COURSE CURRICULUM FOR THIRD PROFESSIONAL B.U.M.S.

(PRESCRIBED BY NCISM)

RESEARCH METHODOLOGY AND MEDICAL STATISTICS

(SUBJECT CODE : UNIUG-RMS)

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

।। आयुषे सर्वलोकानाम् ।।

BOARD OF UNANI, SIDDHA AND SOWA-RIGPA

NATIONAL COMMISSION FOR INDIAN SYSTEM OF MEDICINE

NEW DELHI-110026

NCISM

III Professional Kamil-e-Tib-o-Jarahat

(Bachelor of Unani Medicine and Surgery(B.U.M.S.))

Subject Code : UNIUG-RMS

Research Methodology and Medical statistics

Summary

Total number of Teaching hours: 140			
Lecture (LH) - Theory			
Paper I	50	50	50(LH)
Non-Lecture (NLHT)		90	
Paper I	90		90(NLH)
Non-Lecture (NLHP)			
Paper I	0	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 BUMS 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 syllabus24uni@ncismindia.org

Preface

In the III Professional year BUMS, research is an important part of learning as it helps students think critically and scientifically. It allows them to study Unani medicine in a structured way, evaluate classical concepts, and connect traditional knowledge with modern science. Understanding research at this stage helps students improve clinical skills, support evidence-based medicine, and contribute to the growth of Unani through proper documentation and innovation. This prepares them for academic success and practical application in healthcare.

This syllabus includes new topics like Evidence-Based Medicine, Research Ethics, Intellectual Property Rights (IPR), Statistical Software, and Research Reporting Guidelines. It also covers different types of research, data analysis, hypothesis testing, and systematic reviews. The Teaching-Learning (TL) methods include lectures, practical sessions, case-based discussions, and training in research databases and statistical tools. These methods ensure that students not only learn theories but also gain hands-on experience in research. By following international research standards (PRISMA, CARE, CONSORT) and national guidelines (CDSCO, AYUSH-GCP, ICMR), students will develop the skills to conduct high-quality research in Unani medicine.

This research training, students will be able to use scientific methods in their practice, contribute to Unani medicine development, and work on new treatments and policies. Learning research in the III Professional year will help them stay updated, think innovatively, and ensure that Unani medicine grows and adapts to modern healthcare needs

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Course Code and Name of Course

Course code	Name of Course
UNIUG-RMS	Research Methodology and Medical-statistics

Table 1 : Course learning outcomes and mapped PO

SR1 CO No	A1 Course learning Outcomes (CO) UNIUG-RMS At the end of the course UNIUG-RMS, the students should be able to	B1 Course learning Outcomes mapped with program learning outcomes.
CO1	Explain and utilize research methods and statistical concepts	PO6,PO8
CO2	Distinguish, analyze and apply basic steps in research types, recognize their application in Unani Medicine	PO6,PO8
CO3	Explore and utilize various Database and Guidelines	PO6,PO8
CO4	Distinguish, analyze and apply basic Statistical Tests, Recognize their application in Unani Medicine	PO4,PO6,PO8
CO5	Apply Ethical Concepts in conducting Quality Research	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** **NonLecture hours Theory**	**F2** **NonLecture hours Practica l**
1	**1 Introduction to Research** The topic 'Introduction to Research' provides a comprehensive foundation in research, focusing on integrating Unani principles with contemporary scientific methodologies. It will includes 1.1 Research 1.2 Objectives of Research 1.3 Scope of Research 1.4 Historical development of Contemporary research 1.5 Evidence of research in Classical Literature	1	12	3	5	0
2	**2 Evidence Based Medicine and Integrative Medicine** The topic will help the student to understand the importance of evidence-based medicine, its levels, and the research process. Along with it student will be able to eaborate the current status of Unani medicine research;	1		2	2	0

	Will be able to identify the current status of Integrative Medicine Research 2.1 Evidence Based Medicine 2.2 Integrative Medicine					
3	**3 Types of Research** The topic 'Types of Research'' offers a comprehensive understanding of various research types relevant to Unani. It introduces learners to understand the difference between Basic, Applied and Translational Research. the key features of both qualitative, quantitative and Mixed Research methodologies. It also provide a basic overview of the understanding of Observational and Interventional research. A detailed exploration of descriptive and Analytical study designs. This balanced approach to qualitative and quantitative research ensures a thorough understanding of different study frameworks, allowing for a more nuanced and evidencebased exploration of Unani. 3.1 Basic, Applied and Translational Research 3.2 Qualitative, Quantitative and Mixed Research 3.3 Observational and Interventional Research 3.4 Descriptive and Analytical Research	1		2	4	0
4	**4 Research Designs**	1	22	8	10	0

	The topic 'Research Designs' focuses on the key areas of research designs that helps in providing the accuracy and innovation in Unani. It begins with an in-depth information of different types of Research design. Basic understanding Case Report, Case Series. An exploration to Cross-sectional, COHORT, Case Control Studies. Followed by Randomized Controlled Trial, Pre-clinical Studies and Meta-analysis and Systemic Reviews. and their application in Unani studies. Finally, it introduces learners to emerging and innovative study designs, equipping researchers with modern tools to advance evidence-based Unani while maintaining rigorous scientific standards. 4.1 Case Reports 4.2 Case series 4.3 Cross sectional study 4.4 COHORT study 4.5 Case Control study 4.6 Randomized Controlled Trial 4.7 Preclinical Design- In Situ, In Silico, In Vivo, In Vitro 4.8 Meta-analysis and Systemic Reviews					
5	**5 Research Ethics**	1		2	4	0

	The topic 'Research Ethics' will enable the student to understand essential ethical principles and guidelines crucial for conducting research in Unani. It provides insights into the constitution and functioning of Institutional Ethics Committees for both human (IEC) and animal studies (IAEC), ensuring adherence to ethical standards. The topic also highlights the Regulatory Bodies (CDSCO, AYUSH-GCP, ICMR, CCSEA, ICH), National Pharmacovigilance Program for Unani, focusing on adverse drug reporting. Additionally, it explores the scope and significance of Publication ethics. 5.1 Importance of Ethics in Research 5.2 Composition of IAEC and IEC 5.3 Research Regulatory Bodies (CDSCO, AYUSH-GCP, ICMR, CCSEA, ICH) 5.4 Publication ethics					
6	**6 Research Process** The topic 'Research Process' highlights the salient features of Research communication. It focuses on key elements of presenting research in Unani. It starts from intially the basic criterion of how to select a topic for Research, followed by its Literature search from	2	26	6	12	0

	various Online and Offline databases in a systemic manner. Frmulating the hypothessis , framing its aims and objective followed by proper conduction of Research. How to avoid error, bias and Confounding. And how to analyse and interpret the findings for future use. Drawing Conclusion and reporting of Research Learners will also explore the types and formats of writing Research articles and gain insights into conducting systematic reviews and meta-analyses, essential for synthesizing evidence in the field 6.1 Process for Selection of topic 6.2 Literature Search in Medical Database 6.3 Systematic Literature Review 6.4 The process of Formulation of Hypothesis 6.5 Aims and Objectives of Research 6.6 Procedure to conduct of Research (Materials and Methodology) 6.7 Error, bias and Confounding 6.8 Analysis and Interpretation of Results. 6.9 Research conclusions 6.10 Steps of Reporting of Research (Scientific Writing)					
7	**7 Various Database and portals** The topic 'Various Database and portals' will focus on various Online portals whch are commonly used in	2		2	2	0

	Research like DHARA, AYUSH Research portal, UGC-CARE, PubMed, SCOUS, NAMASTE, A-HIMS etc. It introduces learners to emerging and innovative study designs, equipping researchers with modern tools to advance evidence-based Unani while maintaining rigorous scientific standard 7.1 DHARA, AYUSH Research Portal, UGC-CARE, PubMed, SCOPUS 7.2 NAMASTE, A-HIMS					
8	**8 Various Guidelines to report research** The topic 'Various Guidelines to report research' focusses on the guidelines globally for reporting the Research like CARE, PRISMA, ARRIVE, CONSORT, STROBE etc. Additionally, it addresses the use of appropriate assessment tools and terminology, ensuring researchers are equipped to conduct rigorous investigations in Unani. 8.1 Guidelines to report research like CARE, PRISMA, ARRIVE, CONSORT, STROBE	2		1	3	0
9	**9 Intellectual Property Right (IPR)/Patent/TKDL** The topic 'Intellectual Property Right (IPR)/Patent/TKDL' explores the scope and significance of Intellectual Property Rights (IPR)/ TKDL and patents, ensuring researchers understand their role in safeguarding innovations in the field of Unani. 9.1 Intellectual Property Right (IPR)/Patent/TKDL 9.2 Importance of IPR	2		1	1	0

10	**10 Research Critique** The topic 'Research Critique' will efocus on the folllowing, enabling researchers to systematically investigate Unani concepts and clinical practices. 10.1 Concept of Research Critique 10.2 Research Critique 10.3 Process of critical evaluation of Research article 10.4 Bibliometrics (Impact factor, i-10 index, h-index, cite score) 10.5 Different types of Reference formats) 10.6 Predatory and Quality Journals.	2		3	7	0
11	**11 Introduction to Medical Statistics** The topic 'Introduction to Medical Statistics' provides an introduction to the fundamentals of statistics and its significance in the biomedical field. It emphasizes the importance of understanding statistics for interpreting research findings. It also addresses the correct and incorrect applications of statistics, highlighting the potential for misuse and how to avoid it. This knowledge is crucial for anyone involved in medical research or data-driven decision-making in healthcare. Including the basic fundamentals of Statistics and its applications to the biomedical field (Biostatistics), Its Objective and Relevance in Unani Medicine	2	10	1	1	0

	11.1 Statistics 11.2 Objectives and Scope 11.3 Relevance of statistics in Unani Medicine					
12	**12 Data** The topic 'Data' includes the basic understanding of following 12.1 Concept of Data in Medical Statistics 12.2 Sources of Data 12.3. Types of Data [Quantitative, Qualitative (categorical), Discrete, Continuous, Discontinuous, Open end]. 12.4 Types of Scales: Ordinal, Nominal, Interval, Ratio	3		1	2	0
13	**13 Basic Statistical terms** The topic 'Basic Statistical Terms' imphasize on the basic understanding of the commonly used terms in the foeld of Statistics. Like 13.1 Population 13.2 Sample 13.3 Variable (Dependent and Independent) 13.4 Attribute	3		1	2	0
14	**14 Collection and Presentation of Data**	3		2	4	0

	The topic 'Collection and Presentation of Sata' will provide an understanding of how data is collected, classified, and analyzed, offering essential tools for interpreting research findings. By exploring various statistical methods, this module equips learners with the skills to describe and summarize data accurately, ensuring meaningful insights are drawn from research. 14.1. Types of Data Collection [Primary, Secondary, Observation, Survey, Focus Group, Interview] 14.2. Types of Presentation of data i. Textual ii. Tabular iii. Graphical					
15	**15 Measures of Central Tendency** The topic 'Measures of Central Tendency' will discuss important concept of statistic, it includes 15.1. Qualities of Good measure of central tendency 15.2. Arithmetic Mean 15.3. Median 15.4. Mode	3	10	2	4	0
16	**16 Measures of Deviation / Dispersion / Variability** The topic 'Measures of Deviation/ Dispersion/ Variance discusses the following 16.1 Qualities of Good measure of variability 16.2 Range 16.3 Quartile Deviation	3		3	6	0

	16.4 Mean Deviation 16.5 Standard deviation 16.6 Variance and its co-efficient 16.7 Standard Error					
17	**17 Probability** The topic 'Probability' introduces the concept of probability, covering its definitions. It explores key probability distributions, including normal distributions, along with their properties and applications.Inbrief it will cover 17.1 Concept of Probability 17.2 Normal Probability Curve 17.3 Asymmetric Distribution	3	20	2	4	0
18	**18 Hypothesis, Test of Significance and Sampling** The topic 'Hypothesis, Test of Significance and Sample Size' covers the essential concepts of hypothesis testing, including the formulation of null and alternate hypotheses, and the understanding of Type I and Type II errors. It delves into the level of significance. It provides a basic understanding of 18.1 Hypothesis 18.2 Test of Significance 18.3 Sampling and its Types 18.4 Sample Size	3		3	5	0
19	**19 Parametric and Non-parametric tests** .The topic 'Parametric and Non-parametric tests' introduces the basic difference of Parametric and Non-parametric tests, and an outline of differents tests under the same like parametric tests such as the Z test,	3		2	4	0

	Student's t-test and Analysis of Variance (ANOVA), Non-parametric tests, such as the Chi-square test, Wilcoxon test, Mann-Whitney U test, etc.					
20	**20 Correlation and Regression** The topic 'Correlation and Regression' introduces the concepts of correlation and regression analysis, focusing on their properties, computation, and applications.	3		2	4	0
21	**21 Commonly used Statistical Software** The topic 'Commonly Used Statistical Software will introduces different software for statistical analysis like SPSS, g-paid, etc.	3		1	4	0
	Total		**100**	**50**	**90**	**0**
Grand Total			**100**	**50**	**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 hours)										
A3	**B3**	**C3**	**D3**	**E3**	**F3**	**G3**	**H3**	**I3**	**J3**	**K3**
CO1	Define Research	CK	MK	K	L, L&PPT	T-OBT, VV-Viva	F&S	1	V-ISM,V-TST	LH
CO1	**Explain Objectives of Research**	CK	MK	K	L, L&GD, L&PPT	PRN, T-OBT, INT, QZ , P-EXAM	F&S	1	-	LH
CO1	Describe Scope of Research	CK	MK	K	BS, L&GD, L&PPT , PER	T-OBT, INT, PRN, CL-PR, RK	F&S	1	-	LH
CO1	Discuss historical development of Contemporary research.	CAN	DK	K	TBL, PER, BS, DIS, L&GD	Log book, P-VIVA, RK, QZ , M-CHT	F&S	1	-	NLHT1.1
CO1	Explain evidence of research in Classical Literature	PSY-GUD	MK	K	BS, TPW,	Log book, PRN, P-RP,	F&S	1	-	NLHT1.2

					DIS, PrBL, LS	M-POS, P-SUR				

Non Lecture Hour Theory		
S.No	**Name**	**Description of Theory Activity**
NLHT1.1	Historical developments in research.	**Small group discussions/ Role play** Students (5-10) will be divided into groups (5-10). They will be given task to collect evidences on milestones of researches conducted like Nazi camp, Thalidomide story, Tuskegee syphilis story and also collect evidences of research process in Unani classical texts. Later each group is given 10 minutes to present the collected literature and how the different issues were addressed in research methodology. **Time duration :** 2 Hours
NLHT1.2	Identifying evidence of research concepts in Unani medicine systems with example	**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

Non Lecture Hour Practical										
S.No	**Name**				**Description of Practical Activity**					
Topic 2 Evidence Based Medicine and Integrative Medicine (LH : 2, NLHT: 2, NLHP: 0 hours)										
A3	**B3**	**C3**	**D3**	**E3**	**F3**	**G3**	**H3**	**I3**	**J3**	**K3**
CO1	Explain Evidence Based Medicine	CC	MK	K	BS, DIS, PER, L&GD, L&PPT	QZ , T-OBT, PUZ, Log book, RK	F&S	1	-	LH
CO1	Describe Integrative Medicine	CK	MK	KH	L&PPT , DIS, L&GD, BS	PUZ, QZ , Log book, PRN, RK	F&S	1	-	LH
CO1	Explain Evidence Based Medicine	PSY-GUD	MK	KH	DIS, BS, TBL, PER, TPW	Log book, RK, P-PS, P-PRF, DEB	F&S	1	-	NLHT2.1

Non Lecture Hour Theory		
S.No	**Name**	**Description of Theory Activity**
NLHT2.1	Evidence Based Medicine	**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 Unani system of Medicine. 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 **Time duration** : 2 Hours
Non Lecture Hour Practical		
S.No	**Name**	**Description of Practical Activity**

Topic 3 Types of Research (LH : 2, NLHT: 4, NLHP: 0 hours)

A3	B3	C3	D3	E3	F3	G3	H3	I3	J3	K3
CO1, CO3	Explain and differentiate between Basic, Applied and Translational Research	CK	MK	K	L&PPT , L&GD	PUZ, Log book, T-OBT, CL-PR, RK	F&S	1	-	LH
CO1, CO3	Define and Differeniate between Qualitative, Quantitative and Mixed Research	CAN	MK	KH	L&PPT , PER, L&GD	C-INT, QZ , P-VIVA, O-QZ, INT	F&S	1	-	LH
CO1, CO3	Define and differentiate between Observational and Interventional Research	CAN	MK	KH	L&PPT , L&GD	CL-PR, PRN, INT, P-VIVA, C-INT	F&S	1	-	LH
CO1, CO3	Describe and differentiate between Descriptive and Analytical Research	CAN	MK	KH	PrBL, L&GD, TPW, L&PPT , TBL	P-MOD, INT, PRN, C-INT, RK	F&S	1	-	LH

CO1, CO3	Differentiate between Different types of Research	PSY-GUD	MK	SH	SDL, TPW, PSM, PBL, TBL	P-ID, QZ , T-OBT, PUZ	F&S	1	-	NLHT3.1

Non Lecture Hour Theory

S.No	Name	Description of Theory Activity
NLHT3.1	**Research Types** 1. Describe and differentiate between primary, secondary, descriptive and Analytical research studies. 2. Explain and Differentiate between Basic, Applied and Translational Research	**Small group activity** **Purpose :** The students will be able to identify and remember the different types of research with examples **Actvity:** 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 1. Divide students into small groups. 2. Distribute the cards/cases randomly. 3. Ask each group to classify the research study given to them which may be either primary, secondary, descriptive, analytical, basic, applied and translational research. 4. After categorizing, the groups explain their reasoning behind the classification. 5. Then later teacher facilitates a discussion to clarify any misunderstandings and to reinforce key concepts **Time duration** : 4 Hours

Non Lecture Hour Practical										
S.No	Name				Description of Practical Activity					
Topic 4 Research Designs (LH : 8, NLHT: 10, NLHP: 0 hours)										
A3	B3	C3	D3	E3	F3	G3	H3	I3	J3	K3
CO1, CO3	Describe Case Reports	CK	MK	K	BS, L&GD, CBL, TBL, L&PPT	PUZ, QZ , Log book, RK, P-CASE	F&S	1	-	LH
CO1, CO3	Explain Case series	CK	DK	K	TPW, DIS, TBL, L&GD, BS	RK, PUZ, Log book, INT, PRN	F&S	1	-	LH
CO1, CO3	Describe Cross sectional study	CK	MK	K	PrBL, PER, L&PPT , L&GD, DIS	PRN, Log book, CL-PR, QZ , RK	F&S	1	-	LH
CO1, CO3	Explain COHORT study	CK	MK	K	DIS, L&GD, PBL, TBL, L&PPT	QZ , P-ID, M-CHT, CL-PR, T-OBT	F&S	1	-	LH
CO1, CO3	Describe Case Control study	CK	MK	K	TBL, L&GD,	CL-PR, RK, QZ , T-	F&S	1	-	LH

					L, CBL, BS	OBT, M-POS				
CO1, CO3	Describe Randomized Controlled Trial	CK	MK	K	L&PPT , PBL, DIS, L&GD, BS	T-OBT, Log book, INT, PRN, RK	F&S	1	-	LH
CO1, CO3	Describe Preclinical Design- In Situ, In Silico, In Vivo, In Vitro	CK	NK	K	L&PPT , L&GD, DIS, PBL	RK, T-OBT, Log book, QZ , PRN	F&S	1	-	LH
CO1, CO2, CO3	Describe Meta-analysis and Systemic Reviews	CK	NK	K	BS, L&GD, TBL, L, DIS	Log book, T-OBT, RK	F&S	1	-	LH
CO1, CO3	**Describe Preclinical methods in research**.	PSY-GUD	NK	KH	TBL, PSM, RP, PrBL, DIS	P-PRF, INT, P-POS, P-PS, RK	F&S	1	-	NLHT4.1
CO1, CO3	Describe Randomized Controlled Trial	PSY-GUD	MK	KH	PSM, PrBL, IBL, TBL, PBL	Log book, P-ID, RK, PUZ, P-POS	F&S	1	-	NLHT4.2

CO1, CO3	Describe and differentiate between cross sectional, longitudinal, cohort and case control studies	PSY-GUD	MK	KH	PrBL, PBL, TBL, BS, TPW	P-CASE, INT, PUZ, P-MOD, PRN	F&S	1	-	NLHT4.3
CO1, CO3	Describe and differentiate between case report and case series	PSY-GUD	MK	KH	PBL, L&GD, SDL, TBL, TPW	Log book, RK, INT, T-OBT, QZ	F&S	1	-	NLHT4.4

Non Lecture Hour Theory

S.No	Name	Description of Theory Activity
NLHT4.1	**Preclinical methods in research**.	**3-hour field visit to orient on Preclinical methods in research OR Online Videos** 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
NLHT4.2	**Randomized control studies**.	**2-hour group activity on Randomized control studies**. The students will be divided into 3-4 groups and each group will be asked to distribute the handouts of a published RCT to all students.

		They will enquire the other groups to identify the following • Identify the Research Question • Define the Population: • Randomization Strategy: • Intervention and Control Groups: Blinding: • Outcome Measures: • Sample Size and Power: • Ethical Considerations: After **20 minutes** of discussion, each group presents their RCT design to the class (5 minutes per group). **Debrief**: Discuss strengths and weaknesses of the different designs, and facilitate a conversation about randomization, blinding, and potential biases.
NLHT4.3	Cross sectional, longitudinal, cohort and case control studies	**2-hour 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 desigh 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).
NLHT4.4	Various study designs	**Purpose :** Identify and differentiate various study designs and to frame a well structured study design **Symposium** on various research designs by the students.

Non Lecture Hour Practical

S.No	Name	Description of Practical Activity

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

A3	B3	C3	D3	E3	F3	G3	H3	I3	J3	K3
CO5	Explain the Importance of Ethics in Research	CAP	MK	K	L&GD, BS, L, TBL, L&PPT	Log book, RK, T-OBT, INT, CL-PR	F&S	1	-	LH

CO5	Enlist the Composition of IAEC and IEC	CK	DK	K	PBL, L&GD, DIS, L&PPT , BS	PUZ, QZ , RK, P-RP, P-POS	F&S	1	-	LH
CO5	Discuss Orientation to Research Regulatory Bodies (CDSCO, AYUSH-GCP, ICMR, CCSEA, ICH)	CAN	DK	K	L&PPT , L&GD, D-M, L, W	P-SUR, T-OBT, CL-PR, P-PRF, RK	F&S	1	-	LH
CO5	Explain Publication ethics	CAP	NK	K	DIS, L, BS, IBL, L&PPT	DEB, T-OBT, RK, Log book	F&S	1	-	LH
CO5	Explain Research Ethics.	PSY-GUD	MK	K	PER, RP, TBL, PSM, TPW	Log book, P-SUR, M-POS, SA, INT	F&S	1	-	NLHT5.1
CO5	Explain roles of Ethics committee	CC	MK	K	PSM, TPW, PER, W	P-PRF, QZ , PRN, P-PS, M-CHT	F&S	1	-	NLHT5.2

Non Lecture Hour Theory

S.No	Name	Description of Theory Activity
NLHT5.1	**Research Ethics**	**Role plays**

		Purpose : To act ethically during research and treat participants with dignity, privacy and autonomy, minimize harm and risk, and consider issues of informed consent and data protection. **Activity :** Allot suitable topic on research ethics to each group and give sufficient time to prepare the role play. 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. **Time duration**- 2 hours
NLHT5.2	Constitution and roles of Ethics commit	**Group activity** **Purpose :** To make the students understand the constitution and roles of Ethics committee 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 . **Time duration**- 2 hours

Non Lecture Hour Practical

S.No	Name	Description of Practical Activity

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

A3	B3	C3	D3	E3	F3	G3	H3	I3	J3	K3
CO3, CO5	Describe the process for Selection of topic.	CK	MK	KH	L&GD	T-OBT, P-VIVA	F&S	2	-	LH

CO2, CO5	Conduct Literature Search in Medical Database.	PSY-SET	MK	KH	L, TPW	T-OBT, P-PRF, P-VIVA	F&S	2	-	LH
CO2, CO5	Explain Systematic Literature Review.	CK	MK	K	L, L_VC	T-OBT, P-VIVA, CL-PR, M-CHT	F&S	2	-	LH
CO2, CO5	Describe the process of Formulation of Hypothesis.	CK	MK	K	L&GD, L_VC	M-CHT, P-VIVA, T-OBT, CL-PR	F&S	2	-	LH
CO 1, CO 2, CO 5	Identify the research topic, research problem and appraise review of literature. Formulate research hypothesis and objectives.	PSY-GUD	DK	SH	L&GD, DIS, BS, PBL, TPW, PER	T-CS, CL-PR, CBA, S-LAQ	S	2	-	NLHT6.1
CO 1, CO 2	Select the appropriate materials and methods for research study.	PSY-GUD	MK	SH	L&GD, DIS, PBL, TBL, FC	T-CS, QZ , CL-PR, PA, S-LAQ	S	2	-	NLHT6.2

Non Lecture Hour Theory

S.No	Name	Description of Theory Activity
NLHT6.1	**Research process: Research question and Hypothesis**	**Research topic, problem and hypothesis formulation (3-hour activity)** 1. Divide the students into four-five small groups. 2. Each group will brainstorm possible research topics in a medical field of their choice (Vatavyadhi, Madhumeha, Pandu, Bhadirya, srotas etc.)

		3. Guide the students to ensure their chosen topic is relevant, specific, and manageable for undergraduate research. 4. Ask each group to define a research problem based on the topic they selected. 5. Example: If the topic is "prameha", the research problem might be, "What are the present day nidan ahara and vihara in causing prameha in urban areas?" 6. Give each group a sample abstract or a portion of a research paper (this can be a real article or a fictional example) or 7. Alternatively, ask the students to find a research article relevant to their topic using online databases. 8. 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. 9. Guide the students to frame the research question and hypothesis for respective condition chosen by them from the above activity. **Time duration**- 6 hours
NLHT6.2	**Research process: Materials and Methodology**	10. Planning and conducting the research (3-hour activity) 11. Start with a brief discussion of the importance of selecting appropriate materials and methods in research. 12. Materials: Refers to the tools, instruments, or resources required for the study (e.g., surveys, medical equipment, software). 13. Methods: Refers to the overall approach to collecting and analysing data (e.g., qualitative vs. quantitative methods, observational studies, experimental designs). 14. Group Formation: Divide students into groups of 4–6.

		15. Research Topic and materials: Each group selects or is assigned a general research topic (e.g., hypertension in children, antibiotic resistance in hospital settings, mental health in medical students) and Formulating a Research Problem. 16. Depending on their chosen topic and problem ask the groups to decide on the materials they will need 17. Surveys and Questionnaires: Tools for collecting self-reported data. 18. Medical Equipment: Devices like blood pressure cuffs, thermometers, glucose meters. 19. Software: Statistical tools (SPSS, R, Excel) or qualitative analysis software (NVivo). 20. Data Sources: Databases, medical records, or patient registries. 21. Ethical Considerations: Ensure that the materials selected are ethically sound (e.g., consent forms, patient confidentiality). 22. Research design: 23. Ask each group to decide on the data collection methods that best suit their research problem. Guide the groups to choose between quantitative or qualitative methods based on their research problem and objectives. Study Population: Have the groups identify their target population and sampling method. Discuss factors like sample size, inclusion/exclusion criteria, and sampling bias. Data Analysis Approach: Ask the groups to select the statistical or qualitative analysis techniques they will use to interpret their data.

					Time duration- 6 hours					
Non Lecture Hour Practical										
S.No	**Name**				**Description of Practical Activity**					
Topic 7 Various Database and portals (LH : 2, NLHT: 2, NLHP: 0 hours)										
A3	**B3**	**C3**	**D3**	**E3**	**F3**	**G3**	**H3**	**I3**	**J3**	**K3**
CO4	Demonstrate the use of DHARA, AYUSH Research Portal, UGC-CARE, PubMed, SCOPUS.	PSY-SET	MK	SH	TBL, L&GD, TPW	P-VIVA, T-OBT, P-PRF	F&S	2	-	LH
CO4	Illustrate the use of NAMASTE, A-HIMS.	PSY-SET	MK	SH	TPW, TBL, L&GD	T-OBT, P-PRF, P-VIVA	F&S	2	-	LH
CO 3	Demonstrate use of Research portals, database (DHARA, AYUSH Research Portal, PubMed, SCOPUS, UGC-CARE, Web of Science, etc) and Artificial intelligence in Unani	PSY-GUD	DK	KH	L&GD, BS, TBL, FC, W	QZ , CL-PR, PA, DOAP	S	2	-	NLHT7.1
Non Lecture Hour Theory										
S.No	**Name**				**Description of Theory Activity**					
NLHT7.1	Demonstrate use of Research portals, database and Artificial intelligence in Unani				Demonstration of Databases and Research Portals (2 hours) • PubMed: Introduction to searching for medical literature, using MeSH (Medical Subject Headings) terms, and filters. • Cochrane Library: Discuss systematic reviews, meta-analyses, and evidence-based medicine. • Google Scholar: Overview of how to search academic articles and set up alerts for ongoing research.					

		• ClinicalTrials.gov: Discuss how to access information about ongoing clinical trials and their results. Demonstration of AI for Diagnostics (1 hour) • Show how AI is being used to detect diseases from medical imaging or patient data (e.g., AI-assisted dermatology tools for skin cancer detection). • Chatbots and Virtual Assistants: Introduce AI-powered chatbots (e.g., Babylon Health, Your.MD) that provide preliminary diagnoses or health advice. Divide the students into small groups (3-4 students per group). Assign each group a research topic (e.g., "Antibiotic resistance in hospitals", "AI in diagnosing cancer", "Mental health in medical students"). Prepare a brief presentation (5-10 minutes) on what they found, the usefulness of the resources, and any challenges they encountered. **Time duration**- 2 hours

Non Lecture Hour Practical

S.No	Name	Description of Practical Activity

Topic 8 Various Guidelines to report research (LH : 1, NLHT: 4, NLHP: 0 hours)

A3	B3	C3	D3	E3	F3	G3	H3	I3	J3	K3
CO4	Explain various guidelines to report research like CARE, PRISMA, ARRIVE, CONSORT, STROBE.	CK	NK	K	TBL, TPW, L&GD	P-VIVA, T-OBT, P-PRF	F&S	2	-	LH

CO 3	Recommend specific guidlines for various research studies	PSY-GUD	DK	KH	L_VC, DIS, TBL, FC, BL, LS	PRN, P-ID, QZ , CL-PR, CHK, S-LAQ	S	2	-	NLHT8.1

Non Lecture Hour Theory

S.No	Name	Description of Theory Activity
NLHT8.1	Different Guidelines to report research	Introduce the 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). Divide students into small groups (10-15 students per group). 1. Assign each group a specific research study (either real or hypothetical) and provide them with the corresponding guideline checklist (e.g., CONSORT for clinical trial studies). 2. Ask the groups to review the study using the reporting guideline checklist, identifying elements of the research that are missing or not clearly reported. 3. Groups should note their findings on a whiteboard or in a shared document. 4. 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. 5. Ask students to reflect on the activity and share any insights they gained about the importance of adhering to research reporting guidelines. **Time duration**- 4 hours

Non Lecture Hour Practical										
S.No	**Name**				**Description of Practical Activity**					
Topic 9 Intellectual Property Right (IPR)/Patent/TKDL (LH : 1, NLHT: 0, NLHP: 0 hours)										
A3	**B3**	**C3**	**D3**	**E3**	**F3**	**G3**	**H3**	**I3**	**J3**	**K3**
CO4	Identify and relate Intellectual Property Right (IPR)/Patent/TKDL.	CK	NK	K	TPW, L&GD, PrBL, L	QZ , T-OBT, P-VIVA	F&S	2	-	LH
CO4	Appraise the importance of IPR.	AFT-REC	NK	K	L&GD, TBL	P-VIVA, T-OBT	F&S	2	-	LH
Non Lecture Hour Theory										
S.No	**Name**				**Description of Theory Activity**					
Non Lecture Hour Practical										
S.No	**Name**				**Description of Practical Activity**					
Topic 10 Research Critique (LH : 3, NLHT: 7, NLHP: 0 hours)										
A3	**B3**	**C3**	**D3**	**E3**	**F3**	**G3**	**H3**	**I3**	**J3**	**K3**
CO4	Describe the concept of Research Critique.	CK	MK	K	TPW, L, L&GD, TBL	T-OBT, P-VIVA, DEB, INT	F&S	2	-	LH
CO4	Explain and Define Research Critique.	CK	MK	K	L, TPW, TBL, L&GD	INT, T-OBT, DEB, P-VIVA	F&S	2	-	LH
CO4	Recognize the process of critical evaluation of Research article.	CK	MK	K	L&GD, TBL, TPW, L	P-VIVA, M-CHT, T-OBT	F&S	2	-	LH
CO4	Explain Bibliometrics (Impact factor, i-10 index, h-index, cite score).	CK	MK	K	TBL, L&GD, TPW	P-VIVA, T-OBT, QZ	F&S	2	-	LH

CO4	Differentiate different types of Reference formats).	CK	MK	K	TPW, TBL, L&GD	T-OBT, QZ , P-VIVA	F&S	2	-	LH
CO4	Identify predatory and Quality Journals.	CK	MK	K	TBL, TPW, L&GD	P-VIVA, QZ , T-OBT	F&S	2	-	LH
CO 5	Illustrate Research critiquing and identify various steps involved in critiquing	PSY-GUD	DK	KH	L&GD, CBL, TBL, FC, BL	PRN, QZ , CL-PR	S	2	-	NLHT10.1

Non Lecture Hour Theory

S.No	Name	Description of Theory Activity
NLHT10.1	Research Critiquing	Select 3-4 research papers related to the topic at hand. 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). If the group is large, you can have multiple sets of critique sheets and rotate the groups.

		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. They should review the critique sheet filled out by the previous group, read the paper again (or parts of it), and add any additional comments, thoughts, or suggestions. 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**- 7 hours

Non Lecture Hour Practical

S.No	Name	Description of Practical Activity

Topic 11 Introduction to Medical Statistics (LH : 1, NLHT: 1, NLHP: 0 hours)

A3	B3	C3	D3	E3	F3	G3	H3	I3	J3	K3
CO1	Define Statistics.	CK	MK	K	L&PPT	T-OBT, P-VIVA	F&S	2	-	LH
CO1	Explain its Objectives and Scope.	CC	MK	K	BS, DIS	PRN, T-CS, P-VIVA	F&S	2	-	LH
CO1	Discuss its Relevance in Unani Medicine.	CAN	MK	K	TBL, BS, IBL	PA, P-VIVA, DEB	F&S	2	-	LH

CO1	Describe Statistics, its objective and significance.	CC	MK	KH	PER, PT, D-M, D	RK, Log book, DOAP, P-ID, P-PS	F&S	2	-	NLHT11.1

Non Lecture Hour Theory

S.No	Name	Description of Theory Activity
NLHT11.1	**Differentiating descriptive and inferential statistics**	**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. **Duration:** 1 Hour

Non Lecture Hour Practical

S.No	Name	Description of Practical Activity

Topic 12 Data (LH : 1, NLHT: 2, NLHP: 0 hours)

A3	B3	C3	D3	E3	F3	G3	H3	I3	J3	K3
CO1	Define Data.	CK	MK	K	L&PPT	T-OBT, PA, P-VIVA	F&S	3	-	LH

CO1	Describe and classify different types of Data [Quantitative, Qualitative (categorical), Discrete, Continuous, Discontinuous, Open end]Describe and classify different types of Data [Quantitative, Qualitative (categorical), Discrete, Continuous, Discontinuous, Open end].	CK	MK	KH	GBL, SDL, DIS, TBL	P-VIVA, INT, P-PS, QZ , T-OBT	F&S	3	-	LH
CO1	Data types and scales	PSY-GUD	MK	KH	PT, PER, D, D-M	P-ID, P-PS, DOAP, RK, Log book	F&S	3	-	NLHT12.1

Non Lecture Hour Theory

S.No	Name	Description of Theory Activity
NLHT12.1	**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. **Duration:** 2 hours

Non Lecture Hour Practical

S.No	Name	Description of Practical Activity

Topic 13 Basic Statistical terms (LH : 1, NLHT: 2, NLHP: 0 hours)

A3	B3	C3	D3	E3	F3	G3	H3	I3	J3	K3

CO1	Define the difference between Population and Sample	CK	MK	K	L&PPT	PA, PRN, T-OBT, P-VIVA	F&S	3	-	LH
CO1	Differentiate between Variable (Dependent and Independent) and Attribute	CK	MK	KH	PSM, SDL, TBL	CL-PR, P-VIVA, P-PS	F&S	3	-	LH
CO1	Demonstrate Statistical terms.	PSY-GUD	MK	KH	D, D-M, PER, PT	RK, P-PS, DOAP, P-ID, Log book	F&S	3	-	NLHT13.1

Non Lecture Hour Theory

S.No	Name	Description of Theory Activity
NLHT13.1	**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. **Duration:** 2 hours

Non Lecture Hour Practical

S.No	Name	Description of Practical Activity

Topic 14 Collection and Presentation of Data (LH : 2, NLHT: 4, NLHP: 0 hours)

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	BS, IBL, L&PPT , D, DIS	CL-PR, INT, P-PS, P-VIVA, T-OBT	F&S	3	-	LH
CO1	Demonstrate Data collection	PSY-GUD	MK	SH	DIS, TBL, PSM, PER, L&PPT	CL-PR, P-VIVA, M-POS, P-PS	F&S	3	-	NLHT14.1
CO1	Demonstrate different types of Presentation of data (Textual, Tabular and Graphical).	PSY-GUD	MK	SH	L&PPT , PSM, DIS, PER, TBL	P-VIVA, M-POS, CL-PR, P-PS	F&S	3	-	NLHT14.2

Non Lecture Hour Theory

S.No	Name	Description of Theory Activity
NLHT14.1	**Data collection**	**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. **Duration:** 2 hours
NLHT14.2	**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. **Duration:** 2 hours

Non Lecture Hour Practical

S.No	Name	Description of Practical Activity

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

A3	B3	C3	D3	E3	F3	G3	H3	I3	J3	K3
CO1	Define Measures of Central Tendency.	CK	MK	K	L	P-VIVA, PA, PRN, T-OBT	F&S	3	-	LH
CO1	Explain the Qualities of Good measure of tendency.	CK	MK	KH	FC, PSM, DIS	P-VIVA, P-PS, PRN	F&S	3	-	LH

CO1	Calculate Arithmetic Mean.	PSY-MEC	MK	SH	IBL, L, TBL	P-VIVA, T-OBT, SA	F&S	3	-	LH
CO1	Calculate Median.	PSY-MEC	MK	SH	PSM, TBL, L	CL-PR, P-VIVA	F&S	3	-	LH
CO1	Calculate Mode.	PSY-MEC	MK	SH	TBL, DIS	P-VIVA, P-PS	F&S	3	-	LH
CO1	Calculate measures of central tendency.	PSY-GUD	MK	KH	PT, D, PER, D-M	P-PS, P-ID, Log book, DOAP, RK	F&S	3	-	NLHT15.1

Non Lecture Hour Theory

S.No	Name	Description of Theory Activity
NLHT15.1	**Calculating 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:** The teacher discusses the importance and applicability of various measures of central tendency and describes a good measure of central tendency. **Duration:** 4 hours

Non Lecture Hour Practical

S.No	Name	Description of Practical Activity

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

A3	**B3**	**C3**	**D3**	**E3**	**F3**	**G3**	**H3**	**I3**	**J3**	**K3**

CO1	Define Measures of Deviation/ Dispersion / Variability .	CK	MK	K	PER, DIS, L	PRN, T-OBT, P-VIVA	F&S	3	-	LH
CO1	Explain the Qualities of Good measure of variability.	PSY-MEC	MK	SH	BS, DIS, L&PPT	PRN, T-OBT, P-VIVA	F&S	3	-	LH
CO1	Measure Range.	CE	MK	SH	TBL	P-VIVA, T-OBT, CL-PR	F&S	3	-	LH
CO1	Calculate Quartile Deviation.	PSY-MEC	MK	SH	L&GD, TBL	PRN, P-VIVA, P-PS	F&S	3	-	LH
CO1	Calculate Mean Deviation.	PSY-MEC	MK	SH	L&GD, DIS, L	T-OBT, P-VIVA, P-PS	F&S	3	-	LH
CO1	Calculate Standard Deviation.	PSY-MEC	MK	SH	TBL, DIS, L	P-VIVA, P-PS	F&S	3	-	LH
CO1	Calculate Variance and its coefficient.	PSY-MEC	MK	SH	TBL, DIS	O-QZ, CL-PR	F&S	3	-	LH
CO1	Calculate Standard Error.	PSY-MEC	MK	SH	PSM, TBL, DIS	T-OBT, CL-PR, P-VIVA	F&S	3	-	LH
CO1	Calculate measures of central tendency - 01	PSY-GUD	MK	KH	D, PT, PER, D-M	DOAP, RK, P-PS, P-ID, Log book	F&S	3	-	NLHT16.1
CO1	Calculate measures of central tendency - 02	PSY-GUD	MK	KH	D-M, D, PT, PER	Log book, P-PS, DOAP, P-ID, RK	F&S	3	-	NLHT16.2

Non Lecture Hour Theory		
S.No	**Name**	**Description of Theory Activity**
NLHT16.1	**Calculating measures of central tendency - 01**	**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. **Duration:** 3 hours
NLHT16.2	**Calculating measures of central tendency - 02**	**Demonstration by teacher:** Using the same data sets from activity 16.1 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 of variation and their applicability. Further, the teacher elaborates on good measures of dispersion. **Duration:** 3 hours
Non Lecture Hour Practical		
S.No	**Name**	**Description of Practical Activity**

Topic 17 Probability (LH : 2, NLHT: 4, NLHP: 0 hours)										
A3	**B3**	**C3**	**D3**	**E3**	**F3**	**G3**	**H3**	**I3**	**J3**	**K3**
CO1	Explain Probability.	CK	NK	K	DIS, L&PPT	CL-PR, T-OBT, P-VIVA, RK	F&S	3	-	LH
CO1	Define Normal Distribution Curve.	AFT-REC	NK	SH	D, L&PPT , DIS	M-POS, RK, PRN, P-VIVA	F&S	3	-	LH
CO1	Explain Asymmetric Distribution.	CK	DK	SH	PER	PRN, P-VIVA, RK	F&S	3	-	LH
CO1	Demonstrate Normal distribution and probability.	PSY-GUD	MK	KH	PT, D, PER, D-M	P-PS, Log book, RK, P-ID, DOAP	F&S	3	-	NLHT17.1

Non Lecture Hour Theory

S.No	**Name**	**Description of Theory Activity**
NLHT17.1	**Normal distribution and probability**	**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. **Conclusion and summarization:** The teacher discusses the findings and clarifies doubts. **Duration:** 4 hour

Non Lecture Hour Practical

S.No	**Name**	**Description of Practical Activity**

Topic 18 **Hypothesis, Test of Significance and Sampling** (LH : 3, NLHT: 5, NLHP: 0 hours)										
A3	**B3**	**C3**	**D3**	**E3**	**F3**	**G3**	**H3**	**I3**	**J3**	**K3**
CO1	Explain Hypothesis.	CK	NK	K	TBL, DIS, L&PPT , PSM	INT, CL-PR, QZ , P-VIVA	F&S	3	-	LH
CO1	Describe test of significance.	CK	DK	K	L&PPT , DIS	P-VIVA, T-OBT, RK	F&S	3	-	LH
CO1	Explain Sampling and its types.	CK	NK	K	SDL, PER, DIS	CL-PR, RK, P-VIVA	F&S	3	-	LH
CO1	Define Sample Size.	AFT-REC	NK	K	L&PPT , DIS	P-VIVA, INT, P-PS	F&S	3	-	LH
CO1	Explain Hypothesis	CC	MK	KH	PER, D-M, D, PT	Log book, RK, DOAP, P-PS, P-ID	F&S	3	-	NLHT18.1
CO1	Describe Tests of significance	PSY-GUD	MK	KH	PT, PER, D, D-M	P-ID, Log book, P-PS, DOAP, RK	F&S	3	-	NLHT18.2

Non Lecture Hour Theory

S.No	**Name**	**Description of Theory Activity**
NLHT18.1	**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. **Duration:** 3 hours
NLHT18.2	**Test 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. **Duration:** 3 hours

Non Lecture Hour Practical

S.No	Name	Description of Practical Activity

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

A3	B3	C3	D3	E3	F3	G3	H3	I3	J3	K3
CO1	Explain and differentiate Parametric and Non-parametric tests.	CK	MK	K	DIS, L&GD, L&PPT	PA, QZ , P-PS, P-VIVA, C-INT	F&S	3	-	LH

CO1	Understanding Parametric and Non-parametric tests	PSY-GUD	MK	KH	D-M, PT, PER, D	DOAP, RK, P-ID, P-PS, Log book	F&S	3	-	NLHT19.1
Non Lecture Hour Theory										
S.No	**Name**				**Description of Theory Activity**					
NLHT19.1	**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. **Duration**: 4 hours					
Non Lecture Hour Practical										
S.No	**Name**				**Description of Practical Activity**					
Topic 20 Correlation and Regression (LH : 2, NLHT: 4, NLHP: 0 hours)										
A3	**B3**	**C3**	**D3**	**E3**	**F3**	**G3**	**H3**	**I3**	**J3**	**K3**
CO1	Explain Correlation and Regression.	CK	MK	KH	DIS, PSM, BS, TBL, PL	P-PS, QZ , T-OBT, P-VIVA, PA	F&S	3	-	LH
CO1	Understanding the basics of correlation and regression	PSY-GUD	MK	KH	PER, D-M, D, PT	DOAP, P-PS, Log	F&S	3	-	NLHT20.1

						book, P-ID, RK				
Non Lecture Hour Theory										
S.No	**Name**				**Description of Theory Activity**					
NLHT20.1	**Correlation and Regression**				**Demonstration by teacher:** The teacher demonstrates various features of correlation and regression using data from scientific literature. **Hands-on training:** Students are given three data sets that utilize correlation and regression, and they understand various scenarios for their application. **Conclusion and summarization:** The teacher concludes with major points regarding correlation and regression and their applicability. **Duration:** 4 hours					
Non Lecture Hour Practical										
S.No	**Name**				**Description of Practical Activity**					
Topic 21 Commonly used Statistical Software (LH : 1, NLHT: 4, NLHP: 0 hours)										
A3	**B3**	**C3**	**D3**	**E3**	**F3**	**G3**	**H3**	**I3**	**J3**	**K3**
CO1	Demonstrate different Software used for Statistical Analysis.	CK	MK	SH	DIS, L, GBL, PL, TBL	PP-Practical, PRN, CL-PR	F&S	3	-	LH
CO1	Demonstrate Statistical softwares	PSY-GUD	DK	KH	PT, D-M, PER, D	RK, Log book, P-ID, P-PS, DOAP	F&S	3	-	NLHT21.1
Non Lecture Hour Theory										
S.No	**Name**				**Description of Theory Activity**					

NLHT21.1	**Statistical 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. **Duration:** 4 hours
Non Lecture Hour Practical		
S.No	**Name**	**Description of Practical Activity**

Table 4 : NLHT Activity

(*Refer table 3 of similar activity number)

Sr No	CO No	Topic name
1.1	CO1	Historical developments in research.
1.2	CO1	Identifying evidence of research concepts in Unani medicine systems with example
2.1	CO1	Evidence Based Medicine
3.1	CO1, CO3	**Research Types** 1. Describe and differentiate between primary, secondary, descriptive and Analytical research studies. 2. Explain and Differentiate between Basic, Applied and Translational Research
4.1	CO1, CO3	**Preclinical methods in research**.
4.2	CO1, CO3	Various study designs
4.3	CO1, CO3	**Randomized control studies**.
4.4	CO1, CO3	Cross sectional, longitudinal, cohort and case control studies
5.1	CO5	Constitution and roles of Ethics commit
5.2	CO5	**Research Ethics**
6.1	CO 1,CO 2,CO 5	**Research process: Research question and Hypothesis**
6.2	CO 1,CO 2	**Research process: Materials and Methodology**
7.1	CO 3	**Demonstrate use of Research portals, database and Artificial intelligence in Unani**
8.1	CO 3	**Different Guidelines to report research**
10.1	CO 5	**Research Critiquing**
11.1	CO1	**Differentiating descriptive and inferential statistics**
12.1	CO1	**Data types and scales**
13.1	CO1	**Statistical terms**
14.1	CO1	**Data collection**
14.2	CO1	**Data presentation**
15.1	CO1	**Calculating measures of central tendency.**
16.1	CO1	**Calculating measures of central tendency - 01**

16.2	CO1	**Calculating measures of central tendency - 02**
17.1	CO1	**Normal distribution and probability**
18.1	CO1	**Hypothesis**
18.2	CO1	**Test of significance**
19.1	CO1	**Parametric and Non-parametric tests**
20.1	CO1	**Correlation and Regression**
21.1	CO1	**Statistical 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	
UNIUG-RMS	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 BUMS EXAMINATIONS

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)					
List of Topics	**Term**	**Marks**	**MCQ**	**SAQ**	**LAQ**
1 Introduction to Research	1	12	Yes	Yes	Yes
2 Evidence Based Medicine and Integrative Medicine	1		Yes	Yes	Yes
3 Types of Research	1		Yes	Yes	Yes
4 Research Designs	1	22	Yes	Yes	Yes
5 Research Ethics	1		Yes	Yes	Yes
6 Research Process	2	26	Yes	Yes	Yes
7 Various Database and portals	2		Yes	Yes	Yes
8 Various Guidelines to report research	2		Yes	Yes	Yes
9 Intellectual Property Right (IPR)/Patent/TKDL	2		Yes	Yes	Yes

10 Research Critique	2		Yes	Yes	Yes
11 Introduction to Medical Statistics	2	10	Yes	No	No
12 Data	3		Yes	No	No
13 Basic Statistical terms	3		Yes	Yes	No
14 Collection and Presentation of Data	3		Yes	Yes	No
15 Measures of Central Tendency	3	10	Yes	Yes	Yes
16 Measures of Deviation / Dispersion / Variability	3		Yes	Yes	Yes
17 Probability	3	20	Yes	Yes	Yes
18 Hypothesis, Test of Significance and Sampling	3		Yes	Yes	Yes
19 Parametric and Non-parametric tests	3		Yes	Yes	Yes
20 Correlation and Regression	3		Yes	Yes	No
21 Commonly used Statistical Software	3		Yes	Yes	Yes
Total Marks		**100**			
Grand Total		**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 (Research Methodology and Medical Statistics)		
Question No	**Type of Question**	**Question Paper Format**
Q1	**Multiple choice Questions** 20 Questions 1 mark each All compulsory	1. Introduction to Research 2. Evidence Based Medicine and Integrative Medicine 3. Types of Research 4. Research Designs 5. Research Ethics 6. Various Database and portals 7. Various Guidelines to report research 8. Research Process 9. Intellectual Property Right (IPR)/Patent/TKDL 10. Research Critique 11. Introduction to Medical Statistics 12. Data 13. Collection and Presentation of Data / Basic Statistical terms 14. Measures of Central Tendency 15. Measures of Deviation / Dispersion / Variability 16. Probability 17. Hypothesis, Test of Significance and Sampling 18. Parametric and Non-parametric tests 19. Correlation and Regression 20. Commonly used Statistical Software
Q2	**Short answer Questions** Eight Questions 5 Marks Each All compulsory	1. Types of Research / Evidence Based Medicine and Integrative Medicine / Introduction to Research 2. Research Process / Research Ethics / Research Designs 3. Intellectual Property Right (IPR)/Patent/TKDL / Various Guidelines to report research / Various Database and portals 4. Research Critique

		5. Collection and Presentation of Data / Basic Statistical terms 6. Measures of Deviation / Dispersion / Variability / Measures of Central Tendency 7. Hypothesis, Test of Significance and Sampling / Probability 8. Parametric and Non-parametric tests / Correlation and Regression
Q3	**Long answer Questions** Four Questions 10 marks each All compulsory	1. Types of Research / Evidence Based Medicine and Integrative Medicine / Introduction to Research 2. Research Process / Research Ethics / Research Designs 3. Intellectual Property Right (IPR)/Patent/TKDL / Various Guidelines to report research / Various Database and portals / Research Critique 4. Hypothesis, Test of Significance and Sampling / Probability / Measures of Deviation / Dispersion / Variability / Measures of Central Tendency

6 H : Distribution of Practical Exam

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

References Books/ Resources

S.No	Resources
1	Research Methodology and Biostatistics. A Comprehensive Guide for Health care Professionals. Surendra K. Sharma. Elsevier
2	Research Methodology: Concepts And Cases. Deepak Chawla, Neena Sondhi , Vikas Publishing House
3	Mahajan's Methods in Biostatistics for Medical Students and Research Workers. Bratati Banerjee, Jaypee
4	Research Methodology and Medical Statistics. Sivashankar, Forschung
5	Research Methodology and Biostatistics. M Itrat, Tariq N. Khan, Radhika K., MedTech Science Press
6	Introduction to Biostatistics. S. Chand, S.Chand & Company
7	Fundamentals of Mathematical Statistics. S. C. Gupta and V. K. Kapoor, Sultan Chand & Sons
8	Research Methodology Methods and Techniques. CR Kothari & Gaurav Garg, New Age International Publishers, New Delhi.
9	Methods of Biostatistics. T Bhaskara Rao, Paras Medical Publisher
10	A Short Textbook of Medical Statistics. Austin Bradford Hill, Lippincott
11	Clinical Epidemiology and Biostatistics. Rebecca G. Knapp, Miller and Miller, Harwell Publishing Company
12	Research Methodology & Biostatistics in Pharmacology. Mohd. Aslam &Surender Singh, Pharma Med Press / BSP Books
13	Fundamentals of Applied Statistics. S.C. Gupta, Sultan Chand & Sons
14	Statistical Methods. S.P. Gupta, Sultan Chnad and Sons.
15	Fundamentals of Statistics. S.C. Gupta, Himalaya Publishing House
16	Basic Statistic. B.L. Agarwal , New Age International Private Limited
17	Research Methodology In Education And Application Of Statistics. C. Naseema, Shipra Publication

Abbreviations

Domain		T L Method		Level		Assessment		Integration	
CK	Cognitive/Knowledge	L	Lecture	K	Know	T-CS	Theory case study	V-UAMF	V-UAMF
CC	Cognitive/Comprehension	L&PPT	Lecture with PowerPoint presentation	KH	Knows how	T-OBT	Theory open book test	V-KUT	V-KUT
CAP	Cognitive/Application	L&GD	Lecture & Group Discussion	SH	Shows how	P-VIVA	Practical Viva	V-TB	V-TB
CAN	Cognitive/Analysis	L_VC	Lecture with Video clips	D	Does	P-REC	Practical Recitation	V-MZ	V-MZ
CS	Cognitive/Synthesis	REC	Recitation			P-EXAM	Practical exam	V-TT	V-TT
CE	Cognitive/Evaluation	SY	Symposium			PRN	Presentation	V-IA	V-IA
PSY-SET	Psychomotor/Set	TUT	Tutorial			P-PRF	Practical Performance	V-ISM	V-ISM
PSY-GUD	Psychomotor/Guided response	DIS	Discussions			P-SUR	Practical Survey	V-TST	V-TST
PSY-MEC	Psychomotor/Mechanism	BS	Brainstorming			P-EN	Practical enact	V-MA	V-MA
PSY-ADT	Psychomotor Adaptation	IBL	Inquiry-Based Learning			P-RP	Practical Role play	V-TQS	V-TQS
PSY-ORG	Psychomotor/Origination	PBL	Problem-Based Learning			P-MOD	Practical Model	V-SUI	V-SUI

AFT-REC	Affective/ Receiving	CBL	Case-Based Learning			P-POS	Practical Poster	H-MOA	H-MOA
AFT-RES	Affective/Responding	PrBL	Project-Based Learning			P-CASE	Practical Case taking	H-QAN	H-QAN
AFT-VAL	Affective/Valuing	TBL	Team-Based Learning			P-ID	Practical identification	H-IJ	H-IJ
AFT-SET	Affective/Organization	TPW	Team Project Work			P-PS	Practical Problem solving	H-AUH	H-AUH
AFT-CHR	Affective/ characterization	FC	Flipped Classroom			QZ	Quiz	H-AJT	H-AJT
PSY-PER	Psychomotor/perception	BL	Blended Learning			PUZ	Puzzles	H-IBT	H-IBT
PSY-COR	Psychomotor/ Complex Overt Response	EDU	Edutainment			CL-PR	Class Presentation	H-AAN	H-AAN
		ML	Mobile Learning			DEB	Debate	H-RMS	H-RMS
		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		