Name of Practical	Description of Practical Activity

Topic 3 Types of Research (LH :4 NLHT: 4 NLHP: 0)

A3	B3	C3	D3	E3	F3	G3	H3	I3	J3	K3
CO1, CO2	Explain and differentiate between Basic, Applied and Translational Research	CK	MK	K	FC,IBL, L&PPT ,PL,L	Mini-CEX, CL-PR,DEB,P-SUR,P-CASE	F&S	1	-	LH
CO1,	Define and differentiate between Qualitative, Quantitative and	CK	MK	K	RLE,BS	P-SUR,PR	F&S	1	-	LH

CO3	Mixed Research				,PrBL,L&GD,DIS	N,CL-PR,INT				
CO1, CO3	Define and differentiate between Observational and Interventional Research	CK	MK	K	SDL,L&GD,L&PPT,IBL	P-ID,P-RP,P-REC	F	1	-	LH
CO1, CO2	Describe and differentiate between Descriptive and Analytical Research	CK	MK	K	L&PPT,PrBL,IBL,BS	P-EN,PRN,P-CASE,DEB	F&S	1	-	LH
CO1, CO2	Identify and Classify of research studies	CC	MK	KH	IBL,PBL,CBL,L&GD	P-PS,P-ID,P-SUR,P-REC	F&S	1	-	NLHT3.1
CO1, CO2	Discuss on Real-World Data collection	CAP	DK	KH	TPW,D,TBL	P-RP,P-PRF,P-ID	F&S	1	-	NLHT3.2

Non Lecture Hour Theory

S.No	Name of Activity	Description of Theory Activity
NLHT 3.1	Small survey	**Small group activity** **Purpose** :The students will be able to identify and remember the different types of research with examples **Activity**: A set of cards or case studies with short descriptions of various research studies (some primary, some secondary, some descriptive, some analytical, basic, applied, and translational research.) are archived and used for engaging the students or provide students with abstracts of published studies and ask them to classify them as primary, secondary, descriptive, or analytical. **Time duration :2 Hours.**

NLHT 3.2	Real-World Data Collection	**Real-World Data Collection** Have role plays on how to Conduct a small survey (Primary Research) as team on health behaviors (e.g., smartphone use and sleep patterns). **Time duration : 2 Hours**
Non Lecture Hour Practical		
S.No	**Name of Practical**	**Description of Practical Activity**

Topic 4 Research Designs (LH :10 NLHT: 10 NLHP: 0)

A3	B3	C3	D3	E3	F3	G3	H3	I3	J3	K3
CO1, CO2	Describe Case Reports	CK	MK	K	L&PPT ,L&GD, DIS	P-POS,PRN,P-SUR,CL-PR	F&S	1	-	LH
CO1, CO3	Explain Case Series	CK	MK	K	TBL,DIS	T-CS,P-SUR,PRN	F	1	-	LH
CO1, CO3	Define and differentiate between Observational and Interventional Research	CC	MK	K	BL,PBL ,DIS,BS	P-EN,P-REC,P-MOD, M-POS	F	1	-	LH
CO1, CO3	Describe Cross sectional study and explain COHORT study	CK	MK	K	SY,L&PPT ,IBL ,TBL	P-PS,M-CHT,P-REC,P-POS,M-POS	F	1	-	LH
CO1, CO3	Describe Case Control study	CK	MK	K	IBL,CBL,REC, L&PPT	CL-PR,P-EN,P-REC	F	1	-	LH
CO1,	Describe Pilot study, Phases of clinical trail, Randomized	CK	MK	K	L&PPT	P-REC,P-P	F	1	-	LH

CO3	Controlled Trial				,SIM,REC,IBL,FC	OS,Mini-CEX				
CO1, CO3	Describe Protocol writing, case report form (CRF) and informed consent form	CK	MK	K	PBL,L&PPT ,PrBL,BS	P-EXAM,P-PS,CL-PR,P-VIVA	F	1	-	LH
CO1, CO3	Recognise and explain Preclinical studies, In Situ, In Silico, In Vivo, In Vitro	CC	MK	KH	L&GD, PBL,SY ,PrBL	P-MOD,CL-PR,PRN,P-EN	F	1	-	NLHT4.1
CO1, CO3	Describe Systematic review and Meta-analysis	CAP	MK	KH	L&GD, PBL,DIS,IBL,BS	P-EN,M-CHT,P-PRF, CL-PR,P-CASE	F	1	-	NLHT4.2
CO1, CO2, CO3	Identification of Qualitative, Quantitative and Mixed Research, Observational and Interventional studies and differentiate between them.	CK	MK	K	IBL,L&GD,SY, BS	PRN,P-POS,P-RP	F	1	-	NLHT4.3
CO1, CO2	Discussion on Identification of study design and its significance in research	CC	MK	KH	PBL,DIS,FC,CBL,L&GD	PRN,P-POS,P-CASE,P-PS	F&S	1	-	NLHT4.4
CO1, CO2	Present Symposium on various research designs	CC	DK	KH	TBL,BS ,DIS,PBL,SDL	M-CHT,P-POS,Mini-CEX,P-PS,PRN	F&S	1	-	NLHT4.5
CO1, CO2	Present of research proposal	CAP	NK	KH	DIS,BS, TBL,PER	PRN	F	1	-	NLHT4.6

CO1, CO2	Understand and identify the Preclinical methods in research	CC	NK	KH	FV,D,PER,RLE,KL	PRN,CL-PR,P-ID,M-POS,M-CHT	F&S	1	-	NLHT4.7

Non Lecture Hour Theory

S.No	Name of Activity	Description of Theory Activity
NLHT 4.1	In Situ, In Silico, In Vivo, In Vitro	1. Preclinical Studies Overview 2. In Situ Studies 3. In Silico Studies Applications in drug discovery, toxicology, and disease modelingComparison with experimental methods 4. In Vivo Studies Ethical considerations and alternatives Translational research aspects 5. In Vitro Studies • Cell culture techniques and experimental setups • Applications in pharmacology and toxicology • Advantages over in vivo studies Case Studies & Literature Reviews – Students analyze real-world research articles. Simulations & Computational Tools – Exposure to in silico modeling software. Ethical Debates – Discussion on the use of animals vs. cell culture vs. computational approaches. Mini-Projects – Students propose a study design using one or more methods. **Total Duration: 3 hours**
NLHT 4.2	Systematic review and Meta-analysis	**1. Self-Directed Learning** • Reading published systematic reviews and meta-analyses in high-impact journals. • Exploring PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) guidelines.

2. Case Studies and Critical Appraisal

- Students critically evaluate published systematic reviews and meta-analyses.
- Compare methodologies, strengths, and limitations.
- Use appraisal tools such as AMSTAR (A Measurement Tool to Assess Systematic Reviews).

3. Hands-on Literature Search & Screening

- Practical use of databases (PubMed, Cochrane Library, Scopus) for systematic searching.
- Training on Boolean operators and MeSH terms.
- Screening studies using Rayyan or Covidence software.

4. Data Extraction and Synthesis

- Students practice extracting data from selected studies.
- Learn about bias assessment tools like ROBIS or Cochrane Risk of Bias Tool.
- Basic statistical interpretation of meta-analysis results (e.g., forest plots, heterogeneity measures).

5. Group Discussion and Ethical Considerations

- Ethical issues in systematic reviews and meta-analysis.
- Challenges of publication bias and reporting quality.

Experiential Learning Additions (Optional)

		• **Mini-Project**: Students develop a protocol for a systematic review. • **Peer Review Exercise**: Students assess each other's systematic review frameworks. • **Workshops with Experts**: Collaboration with research methodologists or statisticians. **Total Duration: 3 hours**
NLHT 4.3	Differences between Qualitative, Quantitative and Mixed Research, Observational and Interventional studies.	**Purpose** : The students will be able to identify, remember and differentiate between Qualitative, Quantitative and Mixed Research, Observational and Interventional studies **Activity**: A set of case studies with short description or synopsis which have Qualitative, Quantitate, observational and interventional studies are archived and used as study material. Divide students into small groups. Distribute the cards/cases randomly. Ask each group to classify the research study given to them which may be either Qualitative, Quantitate, observational and interventional studies. After categorizing, the groups explain their reasoning behind the classification. Then later teacher facilitates a discussion to clarify any misunderstandings and to reinforce key concepts **Time duration : 1 Hour**
NLHT 4.4	Group activity on Identification of study design and its significance in research	**Group activity** **Purpose** : Identify and differentiate various study designs and to frame a well structured study design **Group activity.** Teacher should ask one group (G-A) of students with subgroups to prepare multiple handouts with scenarios of different medical research questions (e.g., "Does smoking increase the risk of lung cancer?" or "What is the prevalence of hypertension in a population of 40-year-olds?"). The other group (G-B) can be divided into subgroups with names such as cross-sectional, longitudinal, cohort, or case-control). As subgroups in group-A will proclaim the research questions, the suitable subgroup in Group B will stand up and match the study design with the research questions.

		Their task is to categorize each scenario into the correct study type based on the description. After 20 minutes, ask each group to present their study type and rationale for categorizing the research scenarios. **Debrief**: Clarify the key points for each study design, emphasizing differences such as the study direction (retrospective vs. prospective), timeframes, and data types (exposure vs. outcome). Discuss how the study design choice influences the type of questions they can answer (e.g., prevalence, incidence, risk factors). **Time duration: 1 hour**
NLHT 4.5	Symposium on various research designs	**Symposium on various research designs** Students can be allotted various study designs as team work and can be presented in a symposium. **Time duration :1 hour**
NLHT 4.6	Research Proposal Presentation Exercise	**Research Proposal Presentation Exercise** Provide students with a short research template and a topic in prior with sufficient time line and let students discuss as teams and present a proposal **Time duration : 1 Hour**
NLHT 4.7	Field visit to understand Preclinical methods in research	**Field visit** Visit to Research laboratory or academic research institute with preclinical research facilities. Review each preclinical method discuss about the different methods, their applications, challenges, and ethical considerations. Ask students to reflect on which method they found most interesting or challenging and why.

Non Lecture Hour Practical		
S.No	**Name of Practical**	**Description of Practical Activity**

Topic 5 Research Ethics (LH :2 NLHT: 4 NLHP: 0)

A3	B3	C3	D3	E3	F3	G3	H3	I3	J3	K3
CO5	Define and discuss on Ethics and its Importance in research	CK	MK	K	DIS,PBL,L&PPT ,IBL	OSPE,P-POS,PRN	F&S	1	-	LH
CO5	Enlist the Composition and procedure of IAEC and IEC	CK	MK	K	PrBL,IBL,L&PPT ,DIS	P-POS,CL-PR,P-PS	F&S	1	-	LH
CO5	Explain Publication ethics -Plagiarism	CK	MK	K	SDL,L&PPT , BS,PSM ,PrBL	CL-PR,P-EN,CHK,P-REC	F&S	1	-	LH
CO5	Discuss Orientation to Research Regulatory Bodies (CDSCO, AYUSH-GCP, ICMR, CCSEA, ICH)	CK	DK	K	KL,L&PPT ,EDU,CBL,BL	PRN,P-CASE,P-PS	F&S	1	-	LH
CO5	Discuss on responsibilities of ethics committee and its constitution	CC	MK	KH	DIS,IBL ,TUT,BS,BL	P-VIVA,CHK,P-PS,INT	F&S	1	-	NLHT5.1
CO5	Perform Role play on taking Informed consent	CAP	DK	KH	TBL,CBL,PrBL, PL,DIS	DOAP,SA, PA,C-INT	F&S	1	-	NLHT5.2
CO5	Identify ethical compliance and plagiarism in published research	CAN	NK	KH	TBL,SD	DOPS,P-ID	F	1	-	NLHT5.3

	papers				L,BL,P L,BS	,CL-PR,DOPS				

Non Lecture Hour Theory		
S.No	**Name of Activity**	**Description of Theory Activity**
NLHT 5.1	Role play on responsibilities of ethics committee and its constitution	**Role play** **Purpose** : To make the students understand the constitution and roles of Ethics committee Divide the students into groups and each group will enact in the class room and the students will be able to recognize the do's and don't's of research ethics.Make a mock Ethics committee meeting and let the students in each group assign their roles and responsibilities and have a committee meeting. Let the member secretary read out the minutes of meeting of each Ethics committee after the meeting to everyone in the class . Allot suitable topic on research ethics to each group and give sufficient time to prepare the role play. **Time duration-2 Hours**
NLHT 5.2	Role play on Informed Consent	**Role-Play** • Split students into researchers and participants. • The researchers must explain the study and obtain ethical informed consent. • Evaluate how well they ensure voluntary participation, risk disclosure, and comprehension. **Time duration-1 Hour**
NLHT 5.3	Research Ethics Audit and plagiarism	**Group activity** • Give students a published research paper and ask them to assess it for ethical compliance. • They check for informed consent, conflicts of interest, and ethical committee approval.

		• Also let them have hands on training for using plagiarism check-softwares like turnitin **Time duration: 1 hour**

Non Lecture Hour Practical		
S.No	**Name of Practical**	**Description of Practical Activity**

Topic 6 Research Process (LH :8 NLHT: 12 NLHP: 0)

A3	B3	C3	D3	E3	F3	G3	H3	I3	J3	K3
CO1	Describe the process for Selection of topic for research	CK	MK	K	BS,DIS,IBL,L&PPT,PBL	CL-PR,INT,P-VIVA	F&S	2	-	LH
CO2, CO3	Conduct Literature Search in Medical Databases, MeSH terms, Boolean search	PSY-GUD	MK	K	BL,PrBL,PBL,L&PPT,EDU	P-CASE,P-SUR,P-EN,OSPE,O-GAME	F&S	2	-	LH
CO1, CO4	Describe the process of Formulation of Hypothesis	CK	MK	K	CBL,FC,SY,L&PPT,BL	CL-PR,DEB,INT,P-PS,PRN	F&S	2	-	LH
CO1	Explain Aims and Objectives of Research	CK	MK	K	PBL,IBL,BS,TPW,L&GD	P-REC,P-ID,DEB	F&S	2	-	LH
CO1, CO2,	Describe the procedure to conduct of Research (data collection, methods of validating Siddha assessment tools in terms of validity	CK	MK	K	PrBL,LS,SDL,	P-SUR,CL-PR,P-MOD	F&S	2	-	LH

CO4	and reliability)				L&PPT ,PBL	,T-CS,P-PRF				
CO1, CO2, CO5	Explains various tools to removing Bias and Confounding	CK	DK	K	DIS,SIM,RP,BS,L&PPT	VV-Viva,DOAP,CBA	F&S	2	-	LH
CO1, CO2, CO3, CO4	Define Analysis and Interpretation of Results and conclusions.	CK	MK	K	IBL,ML ,FC,L&PPT	QZ ,CR-RED,VV-Viva ,RK,COM	F&S	2	-	LH
CO1, CO2, CO3, CO4, CO5	Explain steps of Reporting of Research (Scientific writing)	PSY-GUD	DK	KH	PER,BS ,L&PPT ,ML,EDU	CHK,PRN, P-RP,P-VIVA	F&S	2	-	LH
CO2, CO5	Explain to encourage Research Presentation (oral & Poster) and steps publication in research article or newsletter (* consider it for IA score calculation)	PSY-GUD	DK	KH	TPW,BL,L&GD,DIS	PRN,P-SUR,P-PS	F	2	-	NLHT6.1
CO2, CO5	Explain the Conduct Literature Search in Medical Databases, MeSH terms, Boolean search	PSY-GUD	MK	KH	SDL,ML,DIS,BS	DOPS,DOPS,SA,PP-Practical,VV-Viva	F&S	2	-	NLHT6.2
CO1, CO2, CO4, CO5	Identify the research topic, research problem, appraise review of literature and Formulate research hypothesis and objectives	PSY-SET	DK	KH	TBL,PrBL,L&GD,BS, RLE	P-SUR,PRN,P-PRF,P-RP	F&S	2	-	NLHT6.3
CO2,	Illustrate on Planning and conducting the research	PSY-	DK	KH	CBL,Pr	P-REC,CO	F&S	2	-	NLHT6.4

CO5		SET			BL,TPW,L&GD	M,PM,P-ID, C-VC					

Non Lecture Hour Theory		
S.No	**Name of Activity**	**Description of Theory Activity**
NLHT 6.1	Basic steps for research practice	**Foster a Research Culture** • Promote the importance of sharing research findings. • Encourage collaboration and knowledge exchange. • Provide mentorship from experienced researchers. **Identify Suitable Conferences & Journals** • Guide researchers in selecting relevant conferences (for oral/poster presentations). • Suggest appropriate journals or newsletters for publication. • Provide a list of high-impact events and submission deadlines. **Offer Training & Workshops** • Conduct workshops on effective research communication. • Provide training on poster design, presentation skills, and academic writing. • Arrange peer-review sessions to refine content before submission. **Support in Abstract & Manuscript Preparation**

- Assist in structuring abstracts for conferences.
- Guide researchers on manuscript writing, formatting, and citations.
- Encourage co-authoring with peers and mentors for quality enhancement.

Facilitate Funding & Resources

- Provide financial support for conference fees or publication costs.
- Help researchers apply for grants or institutional sponsorship.
- Offer access to design tools for poster preparation.

Encourage Peer Reviews & Feedback

- Set up internal review committees for pre-evaluation.
- Organize mock presentations for feedback and improvement.
- Create a supportive environment for constructive criticism.

Provide Recognition & Incentives

- Acknowledge successful presentations and publications.
- Offer awards or certificates for outstanding research communication.
- Highlight achievements in institutional newsletters or websites.

Streamline Submission Processes

- Guide researchers on submission timelines and requirements.
- Provide templates for posters, abstracts, and manuscripts.
- Maintain a repository of past successful submissions as references.

		Create Research Interest Groups (RIGs) • Form specialized groups based on research themes for discussions and collaboration. • Organize periodic meetings to review and discuss ongoing research. • Encourage interdisciplinary research to enhance innovation. **Establish Mentorship Programs** • Pair junior researchers with experienced mentors for guidance. • Provide personalized feedback on research, presentation, and writing skills. • Encourage networking with experts through seminars and webinars. **Organize Internal Research Presentation Days** • Set up regular research presentation events within the institution. • Encourage researchers to present their findings **Time Duration:3 hours**
NLHT 6.2	Conduct Literature Search in Medical Databases, MeSH terms, Boolean search	**Purpose** : Make the students Identify the problem, select research topic, and appraise review of literature Formulate research hypothesis and objectives Demonstration through Edu videos/ Orientation sessions by expert persons on Conduct Literature Search in Medical Databases, MeSH terms, Boolean search After Demonstartion, the students can have a hands on training sessions . **Time duration : 3 Hours**

NLHT 6.3	Identification of research topic, research problem and appraise review of literature	**Small group activity** **Purpose** : The students will be able to Identify the research topic, research problem and appraise review of literature Formulate research hypothesis and objectives and Select the appropriate materials and methods for research study. **Activity** Divide the students into four-five small groups. Each group will brainstorm possible research topics in a medical field of their choice. Ask each group to define a research problem based on the topic they selected. Example: If the topic is "Diabetes management", the research problem might be, "What are the factors affecting medication adherence in Type 2 Diabetes patients in urban areas?" Alternatively, ask the students to find a research article relevant to their topic using online databases. Ask students to Identify key findings, methods, and conclusions from the literature. Assess the gaps or limitations in the existing research. Discuss how this literature review informs their own research problem. Guide the students to frame the hypothesis for respective research question form the above activity. **Time duration : 3 Hours**
NLHT 6.4	Planning and conducting the research	**Purpose** : Students will be able to recognise Planning and conducting the research Start with a brief discussion of the importance of selecting appropriate materials and methods in research. **Group Formation**: Divide students into groups of 3–4. **Research Topic and materials**: Each group selects or is assigned a general research topic Depending on their chosen topic and problem ask the groups to decide on the materials they will need and Siddha assessment tools **Surveys and Questionnaires**: Tools for collecting self-reported data. **Medical Equipment**: Devices like blood pressure cuffs, thermometers, glucose meters. **Software**: Statistical tools (SPSS, R, Excel) or qualitative analysis software (NVivo). **Data Sources**: Databases, medical records, or patient registries. **Ethical Considerations**: Ensure that the materials selected are ethically sound (e.g., consent forms, patient confidentiality).

		Research design: Ask each group to decide on the data collection methods, statistical or techniques they will use to interpret their data that best suit their research problem by searching similar topics online. Ask the groups to select the **Time duration : 3 Hours**

Non Lecture Hour Practical		
S.No	**Name of Practical**	**Description of Practical Activity**

Topic 7 Various database and Portals (LH :4 NLHT: 2 NLHP: 0)

A3	B3	C3	D3	E3	F3	G3	H3	I3	J3	K3
CO3	Demonstrate the use of AYUSH Research Portal,PubMed,SCOPUS, Web of science,.UGC CARE,CTRI,Siddha YI-ABC,SEARCHi,	CC	NK	KH	BS,PrBL,L&GD,CBL,DIS	PA,P-SUR,P-ID,P-PRF,Mini-CEX	F&S	2	-	LH
CO3	**I**llustrate use of NAMASTE Portal, A-HMIS	CC	DK	KH	L&PPT,BS,DIS,TPW	P-PRF,P-SUR,P-POS,P-CASE,PRN	F&S	2	-	LH
CO1, CO2, CO3	Illustrate use of Various Database and portals of AYUSH, Siddha	PSY-SET	DK	KH	BS,CBL,DIS,TBL,BL	P-RP,P-PS,P-EN,P-PRF,P-EXAM	F&S	2	-	NLHT7.1

Non Lecture Hour Theory		
S.No	**Name of Activity**	**Description of Theory Activity**
NLHT 7.1	Team based learning	**Team based learning** **Purpose**

		Students will be able to appreciate use of AYUSH Research Portal, PubMed,SCOPUS, Web of science,.UGC CARE, CTRI, SiddhaYI-ABC, SEARCHi in Siddha research, **Activity** Allot the databases/portals to each student teams and let each on display the web pages of these databases/portals and educate the pupils on their benefits. **Time duration -2 hours**

Non Lecture Hour Practical

S.No	Name of Practical	Description of Practical Activity

Topic 8 Various Guidelines to report research (LH :2 NLHT: 3 NLHP: 0)

A3	B3	C3	D3	E3	F3	G3	H3	I3	J3	K3
CO1, CO3	Explain various guidelines to report research like CARE, PRISMA, ARRIVE, CONSORT, STROBE	CK	NK	K	PBL,L&PPT ,PL,KL,L&GD	P-PRF,P-EXAM,DOPS,PA,DOPS	F&S	2	-	LH
CO4	Discuss and present various Guidelines to report research	PSY-SET	DK	KH	L&GD, TBL,CBL	360D,OSPE,CBA	F&S	2	-	NLHT8.1
CO1, CO3, CO4, CO5	Elaborate on steps of research presentation in a conference as oral or poster	PSY-MEC	NK	SH	PER,TPW,BS,TBL,PL	DOPS,DOPS	F	2	-	NLHT8.2

Non Lecture Hour Theory

S.No	Name of Activity	Description of Theory Activity
NLHT 8.1	Group activity on Orientation on various	**Group activity**

	Guidelines to report research	Purpose : Students will be introduced to different reporting guidelines, focusing on their purposes and key components (e.g., CONSORT for clinical trials, STROBE for observational studies, PRISMA for systematic reviews, CARE for case reports). **Activity** Divide students into small groups (10-15 students per group). Assign each group a specific research study and provide them with the corresponding guideline checklist (e.g., CONSORT for clinical trial studies). Ask the groups to review the study using the reporting guideline checklist, identifying elements of the research that are missing or not clearly reported. Groups should note their findings on a whiteboard or in a shared document. After the review, each group presents their findings, focusing on the areas where the study complied with the reporting guidelines and where it fell short. Ask students to reflect on the activity and share any insights they gained about the importance of adhering to research reporting guidelines. **Time duration:1 hour**
NLHT 8.2	Role play on Research presentation in a conference as oral or poster	**Role play** Students can take any study results from a published paper and have a role play of presenting them in a conference among their peers and staffs. Presentations : Students present their research projects in a seminar or conference-style setting. Outcome: Develops communication skills and fosters scientific discussions **Time duration -2 hours**

Non Lecture Hour Practical

S.No	Name of Practical	Description of Practical Activity

Topic 9 Intellectual Property Right (IPR) /Patent/Copyright (LH :2 NLHT: 1 NLHP: 0)

A3	B3	C3	D3	E3	F3	G3	H3	I3	J3	K3
CO5	Identify and relate Intellectual Property Right (IPR)/Patent/TKDL	CK	NK	K	L&PPT	VV-Viva,	F&S	2	-	LH

					,IBL,SY ,BS,PB L	WP,QZ ,INT,P-POS				
CO5	Appraise on the importance of IPR	AFT-REC	NK	K	FC,L&P PT ,DIS ,REC,C BL	P-VIVA,M-CHT,CR-RED,P-PS,SA	F&S	2	-	LH
CO5	Identify and present Intellectual Property Right (IPR)/Patent/TKDL	PSY-SET	NK	K	CBL,PT ,LS,TP W,L&G D	P-POS,P-RP,QZ	F&S	2	-	NLHT9.1

Non Lecture Hour Theory

S.No	Name of Activity	Description of Theory Activity
NLHT 9.1	Group activity /Feild visits/ Expert sessions on IPR, Patent and TKDL	**Group activity /Feild visits/ Expert sessions** **Purpose** : To understand IPR/Patent/TKDL.Divide the students in group and let one student from each group present on IPR, Patent and TKDL **Hands-on Patent Search & TKDL Exploration** • Provide training on how to search for patents in databases like WIPO, USPTO, and Indian Patent Office. • Explore the TKDL portal to understand its role in preserving traditional knowledge. **Field Visit or Industry Interaction** • Arrange visits to patent offices, law firms, or research institutions dealing with IPR. • Conduct expert sessions with patent attorneys, innovators, or TKDL experts.

		• Conduct an awareness drive to educate about the importance of protecting innovations and traditional knowledge. **Time duration -1 hour**
Non Lecture Hour Practical		
S.No	**Name of Practical**	**Description of Practical Activity**

Topic 10 Research Critique (LH :3 NLHT: 7 NLHP: 0)

A3	B3	C3	D3	E3	F3	G3	H3	I3	J3	K3
CO1, CO2, CO3, CO4, CO5	Describe the concept of Research Critique	CK	DK	K	L&PPT ,RLE,SDL,KL	VV-Viva,P-SUR,P-ID	F&S	2	-	LH
CO1, CO2, CO3, CO4, CO5	Explain and Define Research Critique	CK	MK	K	SDL,L &PPT , FC,DIS, BS	P-VIVA,INT,CL-PR,360D	F&S	2	-	LH
CO1, CO2, CO3, CO4, CO5	Recognize the process of critical evaluation of Research article	CC	DK	K	TBL,DIS,BS,L &GD	P-PS,P-VIVA,Mini-CEX,INT	F	2	-	LH
CO3, CO5	Explain Bibliometrics (Impact factor, i-10 index, h-index, cite score)	CK	NK	K	DIS,L&PPT ,TBL,SDL	P-VIVA,INT,COM,CHK	F	2	-	LH

CO3, CO5	Differentiate different types of Reference formats	CK	MK	K	TBL,L &PPT ,TPW,F C	P-EN,PRN, CL-PR,Min i-CEX,DEB	F&S	2	-	LH
CO3, CO5	Identify predatory and Quality Journals.	CK	NK	K	W,BS,S DL,TBL ,L&PPT	PRN,CL-P R,P-POS,CHK	F	2	-	LH
CO3, CO5	Identify study strength and weakness through Research Critiquing and its steps	PSY-SET	DK	KH	FC,ED U,ML,D IS,PER	C-INT,P-R P,T-CS,M-POS	F&S	2	-	NLHT10.1
CO1, CO2, CO3, CO4, CO5	Explore on Good vs. Bad Research through debate	PSY-SET	NK	KH	SDL,L &GD,P BL,BS	INT,P-EXA M,P-REC	F	2	-	NLHT10.2
CO4	Identify of“Red Flags” in Research	PSY-SET	DK	KH	L&GD, L_VC, ML,PE R	C-INT,P-P RF,DEB,C HK,P-RP	F&S	2	-	NLHT10.3

Non Lecture Hour Theory

S.No	Name of Activity	Description of Theory Activity
NLHT 10.1	Research Critiquing	**Peer learning** **Purpose** : To identify the strength and weakness of a study **Activity:** Students need to select 3-4 research papers related to the topic of interest. Ensure these papers have a variety of strengths and weaknesses for discussion. Create critique sheets that participants can fill out for each study. Include questions like:

		What is the main research question or hypothesis, what are the key findings, what are the strengths of the study, what are the weaknesses or limitations of the study, how could the study be improved? Then divide participants into groups (ideally 10-15 people per group). Assign each group one research paper to start with. They'll spend 20-30 minutes reading the paper and completing the critique sheet. After 30 minutes, have each group rotate to the next research paper. Repeat the process until each group has reviewed all the papers Final Reflection (30 minutes): Once the above activity is complete, come together as a whole group to discuss insights and the overall critiques. What were common strengths and weaknesses across the studies? How can these insights be applied to future research? **Time duration : 3 hours**
NLHT 10.2	Good vs. Bad Research - debate	Debate on Good vs. Bad Research Let the students have two teams and discuss as debate on Good Vs Bad research 1.Structured Debate (Oxford-Style or Fishbowl) 2. Case Study Analysis. 3. Peer Review Simulation 4. Role-Playing 5. Gamification: "Spot the Flaw" Challenge 6. Research Integrity Mock Trial 7. Reverse Engineering a Fake Study 8. Real-World Expert Panel or Guest Speaker Discussion **Time duration -2 hours**
NLHT 10.3	"Red Flags" in Research Research Integrity Detective Role-Play Ethics Board Debate: "Should This Study Be	**Activity:** Provide students with three research abstracts—one well-structured, one with minor flaws, and one with major flaws (e.g., bias, missing methodology, exaggerated conclusions).

	Published?”	• Students identify weaknesses and discuss how to improve each study. • Outcome: Enhances the ability to detect biases, weak methodologies, and unethical research practices. **Peer-Review Simulation (“Find the Flaws”)** • Assign students to review flawed research proposals or papers. • Some students act as peer reviewers, while others defend their research. • They must argue their case using ethical and methodological reasoning. **Research Integrity Detective Role-Play** • Students play roles of investigators, researchers, ethics committee members, and whistleblowers. • Provide a case study of a manipulated or retracted study and let students uncover ethical breaches. • Discuss how these red flags affect public trust, policy, and scientific credibility. **Ethics Board Debate: “Should This Study Be Published?”** • Present a controversial or questionable research case. • Assign roles: ethics board members, researchers, funding agencies, and the public. • They debate whether the study should be approved, revised, or rejected based on ethical and methodological concerns. **Time duration -2 hours**

Non Lecture Hour Practical		
S.No	**Name of Practical**	**Description of Practical Activity**

Topic 11 Introduction to Medical Statistics (LH :1 NLHT: 1 NLHP: 0)										
A3	**B3**	**C3**	**D3**	**E3**	**F3**	**G3**	**H3**	**I3**	**J3**	**K3**
CO1	Define Statistics, Medical statistics	CK	MK	K	PL,TBL	INT	F&S	2	-	LH
CO1, CO4	Describe Scope of Medical statistics, its application in research studies and its relevance in Siddha system	CC	MK	KH	TBL,IBL	PRN,INT	F&S	2	-	LH
CO1	Demonstfrate the Scope of medical statistics	CK	MK	K	PL,TBL,L&PPT	O-QZ,CL-PR	F&S	2	-	NLHT11.1

Non Lecture Hour Theory		
S.No	**Name of Activity**	**Description of Theory Activity**
NLHT 11.1	Hands on training to collect, organize, analyse and infer the data findings	**Demonstration by teacher:** Using a simple data set the teacher demonstrates and clarifies the concepts of Staistics, how it differ from Biostatistics. **Hands-on training:** The students are grouped into three or four or more, with a maximum of 20 students in each group.Then, they are asked to collect basic information regarding each student in their respective groups, like name, native place, height, and weight, and record the details in writing.The teacher helps the students to collect, organize, analyse and infer from the collected information.Every group should present their findings in the class. **Conclusion and summarization:** The teacher then discusses the key aspects and provides inputs for further application of the concepts. **Time duration : 1 Hour**

Non Lecture Hour Practical		
S.No	**Name of Practical**	**Description of Practical Activity**

Topic 12 Data (LH :1 NLHT: 2 NLHP: 0)										
A3	**B3**	**C3**	**D3**	**E3**	**F3**	**G3**	**H3**	**I3**	**J3**	**K3**
CO1	Define Data , Describe and classify different types of Data [Quantitative, Qualitative (categorical), Discrete, Continuous]	CK	MK	K	L&PPT	P-ID,PUZ, T-OBT,PRN,QZ	F&S	3	-	LH
CO1	Define and classify different types of Scales: Ordinal, Nominal, Interval, Ratio	CK	MK	K	L&PPT	P-ID	F&S	3	-	LH
CO1	Dicuss on Data types and scales	CC	MK	KH	TBL,L &GD	INT	F&S	3	-	NLHT12.1

Non Lecture Hour Theory

S.No	Name of Activity	Description of Theory Activity
NLHT 12.1	Hands on training of data types and scales	Demonstration by teacher: Using a simple data set, the teacher demonstrates various data types and scales. **Hands-on training:** The students are grouped into three or four groups, with a maximum of 20 students in each group. The teacher then presents a data set that contains different types of data. The students are then allowed to discuss and determine the correct data types and scales for the given data. The activity is repeated with two, three, or more data sets. **Conclusion and summarization:** The teacher then discusses the key aspects of data classification and measuring scales. **Time duration : 2 Hours**

Non Lecture Hour Practical

S.No	Name of Practical	Description of Practical Activity

Topic 13 Basic Statistical terms (LH :1 NLHT: 2 NLHP: 0)										
A3	**B3**	**C3**	**D3**	**E3**	**F3**	**G3**	**H3**	**I3**	**J3**	**K3**
CO1	Describe Basic Statistical terms	CK	MK	K	L&PPT	SA	F&S	3	-	LH
CO1	Differentiate between Variable (Dependent and Independent) and Attribute	CK	MK	K	L&PPT	QZ ,CL-PR,PUZ	F&S	3	-	LH
CO1, CO2	Demonstrate Basic Statistical terms.	PSY-GUD	MK	SH	D,L&GD	P-VIVA,Log book	F&S	3	-	NLHT13.1

Non Lecture Hour Theory

S.No	Name of Activity	Description of Theory Activity
NLHT 13.1	Statistical terms	Demonstration by teacher: Using scientific articles, the teacher identifies the population, sample, variables and attributes appearing in the study. Hands-on training: The students are grouped into three or four groups, with a maximum of 20 students in each group. The teacher gives two or three scientific articles to each group. The students in the groups discuss, identify, and record the population, sample, variables, and attributes appearing in each article and present the findings in class. Conclusion and summarization: The teacher then concludes and summarizes key aspects and provides additional inputs for improvisation. **Total Duration - 2 Hrs**

Non Lecture Hour Practical

S.No	Name of Practical	Description of Practical Activity

Topic 14 Collection and Presentation of Data (LH :2 NLHT: 4 NLHP: 0)										
A3	**B3**	**C3**	**D3**	**E3**	**F3**	**G3**	**H3**	**I3**	**J3**	**K3**

CO1	Differentiate between types of Data Collection [Primary, Secondary, Observation, Survey, Focus Group, Interview]	CK	MK	K	L&GD, TBL,PL ,L&PPT	T-OBT,INT ,PUZ,QZ ,O-QZ	F&S	3	-	LH
CO1	Demonstrate different types of Presentation of data (Textual, Tabular and Graphical)	CK	MK	K	D,DIS,T BL,L_V C,IBL	DOAP,PA, P-ID,PUZ,I NT	F&S	3	-	LH
CO1	Demonstrate the practical aspects of data collection methods	CC	MK	D	D,TBL, PrBL	P-PRF	F&S	3	-	NLHT14.1
CO1	Demonstrate various methods of data presentation	CAP	MK	KH	PER,TB L,D,BL, L&GD	DOPS,DOP S,PRN,P-PRF	F&S	3	-	NLHT14.2

Non Lecture Hour Theory

S.No	Name of Activity	Description of Theory Activity
NLHT 14.1	Demonstartion on data collection methods	**Demonstration by teacher:** The teacher elaborates on practical aspects of data collection methods using various patient scenarios. **Hands-on training:** The students are grouped into three or four groups, with a maximum of 20 students in each group. Each group collects basic demographic, anthropometric, and clinical data of a minimum of 20 patients using specific data collection methods and records the data with the teacher's help within the allocated time. **Conclusion and summarization:** The teacher then concludes and summarizes the key aspects of data collection and their applicability in different scenarios. **Time duration :** 2 Hours
NLHT 14.2	Demonstration on Data presentation	**Demonstration by teacher:** The teacher demonstrates various methods of data presentation, highlighting the key components. **Hands-on training:** The student groups summarize the data collected from activity 14.1 into tables

		and then to appropriate graphs. Each group then present the data to the class. **Conclusion and summarization:** The teacher then concludes and summarizes the key aspects of data presentation and important aspects to be considered while presenting the data. **Time duration : 2 Hours**

Non Lecture Hour Practical

S.No	Name of Practical	Description of Practical Activity

Topic 15 Measures of Central Tendency (LH :2 NLHT: 4 NLHP: 0)

A3	B3	C3	D3	E3	F3	G3	H3	I3	J3	K3
CO1	Define Measures of Central Tendency and explain the qualities of Good measure of tendency	CK	MK	K	L&PPT,L	P-PRF,P-ID,PRN	F&S	3	-	LH
CO1	Define and calculate Arithmetic Mean, Median, Mode and its significance in research	CK	MK	K	PSM,D	P-PS,P-ID,CR-RED,SA,DOAP	F&S	3	-	LH
CO1	Calculate the measures of central tendency	CAP	MK	SH	D,PBL,PSM,PrBL	PRN,P-PRF	F&S	3	-	NLHT15.1

Non Lecture Hour Theory

S.No	Name of Activity	Description of Theory Activity
NLHT 15.1	Calculation of measures of central tendency	**Demonstration by teacher:** Using specific data sets the teacher demonstrates how to calculate mean, median and mode from the given data. **Hands-on training:**The students are given three or four data sets to calculate different measures of central tendency from the data. **Conclusion and summarization:** Theteacher discusses the importance and applicability of various measures of central tendency and describes a good measure of central tendency.

		Time duration : 4 Hours

Non Lecture Hour Practical		
S.No	**Name of Practical**	**Description of Practical Activity**

Topic 16 Measures of Deviation / Dispersion / Variability (LH :3 NLHT: 6 NLHP: 0)

A3	B3	C3	D3	E3	F3	G3	H3	I3	J3	K3
CO1	Define Measures of Deviation/ Dispersion / Variability and explain the Qualities of Good measure of variability	CK	MK	K	D,TBL, TPW,P BL,IBL	M-CHT,PR N,P-PS	F&S	3	-	LH
CO1	Measure the Range and calculate Quartile Deviation, Mean Deviation, Standard Deviation ,Variance and its coefficient and Standard Error	CK	MK	KH	TUT,L &GD,T BL,FC, L&PPT	CL-PR,INT ,PUZ	F&S	3	-	LH
CO1	Demonstrate Calculating measures of central tendency.	CAP	MK	SH	TBL,TP W,D	P-PS	F&S	3	-	NLHT16.1
CO1	Calculate measures of central tendency (variance and coefficient variation)	CC	DK	KH	PER,D, PL,PBL ,PrBL	CL-PR,PA, DOAP	F&S	3	-	NLHT16.2

Non Lecture Hour Theory		
S.No	**Name of Activity**	**Description of Theory Activity**
NLHT 16.1	Demonstartion on calculation of Range, Mean deviation and Standard deviation	**Demonstration by teacher:** Using specific data sets the teacher demonstrates how to calculate range,mean deviation and standard deviation from the given data. **Hands on training:** The students are given three or four data sets to calculate the Range, Mean Deviation, and standard deviation from the data. **Conclusion and summarization:** The teacher discusses the data sets and explains the difference

		between range, mean deviation, and standard deviation. **Time duration : 3 Hours**
NLHT 16.2	Demonstration on calculating measures of central tendency-02 (variance and coefficient variation)	**Demonstration by teacher:** Using the same data sets from activity -1 The teacher demonstrates how to calculate variance and coefficient variation from the given data. **Hands-on training:** The students are then given three or four data sets to calculate variance and coefficient variation from the data. **Conclusion and summarization:** The teacher discusses the data sets and explains variance and coefficient ofvariation and their applicability. Further, the teacher elaborates on good measures of dispersion. **Time duration : 3 Hours**

Non Lecture Hour Practical

S.No	Name of Practical	Description of Practical Activity

Topic 17 Probability (LH :2 NLHT: 4 NLHP: 0)

A3	B3	C3	D3	E3	F3	G3	H3	I3	J3	K3
CO1	Explain Probability and explain Normal Distribution Curve	CK	MK	K	TUT,TBL,L&PPT ,L&GD,BS	O-QZ,PUZ, PA	F&S	3	-	LH
CO1	Define and explain Symmetric and Asymmetric Distribution	CK	NK	K	L&PPT	INT	F&S	3	-	LH
CO1	Demonstrate normal distribution curve and its variations, like skewness and kurtosis and its significance	CC	MK	KH	PSM,TBL,PBL ,D	P-ID,INT,PRN	F&S	3	-	NLHT17.1

Non Lecture Hour Theory

S.No	Name of Activity	Description of Theory Activity
NLHT 17.1	Identification of normal distribution curve and its variations, like skewness and kurtosis	**Demonstration by teacher:** The teacher demonstrates the normal distribution curve and its variations, like skewness and kurtosis, using different data. The teacher also demonstrates probability based on the normal distribution. **Hands on training:** The students are given tabulated data to develop normal distribution curves. Then,they conduct probability predictions from the curve.Also students can refer suitable published research articles and identify normal distribution curve and its variations, like skewness and kurtosis. **Conclusion and summarization:** The teacher discusses the findings and clarifies doubts. **Time Duration :4 Hours**

Non Lecture Hour Practical

S.No	Name of Practical	Description of Practical Activity

Topic 18 Hypothesis, Test of Significance and Sampling (LH :3 NLHT: 5 NLHP: 0)

A3	B3	C3	D3	E3	F3	G3	H3	I3	J3	K3
CO1	Explain Hypothesis and its significance in research	CK	MK	K	D,PSM,L,DIS,L&PPT	INT,PRN	F&S	3	-	LH
CO1	Explain Hypothesis	PSY-GUD	DK	SH	BS,L&GD,D-BED,RP,IBL	PRN,P-EN,PUZ,DEB	F&S	3	-	NLHT18.1
CO1	Explain Sampling and its types and define sample size	CK	MK	K	L_VC,L&GD,PBL,L&PPT ,IBL	VV-Viva,SBA	F&S	3	-	LH
CO1	Describe Testing of significance	CC	DK	KH	L&PPT	SBA,DOA	F&S	3	-	NLHT18.2

					,L&GD, PSM,D	P				

Non Lecture Hour Theory

S.No	Name of Activity	Description of Theory Activity
NLHT 18.1	Development of Research Hypothesis	**Demonstration by teacher:** The teacher demonstrates systematic development of a hypothesis from a research problem. **Hands-on training:** The students are grouped into three or four groups, with a maximum of 20 students in each group. Each group develop hypotheses from three or four given research problems. Then, they present the hypotheses in class**.** **Conclusion and summarization:** The teacher discusses various hypotheses developed by the groups and summarizes the critical aspects. **Time Duration: 3 Hours**
NLHT 18.2	Identification of steps in Testing of significance	**Demonstration by teacher:** The teacher demonstrates the steps involved in testing a hypothesis using data from different scientific articles. **Hands-on training:** The students groups are then given three or four articles to identify and record the steps of hypothesis testing in them. Then, they will present the data in class. **Conclusion and summarization:** The teacher concludes with significant points regarding the testing of the hypothesis. **Time Duration: 2 Hours**

Non Lecture Hour Practical

S.No	Name of Practical	Description of Practical Activity

Topic 19 Parametric and non-parametric tests (LH :2 NLHT: 4 NLHP: 0)

A3	B3	C3	D3	E3	F3	G3	H3	I3	J3	K3
CO1	Explain and differentiate Parametric and Non-parametric tests	CK	MK	K	PER,GB	QZ ,O-	F&S	3	-	LH

					L,PBL,IBL,L&PPT	QZ,P-ID				
CO1	Demonstrate difference between Parametric and Non-parametric tests	CC	DK	KH	DIS,TBL,D,PL	DOAP,PA,CR-RED,INT	F&S	3	-	NLHT19.1

Non Lecture Hour Theory

S.No	Name of Activity	Description of Theory Activity
NLHT 19.1	Demonstration and Hands on training on difference between Parametric and Non-parametric tests	**Demonstration by teacher:** The teacher demonstrates the difference between parametric and nonparametric tests and introduces various parametric and nonparametric tests. **Hands-on training:** The teacher provides three or four scientific articles to the students in groups. The students discuss and understand the application of parametric or nonparametric tests, and they record their findings. **Conclusion and summarization:** The teacher concludes with major points regarding the applicability of parametric and nonparametric tests. **Time Duration: 4 Hours**

Non Lecture Hour Practical

S.No	Name of Practical	Description of Practical Activity

Topic 20 Correlation and regression (LH :2 NLHT: 4 NLHP: 0)

A3	B3	C3	D3	E3	F3	G3	H3	I3	J3	K3
CO1, CO4	Explain Correlation and Regression and its applications in medical research	CK	MK	K	PBL,L&PPT ,D, TBL,IBL	PUZ,CL-PR,QZ	F&S	3	-	LH

CO1, CO4	Demonstrate the applications of Correlation and Regression	CC	NK	KH	PL,PBL,PER,D,BS	P-ID,PRN	F&S	3	-	LH

Non Lecture Hour Theory		
S.No	**Name of Activity**	**Description of Theory Activity**

Non Lecture Hour Practical		
S.No	**Name of Practical**	**Description of Practical Activity**

Topic 21 Commonly used statistical software (LH :1 NLHT: 4 NLHP: 0)

A3	B3	C3	D3	E3	F3	G3	H3	I3	J3	K3
CO1, CO4	Demonstrate different Software used for Statistical Analysis	CC	MK	K	L&PPT,L&GD	P-ID,P-PS,INT,CL-PR,QZ	F&S	3	-	LH
CO1, CO4	Demonstrate hands on training for statistical softwares	PSY-GUD	DK	KH	L_VC,TBL,RLE,TUT,L&PPT	P-PRF,DOPS,CL-PR,P-PS,QZ	F&S	3	-	NLHT21.1

Non Lecture Hour Theory		
S.No	**Name of Activity**	**Description of Theory Activity**
NLHT 21.1	Performing simple statistical statistical tests using software	**Demonstration by teacher:**The teacher introduces various statistical software and its features and demonstrates any of them by performing some simple statistical tests. **Hands-on training:**Students are allowed to review various statistical software, understand its features, and prepare a note. **Conclusion and summarization:** The teacher concludes with major points regarding statistical software and their applicability. **Time Duration: 4 Hours**

Non Lecture Hour Practical		
S.No	**Name of Practical**	**Description of Practical Activity**

Table 4 : NLHT Activity

(*Refer table 3 of similar activity number)

Activity No*	CO No	Activity details
1.1	CO1	Role play / discussion the history and evolution of research
1.2	CO1,CO2	Game based learning on the importance of logical reasoning in research and research concepts of Siddha system
2.1	CO1	Debate on Interdisciplinary Collaboration- Group activity
3.1	CO1,CO2	Small survey
3.2	CO1,CO2	Real-World Data Collection
4.1	CO1,CO3	In Situ, In Silico, In Vivo, In Vitro
4.2	CO1,CO3	Systematic review and Meta-analysis
4.3	CO1,CO2	Symposium on various research designs
4.4	CO1,CO2,CO3	Differences between Qualitative, Quantitative and Mixed Research, Observational and Interventional studies.
4.5	CO1,CO2	Group activity on Identification of study design and its significance in research
4.6	CO1,CO2	Research Proposal Presentation Exercise
4.7	CO1,CO2	Field visit to understand Preclinical methods in research
5.1	CO5	Role play on responsibilities of ethics committee and its constitution
5.2	CO5	Role play on Informed Consent

5.3	CO5	Research Ethics Audit and plagiarism
6.1	CO2,CO5	Conduct Literature Search in Medical Databases, MeSH terms, Boolean search
6.2	CO2,CO5	Basic steps for research practice
6.3	CO1,CO2,CO4,CO5	Identification of research topic, research problem and appraise review of literature
6.4	CO2,CO5	Planning and conducting the research
7.1	CO1,CO2,CO3	Team based learning
8.1	CO1,CO3,CO4,CO5	Role play on Research presentation in a conference as oral or poster
8.2	CO4	Group activity on Orientation on various Guidelines to report research
9.1	CO5	Group activity /Feild visits/ Expert sessions on IPR, Patent and TKDL
10.1	CO1,CO2,CO3,CO4, CO5	Good vs. Bad Research - debate
10.2	CO3,CO5	Research Critiquing
10.3	CO4	“Red Flags” in Research Research Integrity Detective Role-Play Ethics Board Debate: “Should This Study Be Published?”
11.1	CO1	Hands on training to collect, organize, analyse and infer the data findings
12.1	CO1	Hands on training of data types and scales
13.1	CO1,CO2	Statistical terms
14.1	CO1	Demonstartion on data collection methods
14.2	CO1	Demonstration on Data presentation
15.1	CO1	Calculation of measures of central tendency

16.1	CO1	Demonstartion on calculation of Range, Mean deviation and Standard deviation
16.2	CO1	Demonstration on calculating measures of central tendency-02 (variance and coefficient variation)
17.1	CO1	Identification of normal distribution curve and its variations, like skewness and kurtosis
18.1	CO1	Development of Research Hypothesis
18.2	CO1	Identification of steps in Testing of significance
19.1	CO1	Demonstration and Hands on training on difference between Parametric and Non-parametric tests
21.1	CO1,CO4	Performing simple statistical statistical tests using software

Table 5 : List of Practicals

Not Applicable

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

6 A : Number of Papers and Marks Distribution

Subject Code	Papers	Theory	Practical/Clinical Assessment (50)					Grand Total
			Practical	Viva	Elective	IA	Sub Total	
SIDUG-RM	1	100	-	30	-	20	50	150

6 B : Scheme of Assessment (Formative and Summative)

PROFESSIONAL COURSE	FORMATIVE ASSESSMENT			SUMMATIVE ASSESSMENT
	First Term (1-6 Months)	Second Term (7-12 Months)	Third Term (13-18 Months)	
Third	3 PA & First TT	3 PA & Second TT	3 PA	**UE****

PA: Periodical Assessment; **TT:** Term Test; **UE:** University Examinations; **NA:** Not Applicable.
**University Examination shall be on entire syllabus

6 C : Calculation Method for Internal assessment Marks

Term	Periodical Assessment*				Term Test**	Term Assessment	
	A	B	C	D	E	F	G
	1 (20)	2 (20)	3 (20)	Average **(A+B+C/ 3)** (20)	Term Test (MCQ+SAQ+LAQ and Practical) (Converted to 20)	Sub Total	Term Assessment
First						**D+E**	**D+E /2**
Second						**D+E**	**D+E /2**
Third					NIL		**D**
Final IA	**Average of Three Term Assessment Marks as Shown in 'G' Column**						
	* Select an Evaluation Methods which is appropriate for the objectives of Topics from the Table 6 D. Convert it to 20 marks. ** Conduct Theory (100 Marks) (MCQ (20*1 Marks), SAQ (8*5), LAQ (4*10)) and Practical (100 Marks) Then convert to 20 Marks.						

6 D : Evaluation Methods for Periodical Assessment

S. No.	Evaluation Methods
1.	Practical / Clinical Performance
2.	Viva Voce, MCQs, MEQ (Modified Essay Questions/Structured Questions)
3.	Open Book Test (Problem Based)
4.	Summary Writing (Research Papers/ Samhitas)
5.	Class Presentations; Work Book Maintenance
6.	Problem Based Assignment
7.	Objective Structured Clinical Examination (OSCE), Objective Structured Practical Examination (OPSE), Mini Clinical Evaluation Exercise (Mini-CEX), Direct Observation of Procedures (DOP), Case Based Discussion (CBD)
8.	Extra-curricular Activities, (Social Work, Public Awareness, Surveillance Activities, Sports or Other Activities which may be decided by the department).
9.	Small Project
10.	Activities Indicated in Table 3 - Column G3 as per Indicated I, II or III term in column I3.

Topics for Periodic Assessments

Exam type	Paper 1
PA1	Topic No – 1
PA 2	Topic No - 2,3
PA 3	Topic No – 4
TT 1	Topic No – 1-5
PA 4	Topic No – 6,7
PA 5	Topic No – 8,9
PA 6	Topic No – 10
TT 2	Topic No – 6-11
PA 7	Topic No – 12,13,14
PA 8	Topic No – 15,16,17
PA 9	Topic No – 18,19,20,21

6 E : Question Paper Pattern

III PROFESSIONAL B.S.M.S EXAMINATIONS
SIDUG-RM
PAPER-I
Time: 3 Hours Maximum Marks: 100
INSTRUCTIONS: All questions compulsory

		Number of Questions	**Marks per question**	**Total Marks**
Q 1	MULTIPLE CHOICE QUESTIONS (MCQ)	20	1	20
Q 2	SHORT ANSWER QUESTIONS (SAQ)	8	5	40
Q 3	LONG ANSWER QUESTIONS (LAQ)	4	10	40
				100

6 F : Distribution of theory examination

Paper 1 (RESEARCH METHODOLOGY AND MEDICAL STATISTICS)					
Sr. No	**A List of Topics**	**B Marks**	**MCQ**	**SAQ**	**LAQ**
1	**Introduction to Research**	12	Yes	Yes	Yes
2	**Evidence Based Medicine and Integrative Medicine**		Yes	Yes	No
3	**Types of Research**		Yes	Yes	Yes
4	**Research Designs**	12	Yes	Yes	Yes
5	**Research Ethics**	10	Yes	Yes	Yes
6	**Research Process**	15	Yes	Yes	Yes
7	**Various database and Portals**	1	Yes	No	No
8	**Various Guidelines to report research**	1	Yes	No	No
9	**Intellectual Property Right (IPR) /Patent/Copyright**	9	Yes	Yes	No
10	**Research Critique**		Yes	Yes	No
11	**Introduction to Medical Statistics**	2	Yes	No	No
12	**Data**	2	Yes	No	No
13	**Basic Statistical terms**	1	Yes	No	No
14	**Collection and Presentation of Data**	10	No	Yes	Yes
15	**Measures of Central Tendency**	5	Yes	Yes	No
16	**Measures of Deviation / Dispersion / Variability**		Yes	Yes	No
17	**Probability**	10	No	No	Yes
18	**Hypothesis, Test of Significance and Sampling**		No	No	Yes
19	**Parametric and non-parametric tests**	8	Yes	Yes	No
20	**Correlation and regression**		Yes	Yes	No
21	**Commonly used statistical software**	2	Yes	No	No
Total Marks		**100**			

6 G : Instructions for UG Paper Setting & Blue print

1. All questions shall be compulsory.
2. The maximum marks for one question paper shall be 100.
3. Questions shall be drawn based on Table 6F, which provides the topic name, types of questions (MCQ(Multiple Choice Question), SAQ(Short Answer Question), LAQ(Long Answer Question)).
4. The marks assigned in Table 6F for each topic/group of topics shall be considered as the maximum allowable marks for that topic/group of topics.
5. Ensure that the total marks allocated per topic/group of topics do not exceed the limits specified in Table 6F.
6. Refer to Table 6F before setting the questions. Questions shall be framed only from topics where the type is marked as “YES”, and avoided if marked as “NO”.
7. Each 100-mark question paper shall contain:
   - 20 MCQs
   - 8 SAQs
   - 4 LAQs
8. MCQs:
   - Majority shall be drawn from the Must to Know part of the syllabus.
   - Questions from the Desirable to Know part of syllabus shall not exceed 3.
   - Questions from the Nice to Know part of syllabus shall not exceed 2.
9. SAQs:
   - Majority shall be drawn from the Must to Know part of the syllabus.
   - Questions from the Desirable to Know part of syllabus shall not exceed 1.
   - No questions shall be drawn from the Nice to Know part of syllabus.
   - SAQs shall assess understanding, application, and analysis, rather than simple recall.
10. LAQs:
    - All LAQs shall be drawn exclusively from the Must to Know part of the syllabus.
    - No questions shall be taken from the Desirable to Know or Nice to Know part of the syllabus.
    - Number of LAQs should not exceed one per topic unless maximum marks exceed 20 for the topic.
11. Long Answer Questions shall be structured to assess higher cognitive abilities, such as application, analysis, and synthesis.
12. Follow the guidelines in User Manual III for framing MCQs, SAQs, and LAQs.

Demo Blueprint for Illustration. Blue printing should be done based on Instructions for Question paper setting and using 6 F table.

Paper No:1		
Question No	**Type of Question**	**Question Paper Format**
Q1	**Multiple choice Questions** **20 Questions** **1 mark each** **All compulsory**	1. Types of Research / Evidence Based Medicine and Integrative Medicine / Introduction to Research 2. Research Ethics / Research Designs 3. Research Process 4. Various database and Portals 5. Various Guidelines to report research 6. Intellectual Property Right (IPR) /Patent/Copyright 7. Intellectual Property Right (IPR) /Patent/Copyright 8. Research Critique 9. Intellectual Property Right (IPR) /Patent/Copyright 10. Introduction to Medical Statistics 11. Basic Statistical terms 12. Data 13. Data 14. Introduction to Medical Statistics 15. Research Ethics / Research Designs 16. Research Process 17. Correlation and regression / Parametric and non-parametric tests 18. Correlation and regression / Parametric and non-parametric tests 19. Commonly used statistical software 20. Introduction to Research
Q2	**Short answer Questions** **8 Questions** **5 Marks Each** **All compulsory**	1. Evidence Based Medicine and Integrative Medicine / Introduction to Research 2. Types of Research 3. Research Designs 4. Research Critique / Intellectual Property Right (IPR) /Patent/Copyright 5. Research Process 6. Measures of Central Tendency / Collection and Presentation of Data 7. Measures of Deviation / Dispersion / Variability / Measures of Central Tendency 8. Correlation and regression / Parametric and non-parametric tests
Q3		1. Research Designs / Introduction to Research 2. Research Ethics / Research Designs

	Long answer Questions **4 Questions** **10 marks each** **All compulsory**	3. Research Process 4. Hypothesis, Test of Significance and Sampling / Probability / Collection and Presentation of Data

6 H : Distribution of Practical Exam

S.No	Heads	Marks
1	Viva	30
2	Internal Assessment	20
Total Marks		**50**

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Abbreviations

Domain		T L Method		Level		Assessment		Integration	
CK	Cognitive/Knowledge	L	Lecture	K	Know	T-CS	Theory case study	V-SATV	V-SATV
CC	Cognitive/Comprehension	L&PPT	Lecture with PowerPoint presentation	KH	Knows how	T-OBT	Theory open book test	V-UK	V-UK
CAP	Cognitive/Application	L&GD	Lecture & Group Discussion	SH	Shows how	P-VIVA	Practical Viva	V-UT	V-UT
CAN	Cognitive/Analysis	L_VC	Lecture with Video clips	D	Does	P-REC	Practical Recitation	V-UV	V-UV
CS	Cognitive/Synthesis	REC	Recitation			P-EXAM	Practical exam	V-NU	V-NU
CE	Cognitive/Evaluation	SY	Symposium			PRN	Presentation	V-MT	V-MT
PSY-SET	Psychomotor/Set	TUT	Tutorial			P-PRF	Practical Performance	V-GMM	V-GMM
PSY-GUD	Psychomotor/Guided response	DIS	Discussions			P-SUR	Practical Survey	V-GMK	V-GMK
PSY-MEC	Psychomotor/Mechanism	BS	Brainstorming			P-EN	Practical enact	V-SSM-NM	V-SSM-NM
PSY-ADT	Psychomotor Adaptation	IBL	Inquiry-Based Learning			P-RP	Practical Role play	V-NN1	V-NN1
PSY-ORG	Psychomotor/Origination	PBL	Problem-Based Learning			P-MOD	Practical Model	V-NN2	V-NN2
AFT-REC	Affective/ Receiving	CBL	Case-Based Learning			P-POS	Practical Poster	V-NAVO	V-NAVO
AFT-RES	Affective/Responding	PrBL	Project-Based Learning			P-CASE	Practical Case taking	H-MM	H-MM
AFT-VAL	Affective/Valuing	TBL	Team-Based Learning			P-ID	Practical identification	H-VPS	H-VPS
AFT-SET	Affective/Organization	TPW	Team Project Work			P-PS	Practical Problem solving	H-AM	H-AM
AFT-CHR	Affective/ characterization	FC	Flipped Classroom			QZ	Quiz	H-SMM	H-SMM
PSY-PER	Psychomotor/perception	BL	Blended Learning			PUZ	Puzzles	H-KM	H-KM
PSY-COR	Psychomotor/ Complex Overt Response	EDU	Edutainment			CL-PR	Class Presentation	H-RM	H-RM
		ML	Mobile Learning			DEB	Debate		
		ECE	Early Clinical Exposure			WP	Word puzzle		
		SIM	Simulation			O-QZ	Online quiz		
		RP	Role Plays			O-GAME	Online game-based assessment		
		SDL	Self-directed learning			M-MOD	Making of Model		
		PSM	Problem-Solving Method			M-CHT	Making of Charts		

		KL	Kinaesthetic Learning			M-POS	Making of Posters		
		W	Workshops			C-INT	Conducting interview		
		GBL	Game-Based Learning			INT	Interactions		
		LS	Library Session			CR-RED	Critical reading papers		
		PL	Peer Learning			CR-W	Creativity Writing		
		RLE	Real-Life Experience			C-VC	Clinical video cases		
		PER	Presentations			SP	Simulated patients		
		D-M	Demonstration on Model			PM	Patient management problems		
		PT	Practical			CHK	Checklists		
		X-Ray	X-ray Identification			Mini-CEX	Mini-CEX		
		CD	Case Diagnosis			DOPS	DOPS		
		LRI	Lab Report Interpretation			CWS	CWS		
		DA	Drug Analysis			RS	Rating scales		
		D	Demonstration			RK	Record keeping		
		D-BED	Demonstration Bedside			COM	Compilations		
		DL	Demonstration Lab			Portfolios	Portfolios		
		DG	Demonstration Garden			Log book	Log book		
		FV	Field Visit			TR	Trainers report		
						SA	Self-assessment		
						PA	Peer assessment		
						360D	360-degree evaluation		
						PP-Practical	Practical		
						VV-Viva	Viva		
						DOAP	Demonstration Observation Assistance Performance		
						SBA	Scenario Based Assessment		
						CBA	Case based Assessment		
						S-LAQ	Structured LAQ		
						OSCE	Objective Structured Clinical Examination		
						OSPE	Objective Structured Practical Examination		

						DOPS	Direct observation of procedural skills		